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The Mormon Trail
Historic Byway Inventory and Evaluation

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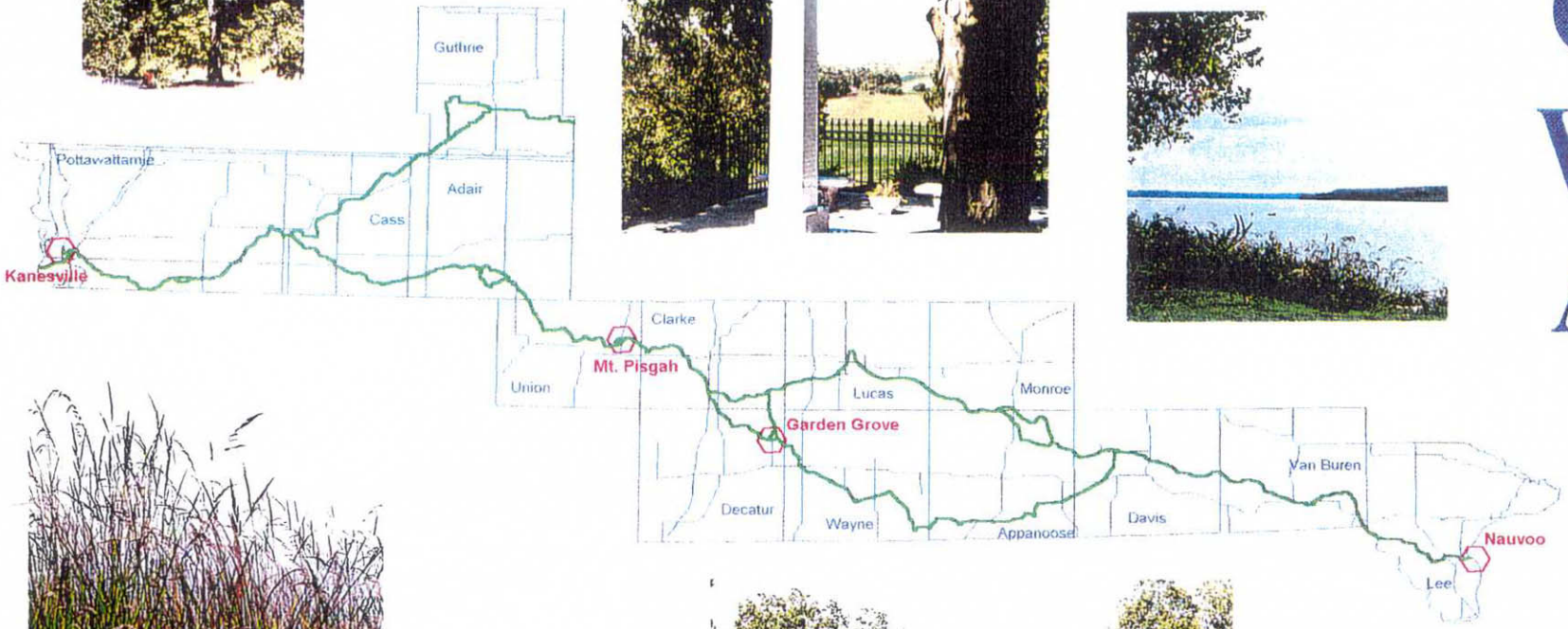

June 1998

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The Mormon Trail
Historic Byway Inventory and Evaluation

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Preface

INTRODUCTION

Legislation passed in1987 paved the way to establish a Scenic Route/Highway/Byway Program in Iowa. Federal assistance to state scenic byway programs of this type was initiated through the Intermodal Surface Transportation Act of 1991 (ISTEA). This legislation established a national program that provided funding to states to start or expand scenic byway programs. Funding was also made available to improve and enhance current scenic byways.

Iowa DOT received an ISTEA grant in 1992 to inventory and evaluate the scenic character of more than 40 routes nominated as potential scenic byway “pilot routes”. Results of the inventory were described in the report entitled “Iowa Scenic Byway Evaluation”. Four “pilot routes” were chosen and signed as Iowa Scenic Byways in 1994.

Iowa DOT received ISTEA funds to inventory and evaluate additional routes in 1994. Twenty-nine additional routes plus the Great River Road were investigated as to their scenic character and scenic quality as part of this project. Two separate reports were prepared. A report titled “Iowa Scenic Byway Evaluation - 1000 Mile Corridor, 1995" discussed the evaluation results for 29 routes throughout the state. The “Iowa Scenic Byway Evaluation - Great River Road, 1995" reported on Iowa segments of the unique Great River Road.

Current Byway Evaluation Project

In 1996 Iowa DOT received ISTEA funds to develop and test a methodology to evaluated historic and cultural byway routes. This methodology was to be applied to three important Iowa corridors: the Iowa segment of the Mormon Trail, the Lincoln Highway and the Amana Colonies. The purpose of the project was to establish a method to evaluate routes having historic or cultural significance for potential designation as historic or cultural byways used to evaluate Iowa’s scenic byways.

MORMON TRAIL

Purpose and Objectives

The purpose of the Mormon Trail portion of the project was to research, field inventory and evaluate those roads that represent the Mormon’s path across Iowa and identify the apparent and intrinsic qualities of these routes. Methods used to accomplish the investigation would emphasize historic, cultural and natural landscape qualities. These methods should also be compatible with the techniques used in the Iowa DOT scenic byway designation process. Figure 1 shows the Mormon Trail across the state and the roads inventoried as part of this project

Two basic objectives were applied to the Mormon Trail portion of the project. One was a general objective to test the methodology along

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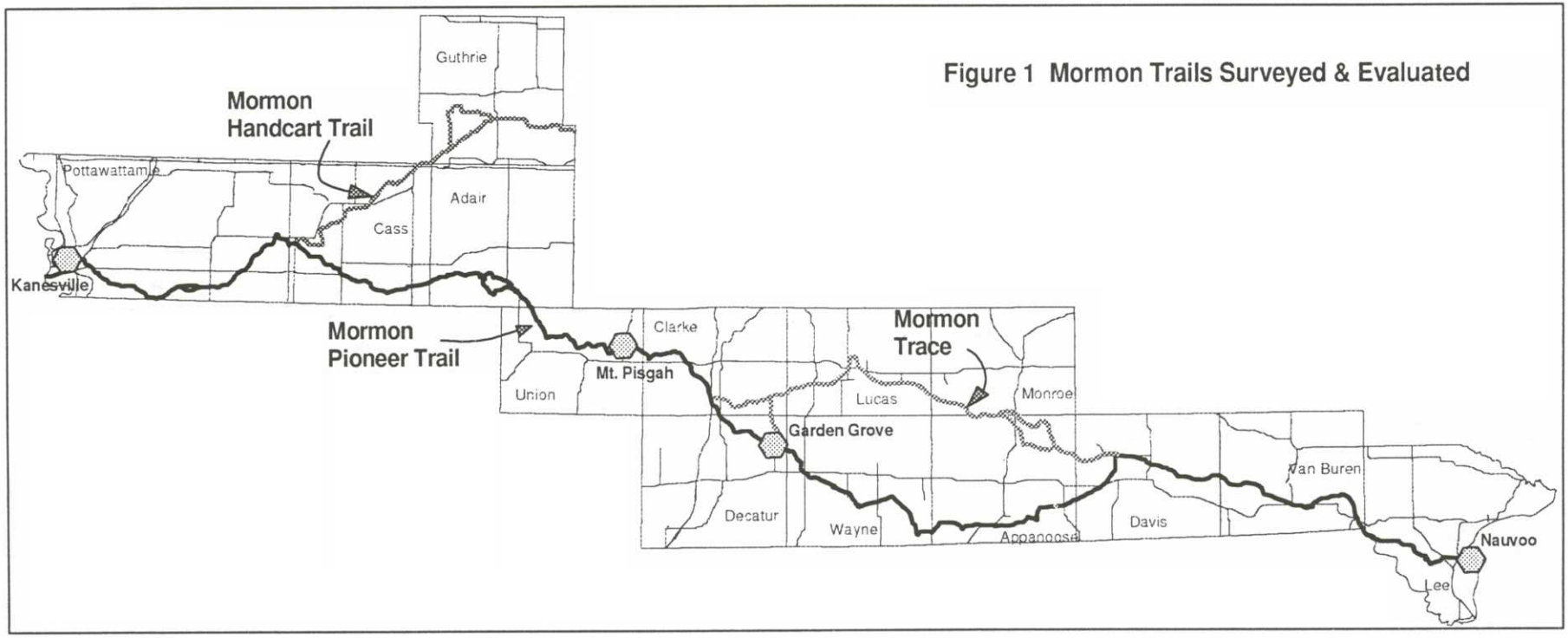
a historic 19th century trail; one used before the area was completely settled and roads were commonly established.

Project objective number two was more specific. Identify roads or road segments offering contemporary travelers the best opportunity to tour Mormon sites and view land uses and landscapes similar to those seen by the Mormon travelers 130 to 150 years ago.

Three additional intentions of the Mormon Trail investigation involved the following: 1) to provide data for the historic corridor management planning effort, 2) to help heritage tourism development and planning, and 3) to identify corridor segments or sites that merit intensive level evaluation for NRHP eligibility.

Project Description

A three-step approach was used to do the study of the Mormon Trail. These steps involved research, field data collection and evaluation of the project corridors.



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Step one involved research on the location of the Trail, associated sites and the historic land use near the Trail between 1846 and 1868. Substantial existing information was found on the Mormon Trail including sources such as the Iowa Mormon Trail Association (IMTA), government Land Office mapping and others.

The next step involved defining roads to be inventoried and the actual field survey. Information collected during the field work included the location of selected features, ratings of these features and a video record of the inventory.

Step three of the project approach involved evaluation of the inventoried corridors. This evaluation procedure was based on the methodology currently used by Iowa DOT to evaluate candidate scenic byway routes but involved different evaluation factors. The numeric results of the two analyses can be directly compared.

Each of these steps is discussed in this report. The results of the field survey and evaluation are shown in detail by county. Inventory and evaluation procedures for historic and cultural byways are discussed in Appendix A. The following discussion is provided to set the background for the Mormon Trail evaluation.

THE MORMON MIGRATION THROUGH IOWA: 1846-1868

The Mormon migration from Nauvoo, Illinois to present-day Salt Lake City, Utah forms a unique episode in the immense surge of Euroamericans to the Far West during the nineteenth century. Between 1846 and 1868, before the transcontinental railroad was completed in 1869, approximately 70,000 Mormons migrated overland to the Salt Lake basin. They constituted the first wave of mass migration that is historically associated with Euroamerican settlement in the trans-Mississippi West. The Mormon migration was distinctive because it was religiously motivated in its entirety___emigrants were not caught up in the strains of Manifest Destiny. In 1846, after experiencing hostility from, and engaging in hostilities with, their neighbors in Ohio, Missouri, and Illinois, the Mormons struck out for a remote spot in what was then called the Great Desert, and still Mexican territory, for the explicit purpose of establishing a theocracy in relative isolation. Another hallmark of the Mormon migration was its highly disciplined movement over a sustained period of time. Mormons did not hire professional trail guides; religious leaders sternly controlled what was, in essence, a family and community migration that spanned more than two decades.

The Mormon Trail from Nauvoo to Salt Lake City is typically divided into two segments, the leg across southern Iowa and the much longer trans-Missouri route. The Iowa leg actually consists of several different trails that Mormons followed; and, although Mormons undoubtedly crossed the state throughout the entire migration period, major movements occurred during three distinct intervals. An estimated 10,000-15,000 emigrants set out from Nauvoo 1846, of which 1,600-2,000 accompanied Brigham Young from Winter Quarters [present-day Florence in north Omaha] on to Salt Lake in 1847, and other groups followed periodically up through mid-1852. In 1853, approximately 2,500 Mormons, mostly foreign converts, left from Keokuk and crossed the state. Then, in 1856-1857 approximately 2,350 Mormons started from Iowa City and pulled handcarts across Iowa and then on to Salt Lake City.

Mormon leaders took a practical approach to traveling across Iowa, relying on established routes whenever possible and altering course

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to take advantage of better travel conditions or other benefits that might ease the long journey. Sections of the initial path that Brigham Young and the pioneer companies followed in early 1846 were used only once or twice before being abandoned for shorter, better routes. Mormons did little actual trailblazing in Iowa; rather, they tended to follow existing roads and trails. From the Mississippi River into Davis County, the Pioneer Trail generally followed territorial roads. From that point, Mormons typically followed Native American and trading trails along ridges all the way to their Missouri River destination, a Potawatomi Indian agency near the confluence of Indian and Miller creeks. Reliance on established routes, however, did not lessen the hardships. Travel conditions across Iowa were considered to be the worst of the entire journey. The roads were primitive and the Indian trails did little more than trace the way west, thus forcing the Mormons to make improvements as they went, especially at water crossings, which were numerous.

The handcart companies of 1856-1857 traveled a more northerly route from Iowa City through eastern and central Iowa, generally paralleling present-day U.S. Highway 6, and only picked up the Pioneer Trail in western Iowa. Mormons continued to cross the state on variants of the Pioneer Trail and even on completely different trails into the 1860s. Thus, there was no single trail through Iowa, but rather a braided route with some trails used more extensively than others. Eventually, however, these smaller movements merged into the Pioneer Trail in Cass County and continued as a single path through western Iowa to Council Bluffs-Omaha.

After 1853, with the exception of the 1856-1857 handcart companies, the majority of Mormons destined for Salt Lake took riverboats up the Missouri River to Council Bluffs-Omaha, then commenced the wagon-train portion of their journey from these points. Within the context of the entire Mormon migration, the Iowa trails were used much less than the route west of the Missouri River, which was a single route that merged with the Oregon Trail. Even so, the early passages on Iowa trails were where the Mormons honed the organizational patterns and subsistence practices that characterized this remarkable exodus.

This study covers the most extensively used routes: the Pioneer Trail (also known as the Brigham Young Trail) and its major northern variant, which the Iowa Mormon Trails Association has designated the “Mormon Trace” or the “Northern Trace” although it was well traveled. In addition, this study covers a section of the 1856-1857 Handcart Trail as it crosses Guthrie and Cass counties before it merged with the Pioneer Trail.

Leaving Nauvoo in 1846, emigrants organized themselves into “companies” that were subdivided, like the Old Testament Israelites they emulated, into groups of “fifties” ___ for the number of adult males___which in turn comprised groups of “tens.” Temporary encampments and semi-permanent settlements were established en route in order to accommodate the necessarily slow pace of travel. Bad weather, bad roads, sickness, the need to scout territory ahead, the need to find work or food, and other adversities made the journey arduous; oftentimes groups were separated. Although the vast majority of Mormons traveling through Iowa went west, therewas constant traffic back and forth. Mounted couriers delivered messages among the groups on the road, those at way stations, and those in Nauvoo and camps on the Missouri. These dispatches helped Mormons communicate with one another and helped church and company leaders maintain order.

For a variety of reasons, many groups or families not only paused at

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points on the trails but sometimes remained in one locale for a number of years. In Decatur County, Brigham Young stopped his pioneer entourage in April 1846 to establish a semi-permanent settlement, called Garden Grove. Here they cleared land, planted and fenced crops, and built dozens of log cabins for the use of subsequent travelers. A month later the pioneer company established a second semi-permanent settlement, Mt. Pisgah in Union County, which lasted until early 1852. This became a much larger congregating area, and Mt. Pisgah is perhaps the most poignant example of the communal nature of the Mormon migration. At the peak of its active operation, Mt. Pisgah was a temporary "home" for more than 2,000 inhabitants. During the entire five-year period, Mormons farmed more than 1000 acres; built log cabins, community buildings, and churches; and buried an estimated 300 to 800 of their members. Although no standing structures or grave markers remain, archaeological studies have identified several cabin sites, dug outs, a post office site, and trail ruts. The Mt. Pisgah cemetery is a designated State Preserve.

Another cluster of settlements sprang up within close proximity to Kanesville, present-day Council Bluffs, which was mainly a Mormon creation. Near the Potawatomi Indian Agency that was their 1846 destination point, Mormons platted a town in 1848, laid out and built roads, and granted timber claims. Although Kanesville was intended to be another temporary settlement, it quickly became the county seat of Pottawattamie County, with governmental and economic affairs dominated by Mormons. Even after "new Zion" had been planted in the Salt Lake basin, many Mormons remained in Iowa, especially at the way stations and around Kanesville. Because Kanesville was a booming outfitting center for California-bound goldseekers and westering migrants of all faiths and nationalities, there was money to be made in "trailside service" businesses such as ferrying, blacksmithing, trade, construction, and food production. Hundreds, perhaps thousands, of Mormons worked in the Kanesville area from 1846 until late 1851, when Brigham Young summoned to Salt Lake City all Mormons remaining in Iowa. In 1852, the Church called a halt to Mormon activities. Real estate and physical improvements were sold to the growing number of non-Mormons entering this bustling river town, which was renamed Council Bluffs in 1853.

The handcart companies of 1856-1857 pioneered in their own way, experimenting with a relatively inexpensive method of transport___a two-wheeled, open cart drawn by "people" power. Church leaders embarked on the handcart experiment as a way to reduce the cost of the journey because the number of converts bound for Utah was steadily rising, and many of them were dependent on the church to pay their travel costs. Those who traveled the Handcart Trail typically were newly converted Mormons from Europe and the eastern U.S. After railroads reached the Mississippi River, they could travel by train to Iowa City; from that point, they pulled handcarts across Iowa to what was by then Council Bluffs.

Very little of the Iowa Mormon trails remain, although a scant few sections of possible trail ruts have been identified. Farming, other development, and erosion in the intervening 150 years have erased virtually all visible evidence of the Mormons' passage. However, despite the lack of physical evidence in the form of cultural resources directly associated with the Mormon trek, dedicatory markers have kept the memory of their passage alive; and it is an important chapter in Iowa history as well as in Mormon history. Additionally, portions of the natural landscape retain a high degree of similarity to what the Mormons would have encountered as they passed through, so it is still possible to catch glimpses, now and

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again, of the setting in which this fragment of American history took place, and to imagine both the hardships and the hopes with which the Mormons traveled.

THE CULTURAL AND NATURAL RESOURCES OF THE IOWA MORMON TRAILS

Approximately 20,000 Mormons crossed Iowa during the period of Mormon migration, but virtually no physical evidence of their passage is visible on the Iowa landscape today. The trails themselves have been mostly obliterated by road construction and other development, agriculture, and erosion in the 150 years since the Mormon exodus from Nauvoo. The same holds true for the Mormons' improvements at stream crossings, campsites, and way stations. Many, if not most, traces of the Mormon presence in Iowa are now archaeological, and are therefore not visible to the casual observer. That is, cultural resources associated with the Mormon trails and encampments in Iowa are below the ground surface, and may only be identified or verified by archaeological methods. The National Park Service has attempted to identify and evaluate three such sites in Iowa: Garden Grove, Mt. Pisgah, and the crossing of the East Nishnabotna River in Cass County. The crossing consisted of a rock-lined pull-out on the north bank of the river, and was found to retain little integrity. The settlements at Garden Grove and Mt. Pisgah were both recommended for further archaeological work in order to assess the extent, integrity, and significance of each. The other major Mormon settlement, Kanesville and its outliers, is now largely obscured by the City of Council Bluffs. There is scattered evidence of historic archaeological remains that may be associated with Mormon occupation, but the area has never been systematically studied.

Despite the lack of visible remains, the various routes that Mormons traveled across Iowa are reasonably well documented: many who made the trek kept accounts of their journey; many who died en route were buried in cemeteries. Estimates of the number who died vary widely, and it is likely that many deaths went unrecorded because the Church imposed a $1.50 recording fee before granting permission for burial in a consecrated plot and because children were not considered members of the church until they reached age eight. Regardless of how accurate estimates are, known cemeteries and individual grave sites are important cultural remains associated with the migration. Moreover, the material culture of well-used sites often remained long after the Mormons had moved on, which helped to embed the memory of their passage in local history and lore. The Mormon migration through Iowa also has been commemorated several times in this century. In addition to markers and memorials erected by individual communities in recognition of the Mormon contribution to local history, more widespread memorial programs have been undertaken. The Daughters of the American Revolution erected several markers or monuments c. 1917-1923. Between 1933 and 1940 the Civilian Conservation Corps and the Iowa Conservation Commission set about a hundred wooden Mormon Trail markers along the Pioneer Trails. Only two of these markers, at Unionville and Mt. Pisgah, still exist. With the passage of the National Trails System Act of 1968, the Mormon Trail received formal, national recognition. The Iowa State Highway Commission and the Mormon Pioneer Trail Foundation remarked the 1846 route in 1972 with metal trail signs. In 1978, the Mormon Trail was designated a National Historic Trail.

Additionally, Iowa was mapped by the U.S. General Land Office at approximately the same time as the Mormon migration, and these maps record the landscape through which the Mormons passed.

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GLO surveyors not only depicted the character of the natural landscape (e.g., prairie, woodland, savanna), but human-made modifications (e.g., cultivated fields, cabin sites, settlements, established trails, and primitive roads). Thus, it is possible to determine those areas where the present-day landscape resembles the historic landscape of the Mormon trails.

Cultural resources directly associated with the Mormon Trail include:

- wagon/trail ruts
- houses/cabins or the remains thereof
- river/creek crossings:
    - ferry landings
    - fords
- pull-outs (stones and/or log cribs jutting out into water)
- townsites/settlements established by Mormons
- cemeteries and individual graves

Natural and cultural resources indirectly associated with the Mormon Trails include:

- landscape similar to the 1846-1868 landscape through which the Mormons passed
- trail and commemorative markers

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Project Approach

- Research
- Field Inventory
- Evaluation

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A. Project Approach: ***Research***

INTRODUCTION

The basis of the scenic byway evaluation methodology used by Iowa DOT rests in assessing a road's visual character. Visual character is expressed in many ways but centers on the quality and content of the views offered by the road and the manner in which these views are presented to the traveler. This definition emphasizes the touring aspects of a scenic byway. The intent is that the traveler finds enjoyment in driving the road because of the visual features displayed along the way.

The "mental image" of a scenic byway is a roadway flowing through a rolling terrain continuously displaying attractive landscapes and offering changes in colors, material and visual patterns. This definition may seem abstract but various aspects of this "mental image" can be identified in the field. Once identified these factors can be used to evaluate a route's scenic character and visual quality.

The same premise was applied to the historic and cultural byway inventory and evaluation methodology. A cultural or historic byway tour should display sites and features to the traveler that depict the corridor's theme. Landscapes seen by the traveler should convey the setting of the theme. A historic or cultural byway is a roadway that allows the traveler to visually sense the setting of the historic event or cultural patterns that are the basis of the tour.

The "mental image" of a historic or cultural byway is a roadway that displays to the traveler sites, structures, activity patterns, landscapes or other items reminiscent of the corridor's theme. It should stimulate the traveler mentally to transport themselves into the milieu of the historic period or cultural setting. As with scenic byways, this may sound abstract but various aspects of this "mental image" can be measured in the field. Once identified these factors can be used to evaluate a route's historic or cultural character.

Unlike scenic byways, evaluation of the historic or cultural byways requires research to establish the physical setting, sites and even the location of the route to be evaluated. It is also important that the research give the project team an appreciation of the history associated with the corridor. Research into the Mormon Trail was eased by the substantial work done by the Iowa Mormon Trail Association (IMTA), the National Park Service and many other organizations and individuals who have investigated the Mormon exodus through Iowa.

MORMON TRAIL RESEARCH

Background Discussion

A historic or cultural byway by definition is associated with specific occurrences, events or social patterns that establish a byway theme. An initial evaluation task is to define the interrelated occurrences

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and conditions surrounding the theme. This information establishes a background and sets the theme in context with basic physical and social factors. Timing, location and social characteristics are among the basic factors to be defined. A complete description of the Mormon migration through Iowa is included in the overview section of this report. A brief overview is provided below.

Mormon travel through Iowa began as early as 1839 when Mormons evading anti-Mormon sentiment in Missouri crossed southeastern Iowa enroute to Nauvoo, Illinois. The Nauvoo settlement was short lived. Within five years dissension in the Church and new threats from non-Mormon groups began a series of events that would lead to Nauvoo's collapse. These events culminated in the decision by Mormon leaders to leave Nauvoo and move westward. In February 1846 the first group of Mormons lead by Brigham Young crossed the Mississippi River entering Iowa at Montrose and began the migration westward.

Brigham Young's pioneer group reached the Missouri River in June of 1846 too late to start the trek that would take them across the Rocky Mountains. The Mormon's wintered in multiple sites along the Missouri River. Some Mormons joined Brigham Young in camping on the Nebraska side of the River. Many more wintered in the area that is now Council Bluffs. Others camped at temporary settlements or way stations such as Garden Grove and Mt. Pisgah and at other points along the trails through Iowa. Even at this early stage the exodus had begun to take on a pattern of family and group migration. Some groups and families interrupted their journey staying in temporary settlements for years. The passage of Brigham Young's group into Iowa had begun an exodus through the state that was to last nearly twenty years.

The early trek westward across Iowa found the Mormons using mainly established trails. Existing trails led the Mormons through the woodlands of eastern Iowa and directed them toward early Iowa settlements like Farmington, Bonaparte and Keosauqua. Indian trails followed in central and western Iowa took the Mormon's through vast unsettled prairies and finally to the government's Indian agencies along the Missouri River. Mormons found an increasingly settled and populated landscape as the exodus continued. Their routes through Iowa change accordingly. The handcart companies in 1856 - 1857 traveled westward from Iowa City through the central part of the state. They generally followed the present U. S. Highway 6 corridor joining the earlier pioneer trail in western Cass County quite near their Missouri River destination. Migration through Iowa continued into the 1860's before waning.

Time Period and Physical Setting

Mormon migration was not a solitary event. It was a long term continuous undertaking that occurred as the state was being populated and settled. The key time considered for this project begins in 1846 with Brigham Young's pioneer group and extends through 1857 with the passage of the cart companies. Fortunately Iowa was mapped by the U.S. Department of the Interior General Land Office (G.L.O.) during this time. This information provided an accurate glimpse of the land uses during the period and allowed an understanding of the landscape through which the Mormons traveled.

Information in the G.L.O. mapping shows an 1850's Iowa landscape dominated by native land uses including woodlands and prairie. Settlements and croplands were very scattered and generally limited

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to the eastern part of the state. It is assumed that the vegetation associated with the 1850's land uses included typical historic species. This would mean mature hardwoods in the eastern woodlands and species such as cottonwoods in the prairie riparian woodlands. The grasslands should include typical native warm grasses in the prairie.

The mapped G.L.O. information was obtained and incorporated into the G.I.S. software for evaluation purposes. Field crews reviewed the mapped data before field surveys. This information provided a good basis for making evaluations as to the manner in which current land uses reflected the historic landscape experienced by the Mormons.

Trail Location and Routes to be Surveyed

The Mormon Trail was not one route. It was an interlacing network of trails that carried Mormon travelers west for more than twenty years. Long sections of Brigham Young's Pioneer Trail were used only briefly. Later Mormons followed routes that were continuously altered overtime as quicker more expedient trails were defined.

The trails evaluated in this project were those generally considered the most important or those most extensively used. These include the Pioneer Trail and an early northern variation termed the Mormon Trace by the Iowa Mormon Trail Association. A section of the Handcart Trail in Cass and Guthrie Counties was also included in the evaluation. The Trails and the present road network approximating these trails are shown in the overview section and in the evaluation section of this report.

Cultural and Physical Resources

Negligible direct visual evidence exists of the Mormon migration across Iowa. Occasional trail ruts have been noted but most of the Trail has been altered by erosion, farming and other development. Mormon improvements at way stations, and in the Council Bluffs area have also been lost. Archaeologists have identified some Mormon resources and may identify more in the future but direct visible evidence may be nearly eliminated. Indirect evidence of the Mormon migration can be found in trail and commemorative sites and markers.

Camp sites, settlements, individual graves and other cultural resources have been identified and generally mapped by several different sources. This information was included in G.I.S. mapping of the Trail. Sites are noted and briefly described on a county basis in Section C of this report.

Elements Identified for Field Inventory

A Mormon Trail Historic Byway or any other historic or cultural touring route should establish a sense of culture, activity, place and time. This sense is built in several ways. One is by presenting to the traveler specific physical resources directly associated with the Mormons. These resources mark the land and give evidence that the Mormons passed through.

Research provided information on the type and location of sites directly associated with the Mormon Trail. These sites were mapped and during the field inventory these specific sites were identified and

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their visual impact was noted. Unfortunately few of these sites provided visible evidence of Mormon activity.

The cultural resource types directly associated with the Mormon trails and identified for notation in the field inventory include:

- camp sites
- wagon/trail ruts
- houses or cabins (or the remains thereof)
- stream crossings:
  - ferry landings
  - fords
- pull-outs (stones or log cribs jutting out into water)
- town sites or settlements established by Mormons
- cemeteries and individual graves

Another way that a traveler can begin to develop a sense of culture, activity, place and time is through the setting that a corridor displays. A physical setting containing natural features from the Mormon period or features similar to those that would have been found in that time can establish this sense of place and activity.

Research provided information on the historic land uses along the Mormon Trail. This information was mapped and used in the analysis of the individual routes. The data was also used to prepare the field inventory team to identify both the specific land uses through which the Mormons passed and the Trail's general setting.

The natural and cultural resources indirectly associated with the Mormon trails were noted for comment during the field inventory. They provided a significant element of the subsequent analyses.

The type of cultural and natural resources identified included:

- towns or settlements existing during 1846-1857
- buildings and other structures (or the remains thereof)
- land uses through which the Mormons passed:
  - woodlands
  - prairie grassland
  - fields (cropland)
- trail and commemorative markers

Information collected on sites and setting, including the historic land use, is displayed in the evaluation section of this report.

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B. Project Approach: *Field Inventory*

INTRODUCTION

The basic theorem of this project was that a road designated as a historic or cultural byway should allow a traveler to tour and observe sites associated with an important historic or cultural topic. While traveling between sites, the road should display land uses and other features that provide a sense of the setting associated with the historic or cultural theme.

The field inventory and evaluation procedures are different stages of a continuous process to assess the manner in which a road satisfies these historic or cultural tour route requirements. Needs and capabilities of both stages must be considered in defining the complete process.

It was also important that the inventory and evaluation process be applicable to routes with vastly different themes. The basic process should work with an early historic theme such as the Mormon Trail, a more contemporary theme such as the Lincoln Highway and routes with a cultural theme such as the Amana Colonies.

The potential variability in the field inventory and evaluation process suggested a need to field test the data collection plan and develop very specific evaluation objectives. Sample road inventories were done on segments of the Mormon Trail in Adair County and on the Lincoln Highway in Greene County. Results obtained from these test sections were used to complete the project inventory and evaluation procedures.

DESIGN AND TESTING OF FIELD INVENTORY METHODS

Field Survey Data Needs

Design of the specific field survey procedures and identification of the specific attribute data to be collected required prior consideration of data analyses and evaluation procedures. The designation definition above establishes some basic analysis issues to be addressed. The touring features of a corridor indicate a need for data along the entire route. Evaluation of a route's ability to establish a sense of the historic or cultural setting requires field data on current land use and other features.

The touring aspects of the evaluation procedures indicated that field data should yield continuous information along the entire corridor. Simply stated it was important to know what attributes a traveler would be observing at any point along a route.

Defining the attribute set for which field information would be collected offered a key challenge. The field data set must provide sufficient information to describe important corridor characteristics. It must also accommodate very different historic and cultural themes. However, the data could not be so detailed that it would

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exceed the capabilities of reasonable data acquisition techniques. Finally, the field data collection procedures had to be compatible with the Iowa DOT scenic byway evaluation methods.

Initial investigation defined field data requirements in four basic categories. Existing land use was one of these categories. It was felt that the type and quality of existing land use along a corridor would be a major component of the historic and cultural setting evaluation. Nearly all of the potential historic or cultural themes have some type or combination of land uses with which they are associated. A set of land use elements that provided descriptive identification of the land uses was identified for field testing.

Structures of various types play a major role in many historic or cultural themes. Structures along a corridor can be features that were directly associated with the historic theme. They exist because of it. Structures can also add to the sense of time, place and other factors that make up a historic or cultural setting. A set of data items designed to identify structures and their purpose was identified for field testing.

Some historic or cultural themes are directly related to roads. Obviously the Lincoln Highway is one such theme. A set of road and roadway elements was identified for field testing. These road related elements were selected to reflect basic features of road design.

A collection of elements describing sites that may be directly related to a corridor's theme made up the final set of inventory data factors to be field tested. These site elements provided identification and descriptions of the site type.

Field Inventory Methods

Collection of continuous data along a roadway can be easily acquired using driver commentary techniques in association with real time data entry. Using this method, data identified in the commentary is input into a computer data base. The data from the commentary is linked to roadway location using both a distance measuring device and GPS receiver installed in the survey vehicle. The commentary and a portion of the inventory view is also recorded on video tape. This field survey technique produces an inventory record that includes: video and audio tape recordings, accurate position data and attribute identification. This survey technique is also compatible with the current scenic byway survey procedures used by Iowa DOT.

The key to this driver commentary technique is the coding of elements into the field survey software prior to the field work. The commentary is designed to deliver information on these survey elements only. The attribute set used in the test inventory contained elements within each of the four attribute categories defined above. The attribute set tested contained approximately 60 individual elements.

Sample road inventories were performed on those segments of the Mormon Trail in Adair County and on the Lincoln Highway in Greene County. Part of this testing involved refinement of basis inventory techniques such as driver commentary requirements and video image acquisition.

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Field Data Collection and Use

Field data collected along the test sections proved practical but cumbersome. The descriptive attributes in the land use and structure categories created problems in the commentary. Attributes in the road category, used along the Lincoln Highway, proved to be quite effective. Only minor changes were required. The survey proved adequate to develop route evaluations for both test sections.

Route evaluations were performed on the Mormon Trail and the Lincoln Highway using the inventory test data. These test calculations defined the elements that were critical to evaluation results. It was found that a major calculation factor would be the present existence of land uses that match those of the historic period being evaluated. This observation implied that the field data set could be simplified with major emphasis focused on acquiring information about the land uses existing along the roadway being surveyed. As a result, a number of inventory elements were deleted from the field survey data set. This simplified field data set would also ease driver commentary requirements.

Several new items were added to the field data set to address shortcomings. Key among those was an element dealing with the nature and character of the landscape associated with adjacent land use. The topography and land use that is visible as a background along a corridor can play an important role in defining the sense of time and place that was desired in the evaluation. An inventory element termed, backdrop, was introduced to account for this data requirement.

Table B-1 lists the data elements on which information was collected during the field inventory. The survey data identified in the table applies to all types of historic and cultural byways. However, not all of the data elements apply to every candidate byway and every byway theme. Road design data for example is necessary to evaluate historic roads and highways such the Lincoln Highway but is not required to evaluate a trail such as the Mormon trail.

DATA COLLECTION ALONG THE MORMON TRAIL

Using the data set shown in Table B-1, a field survey and inventory was conducted along existing public roads that represented the Mormon's path across Iowa. This survey was designed to identify the location of Mormon sites and current land uses adjacent to inventoried routes. Background landscapes that were consistent historic land uses and reminiscent of the Mormon period were also noted during the inventory.

Inventoried roads were driven in both directions. Only features on the driver's right side were noted in the commentary. Mormon sites were typically noted only in one direction unless the site extended across the inventoried route. Existing land uses and the backdrops were rated as to character and quality.

The theorem for rating land use was based on the character and quality of observed uses. Land uses like those existing during the Mormon Trail time period provide a sense of character to a corridor. Current land uses that would have been foreign to the Mormon travelers were considered a distraction from the 1840's landscape. Typically "natural" or native land uses such as prairie grasslands or

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Table B-1
Inventory Elements

Historic and Cultural Elements in the Inventory			
Types of Element	**Primary Attribute Associated with Element**	**Secondary Attribute Associated with Element**	**Definition of Secondary Attribute Associated with Element**
Land Use Note: Land use is a primary element of the historic setting that the route provides. Data from these inventory elements was used to compare current land use with the historic land use that would have been found during the time period associated with the route's theme.	**Natural** (Native) **[Natural Rating]** **Agriculture** **[Agricultural Rating]** **Urban or Suburban** **[Urban Land Use Rating]**	Woodland Grassland Wetland Quality Rating of Natural Land Use Crop Improved Crop Pasture Other Quality Rating of Agricultural Uses Industrial Commercial Residential Public Quality Rating of Urban Land Use	Forests, groves, or other woodland land types Prairie, range land grazing areas and other grass land types Unusual forms or materials A single continuous rating is applied to any natural land uses Row, field or other annual crop types Crops in field improved for conservation and other purposes Grass based crops or livestock areas - may be grassland Unusual crops i.e. orchards, gardens specialty crops A single continuous rating is applied to all agricultural land uses Manufacturing, warehousing and other industrial land use Shopping centers, CBD, and other commercial land uses Houses, apartments, and other dwelling units Parks, schools, and other uses dedicated to the public A single continuous rating is applied to all urban type land uses
Structures Note: Structures including buildings, corrals, pens, grain elevators and others may be an important element of the historic setting that the route provides. Data on structures is used to compare current development to activity associated with the time period represented by the route's theme.	**Agriculture** **Urban** **Road Related**	Buildings Structures Buildings Structures Unique Service Amenity	General agricultural buildings - farmsteads, barns, etc. Structures including fencing, pens corrals and other Buildings in urban or suburban areas Structures in urban areas may include water towers etc. Unusual or unique structures such as cemeteries Service buildings directly relating to historic roads or highways Buildings directly related to historic roads or highways that provided amenities to travelers.

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Table B-1 (Cont.)
Inventory Elements

Historic and Cultural Elements in the Inventory			
Types of Element	**Primary Attribute Associated with Element**	**Secondary Attribute Associated with Element**	**Definition of Secondary Attribute Associated with Element**
Road Related Items Note: Road related items are elements directly associated with road design or road condition. These elements are used in the analysis of historic roadways such as the Lincoln Highway or on corridors with a cultural theme where roads are a significant part of the setting.	**Surface**	Gravel Asphalt Concrete Travel surface width	Roads with a gravel travel surface Roads with an asphalt travel surface Roads with a concrete travel surface Width of the travel surface in feet.
	Shoulder	Curb Sod Gravel Hard surface Shoulder surface width	Edge of travel surface was a curb (No shoulder) Shoulder with sod surface Shoulder with gravel surface Shoulder with hard surface Shoulder surface width in feet
	Ditch	V type ditch Other ditch No ditch Ditch width	General buildings - farmsteads, barns, etc. Unusual agricultural features General buildings, etc Structures producing colors or patterns
	Structures	Bridges Culverts Other	Roadway bridges Drainage culverts and headwalls Other types of roadway structures

Other Elements in the Inventory		
Types of Corridor Characteristics	**Primary Features Associated with Characteristic**	**Definition of Feature Associated with Characteristic**
Corridor features	Sites	Location of historic or commemorative sites and points of interest directly related to the route's theme
Roadway Features	Alignment features Road markers	Features that indicate the reason for a road or trail follows a certain alignmant - used with historic roads. Markers, signs and other devises that indicate route guidance or traffic control
Backdrop	Landscape	Backdrop refers to the nature and character of the landscape through which the corridor passes. A good backdrop is one that fits the historic setting i.e. the landscape associated with the time period being evaluated.
Comments	Town comments Agriculture comments Natural land use comments Road comments	Signal that a comment on a town or community has been placed in the audio record of the field survey Signal that a comment on agricultural elements has been placed in the audio record of the field survey Signal that a comment on natural features has been placed on the audio record of the field survey Signal that a comment on road characteristics has been placed in the audio record of the field survey

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woodlands fit the Mormon Trail time frame while contemporary urban areas do not.

Quality considerations dealt with the condition or composition of the land use. Current grasslands containing mature well conserved native grasses such as big bluestem would represent a high quality "natural" land use. An over-grazed pasture containing cool season grasses would provide a sense of "natural" land use but at a much lower quality. High quality woodland areas would be those containing mature trees. Hardwoods such as oaks would be anticipated in the eastern part of the state and cottonwoods and other prairie riparian species would be signature species in the west. Most but not all of the urban areas were found to be well beyond the Mormon time frame.

The numeric rating given field inventory elements was based on a 1 to 7 scale. An element rated as a 1 would provide a strong sense of the Mormon land use and landscape and the element itself would be of high quality. Elements rated as a 7 would have been very foreign to the early Mormons. These elements completely distract from the sense of place and circumstance associated with the Mormon Trail time frame. New urban areas are good examples of this rating category.

Field Data Collection and Inventory Results

The field surveys were conducted on existing public roads which best represented several of the Mormon trails across Iowa. The original Pioneer Trail was followed along its entire length as was the trail termed the Mormon Trace. Only a short section of the later Cart Trail was evaluated. Nearly all of the of the roads inventoried had markers identifying that the Mormon Trail crossed the route. The Mormon Trace was signed in a similar manner.

Side trips were made to locations known to contain visible evidence of Mormon Trail activity. Side trips were also made to selected sites not directly associated with the Mormons but dating from the same time period. Some selected side trips were inventoried and established as part of the corridor.

Information obtained in the field was automatically associated with geographic position. This allowed the field data to be loaded directly into base maps that contained information on the historic land uses (1840s & 1850s) and Mormon sites. Video tapes of the inventory were reviewed and corrections to the inventory record were made. Following these checks and corrections the data was available for the evaluation phase of the project.

The inventory methodology applied to the Mormon Trails is very similar to that used by the Iowa DOT in Scenic Byway surveys. It is quite possible to establish a single set of inventory elements that would reflect the needs of both survey types. The similarities between the two inventory techniques and the possibility of combining them into one system are discussed in Appendix A.

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C. Project Approach: *Evaluation*

INTRODUCTION

The basis for designating a road or road section as a historic or cultural byway was generally discussed above. The definition of a historic or cultural byway can be more specifically stated as follows. Roads designated as Historic or Cultural Byways should allow the touring public to travel and observe sites specifically associated with an important historic or cultural theme. While touring between sites, the road should display land uses and other features that provide a sense of the physical setting associated with this historic or cultural theme.

A historic byway focused on the Mormon Trail would allow the touring public to travel and observe Mormon sites. Between sites the route should display images of the woodlands, grasslands and early frontier settlements through which the Mormons traveled nearly 150 years ago.

EVALUATION PROCEDURES

Discussion

The goal of the evaluation process was to obtain a numerical rating of the elements associated with the historic and cultural byway definition. Elements of the byway definition above establish some basic criteria for route evaluation. Existence of sites containing cultural resources directly associated with the Mormon Trail were critical items and the major criteria in the evaluation.

Another important criterion was the match between historic land use and the current land use. This match was determined by comparing G.L.O. mapping (identify the historic land use) with the current land uses defined in the survey data.

More than a single numeric rating for a route was needed from the evaluation. Having continuous evaluations along the entire length of a route was important for planning and other reasons. This continuous evaluation provides valuable planning information by showing the corridor segments that were the most significant. Segments with low ratings are also important to corridor management because they show locations that would benefit from corridor enhancement.

Corridor Features and Elements Evaluated

Many specific corridor elements and features served as the basis for the evaluation. These include the following:

- Current land use reminiscent of the landscape that existed during the Mormon Trail time. (Native land uses such as woodlands and native grasslands were the major land uses in mid-1800s.)

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- Current land uses that are the same type those present during the Mormon time. (Current land use matches the land use identified in the 1850 G.L.O. mapping.)

- The landscape serving as the backdrop or setting to the evaluated corridors was reminiscent of the landscape that existed during the Mormon Trail time. (The backdrop or setting was identified in the field survey and was based on observation of native vegetation patterns.)

- All Mormon historic or commemorative sites were valued but those sites with visible remains were valued higher from a tour perspective. (Observations in the field were used to identify “visible remains”. Very few Mormon sites fit this category.)

- Mormon historic sites surrounded by current land uses similar to the historic land use received additional value in the evaluation. (Data from the field inventory was compared with the historic mapping to define this land use match.)

- Quality of the land use and landscape was rated in the field based on the condition, composition and appropriateness of the land use. (Ratings were based on a 1 to 7 scale with 1 - being excellent, outstanding and 7 - being very poor, completely distractive to the sense of time and place.)

- The distance elements such as land use, backdrops and sites were visible along a corridor were used in the calculation to achieve a continuous evaluation. (The field data on each element included information that defined where the element began and where it ended.)

Computer software was used to make the calculations associated with each item identified above. The program read and displayed the field inventory data directly onto base maps containing information on historic land uses, Mormon sites and other information. Analyses of elements within the program allow the comparison of current land uses from the field data base with the mapped historic land use. Calculations made for each element of the evaluation were summed along the routes. Results were graphed and evaluated numerically to test a variety of issues and concerns.

EVALUATION RESULTS

Numeric Analyses

Numeric evaluations were made for each route inventoried (both directions). The evaluation results are shown in Table C-1. Analyses shown in this table were designed to reflect the following concerns:

1. The first concern was the average (mean) rating. This mean shows the historic character experienced along each route. An average rating of 4.0 indicates that at least two of the evaluation features rated as "good" would always be visible. This rating could be reached in several ways. One example is that the adjacent land use could be reminiscent of the Mormon time and be of good quality. This feature would have a 2.0 evaluation. A landscape with a similar rating would also yield a 2.0 rating.

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Combined the two figures would produce a 4.0 rating over the distance in which they jointly occurred. (Results of this calculation are shown in column 4 in Table C-1)

2. Uniformity of good quality along a corridor is shown by the percentage of the route with ratings above the "minimum historic rating level" of 4.0. The higher this percentage the more uniform the corridor's historic character. (Results are shown in column 5)

3. Areas along a corridor of high interest to travelers touring a corridor were defined by the mean value of these ratings above the minimum value of 4. The higher the mean value in these corridor segments the more likely the segments contained historic elements or features of interest. (Results of this calculation are shown in column 6)

4. The total percent of the corridor along which a match existed between current and historic land use showed that the corridor was likely to offer features like those of the Mormon time. (Results of this calculation are shown in column 7)

Graphic Displays

The first sheet in each display set offers an overview of features associated with the Mormon Trail. This overview provides a listing of Mormon sites. The locations of these sites are shown on the corridor map. Land use features present during the Mormon time are also shown. Woodlands and crop areas are shaded in these displays.

The dominate land use, prairie grasslands, occupied all unshaded areas.

Site descriptions and map location symbols are coded to represent the significance of each site. Closed squares (■) are important Mormon sites or structures. These properties may meet National Register criteria for significance. Those identified by open squares (□) are sites or structures of interest known or suspected to have been associated with the Mormon presence in Iowa between 1846 and 1868.

Two graphs, each showing a travel direction, were developed for the corridors inventoried. These graphs provide a continuous summary of the historic features encountered along the corridors. It should be noted that the corridor's data is shown on a county basis for this project. Some of these corridors are quite long. It is entirely possible that selected segments of these corridors could be signed as historic byways.

A summary sheet is also included with each display set. This sheet shows in graph form the locations of sites and the areas within which a match exists between current and historic land use. Specific statistics resulting from the evaluation of each corridor are also shown on this summary sheet. The statistics are summarized in Table C-1.

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Table C-1 ROUTE EVALUATION SUMMARY

		[1] LENGTH [MILES]	[2] HIGH RATING	[3] LOW RATING	[4] MEAN OF ALL RATINGS	[5] PERCENTAGE OF ROUTE ABOVE 4	[6] AVERAGE RATING WHEN ABOVE 4	[7] PERCENTAGE OF ROUTE WITH HISTORIC MATCH
	EASTBOUND	21.92	7	-2	1.24	17.19%	4.83	27.94%
LEE COUNTY	WESTBOUND	21.94	7	-2	2.34	34.60%	4.78	40.46%
	EASTBOUND	33.74	8	-2	1.44	12.53%	5.18	37.91%
VAN BUREN COUNTY	WESTBOUND	33.75	8	-2	2.65	36.43%	5.32	49.44%
	EASTBOUND	37.24	6	-2	0.51	5.16%	4.59	25.92%
DAVIS COUNTY	WESTBOUND	36.77	5	-2	1.00	5.07%	4.98	37.71%
	EASTBOUND	31.24	6	-2	0.56	4.32%	4.55	0.00%
APPANOOSE COUNTY	WESTBOUND	31.74	4	-2	0.34	0.25%	4.00	0.00%
	EASTBOUND	39.93	7	-2	0.49	2.99%	4.93	32.79%
WAYNE COUNTY	WESTBOUND	41.04	6	-2	0.40	1.35%	4.75	29.05%
	EASTBOUND	17.03	5	-2	0.56	10.83%	4.37	35.27%
DECATUR COUNTY	WESTBOUND	17.25	8	-2	0.31	9.47%	5.45	23.60%
	EASTBOUND	20.58	7	-2	0.98	9.51%	4.27	22.62%
CLARKE COUNTY	WESTBOUND	24.55	7	-2	1.54	18.82%	4.46	37.60%
	EASTBOUND	36.92	11	-2	1.59	4.18%	6.19	0.00%
UNION COUNTY	WESTBOUND	36.08	6	0	1.51	7.08%	4.11	0.00%
	EASTBOUND	25.71	7	-2	1.04	3.51%	4.52	27.81%
ADAIR COUNTY	WESTBOUND	25.74	5	-2	0.81	3.00%	4.53	17.32%
	EASTBOUND	34.52	7	0	1.07	12.24%	4.35	21.61%
CASS COUNTY	WESTBOUND	21.89	7	-2	0.87	9.55%	4.57	12.53%
	EASTBOUND	56.57	4	-2	0.27	1.34%	4.00	3.99%
POTTAWATTAMIE COUNTY	WESTBOUND	56.51	5	-2	0.42	2.00%	4.12	5.76%
MORMON TRACE	EASTBOUND	41.66	6	-2	1.32	8.84%	4.51	30.35%
Monroe, Appanoose & Davis Counties	WESTBOUND	41.60	9	-2	1.78	16.83%	4.66	42.03%
MORMON TRACE	EASTBOUND	47.48	10	-2	1.12	13.31%	4.64	34.49%
Clarke and Lucas Counties	WESTBOUND	47.66	8	-2	1.20	13.54%	4.35	39.05%
	EASTBOUND	54.38	6	-2	1.22	9.09%	4.58	20.61%
MORMON CART TRAIL	WESTBOUND	59.99	11	-2	1.32	16.67%	4.48	26.30%

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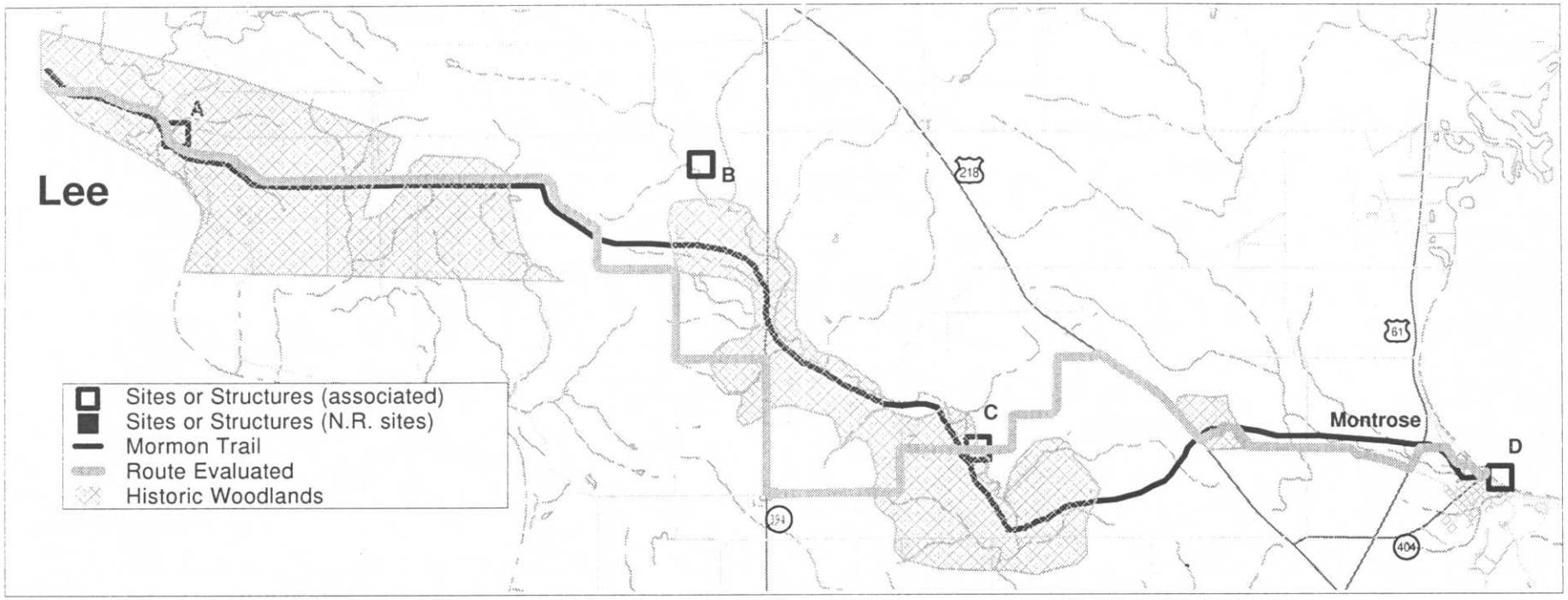

The first Mormons left Nauvoo, Illinois in February 1846. They used a ferry to cross the Mississippi River. Arriving at the Iowa town of Montrose they turned north for a short distance then headed west. Six miles west of Montrose the Mormons set up a staging area and prepared for the migration. Lee County was well settled in 1846 and the Mormons, fearing the Illinois militia would follow them, took the forested "backroads routes."

Historic Land Use Along the Mormon Trail:
The land use in Lee County in 1846 was primarily a prairie with scattered trees. Woodlands were found along major streams. The Mormon route in Lee County generally followed Sugar and Lick Creeks. This route placed them in the woodlands associated with the creeks.

Historic and Other Sites Associated with the Trail:
The National Park Service study (Kimball, 1991) did not recommend any sites in Lee County for the NRHP. The Iowa Office of the State Archaeologist has numerous sites plotted but they are not yet recorded.

☐ **A. Lick Creek Camp:**
The Lick Creek campsite was the second camping area used after leaving the staging area was made near Sugar Creek. "The backwoods route was taken . . . "(IMTA)

☐ **B. Sugar Creek Camp # 2:**
This was the site of the first camp used after leaving the staging area on the east side of Sugar Creek.

☐ **C. Sugar Creek Camp # 1:**
This site served as the staging area for the migration west during February 1846. It is located 6 miles west of Montrose. There is no marker but “the historic site extended north and south of the modern bridge over Sugar Creek to the east of the creek” (Kimball, 1988)

☐ **D. Old Des Moines Fort:**
The fort is located on the banks of the Mississippi River at the foot of Main Street, now within a present-day park called River Front Park. The fort was established by the Dragoons infantry in 1834 and abandoned in 1837. The fort sheltered eastbound Mormon families waiting to move across the river to Nauvoo in 1838-1839, but there's no claim the 1846 Mormon Pioneer group used the fort in any way.

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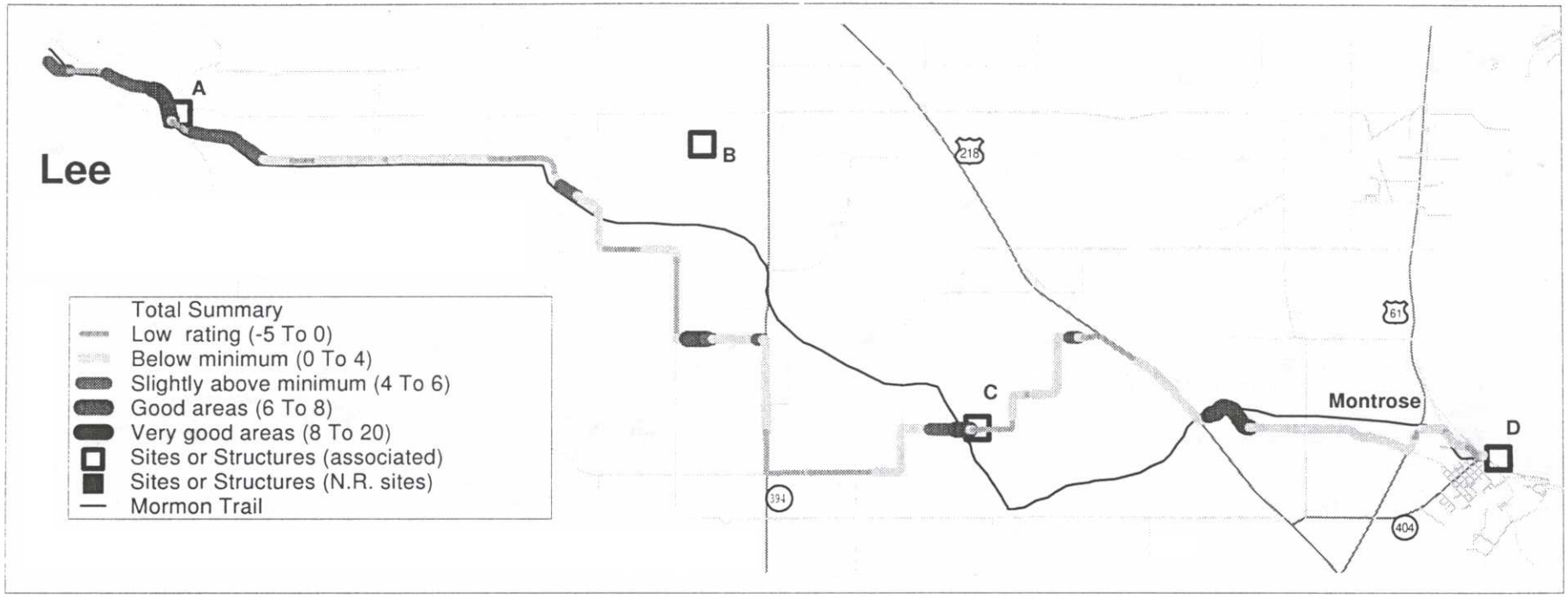

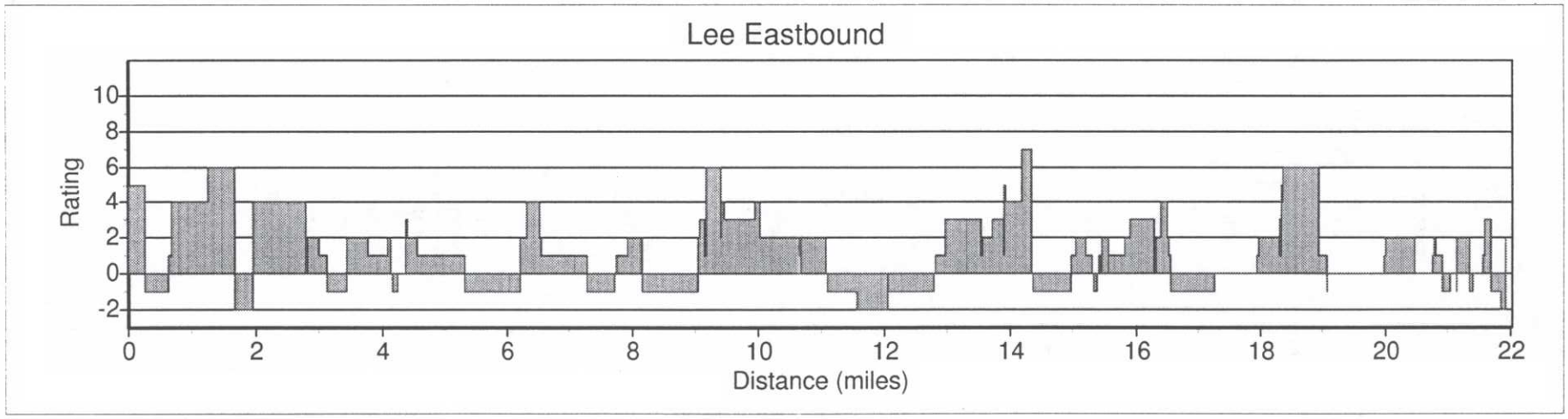

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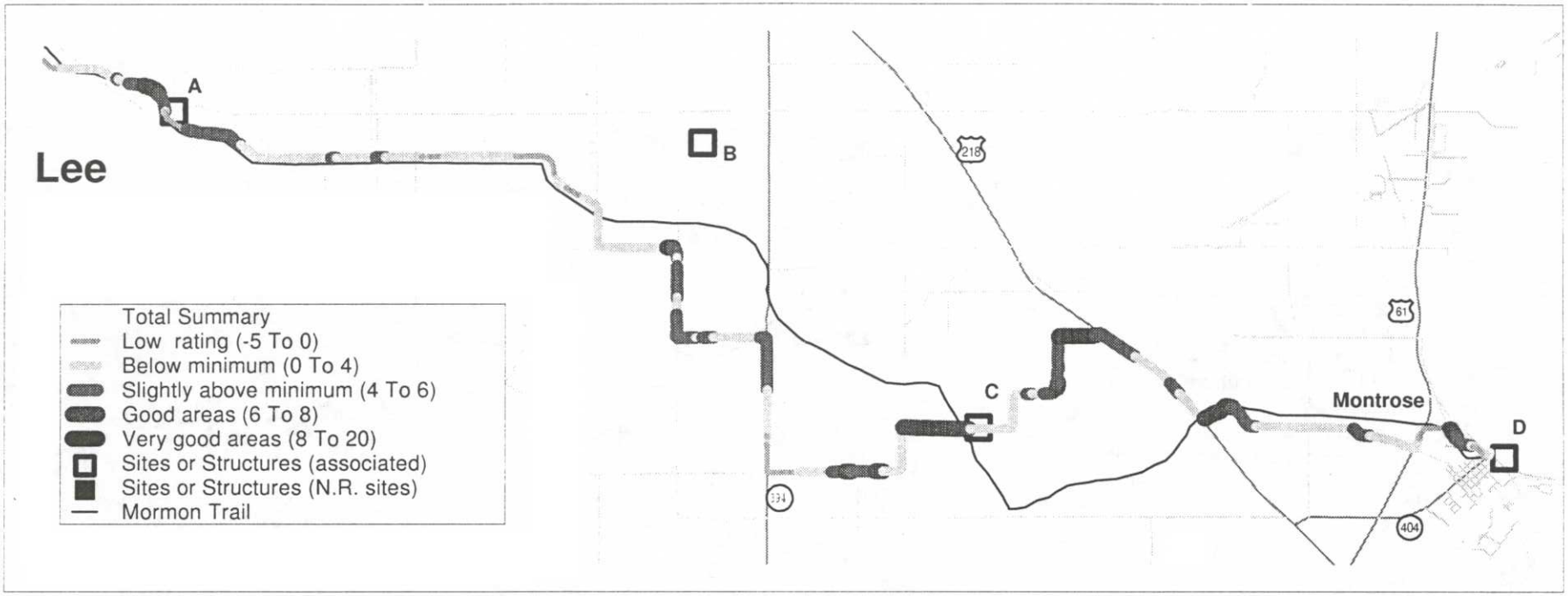

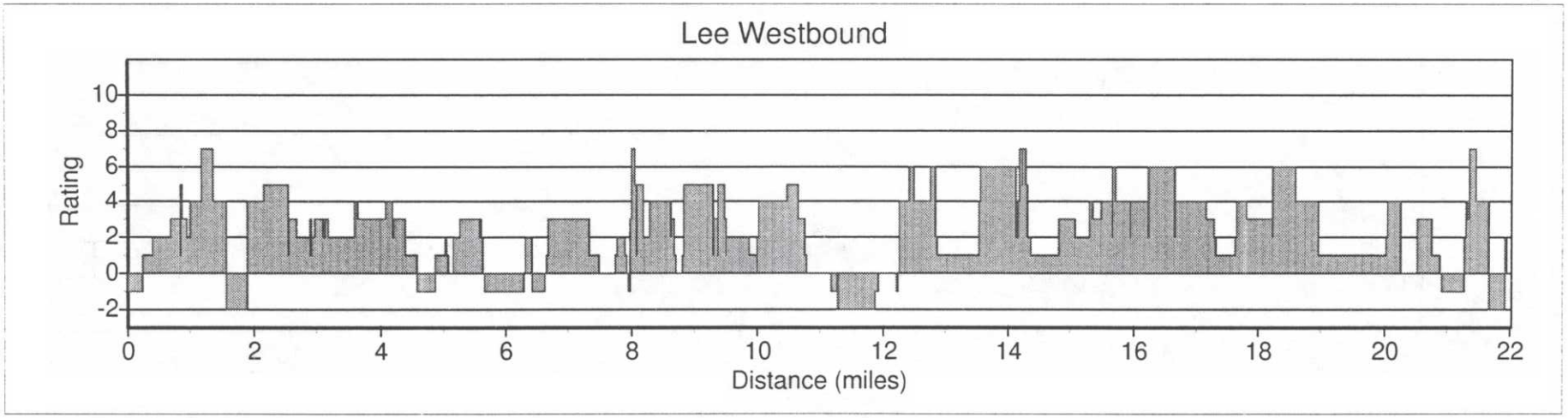

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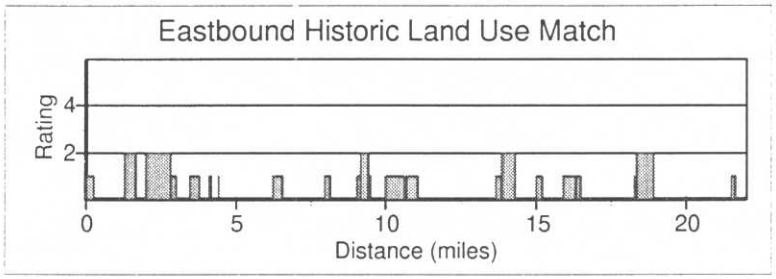

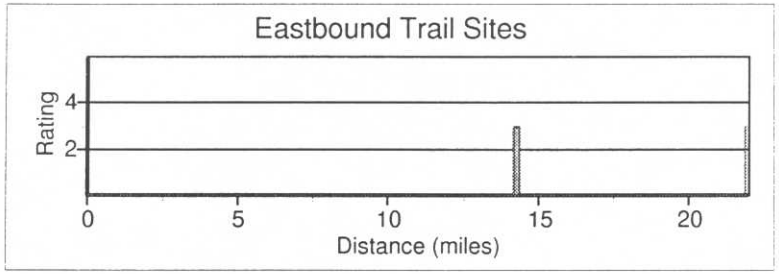

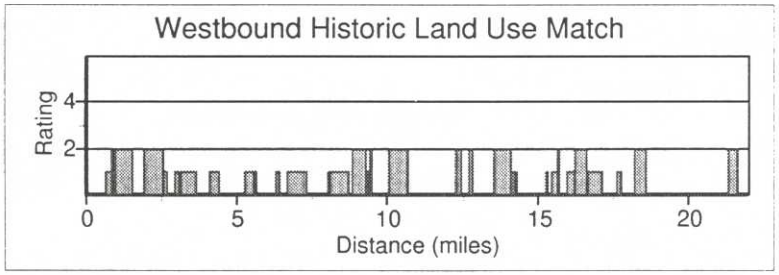

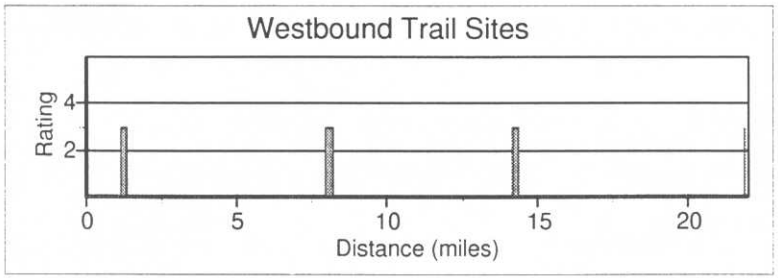

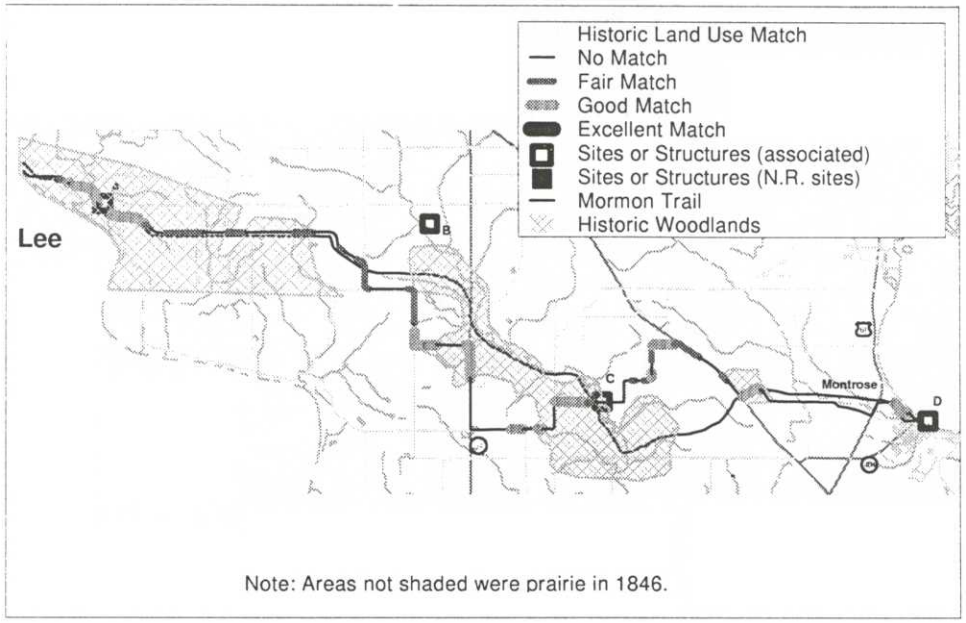

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 21.94 miles

Road Surface Types:
Gravel: 14.1 miles
Hard Surface: 7.8 miles

General Area Comments:

US 218 and Iowa 2 in Lee County are designated as Mormon Trail tour routes by Iowa DOT. The Woodlands Scenic Byway designated by the Iowa DOT is located near the northern end of the inventoried route. Sections of the inventoried route could be combined nicely with one or both of these designated routes.

Evaluation Data: Lee County :
High Rating:
Eastbound: 7
Westbound: 7

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 1.24
Westbound: 2.34

Percent of Route Rated Above 4:
Eastbound: 17.19%
Westbound: 34.58%

Average Rating When Rating is Above 4:
Eastbound: 4.83
Westbound: 4.78

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 18.03%
Westbound: 19.46%

Grasslands:
Eastbound: 9.44%
Westbound: 19.58%

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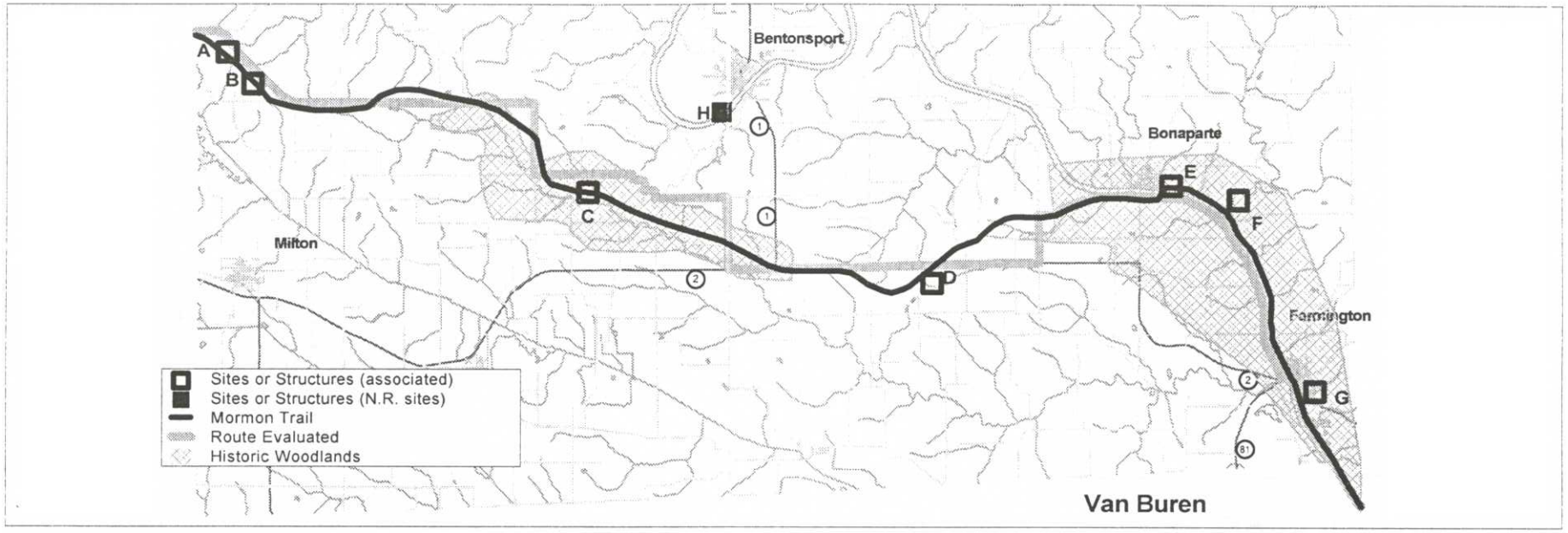

Van Buren County contained numerous towns and a population nearing 10,000 people by 1846. Government surveys in 1837 indicated much of the land was claimed along the Des Moines River and farm fields were rather common throughout the county. The Mormons are said to have followed existing roads in some places and blazed their own in others. The topography and settlement made the Mormons' efforts more difficult.

Historic Land Use Along the Mormon Trail:
The trail in eastern Van Buren County was located in the riparian woodlands along the Des Moines River. Near Bentonsport it moved into the prairie grasslands between the Des Moines and Fox Rivers.

Historic and Other Sites Associated with the Trail:
The National Park Service study (Kimball, 1991) contains no sites recommended for NRHP within Van Buren County. The Office of the State Archaeologist has numerous sites but none appear to be associated with the Mormon Pioneer Trail of 1846.

☐ **A. Richardson's Point Camp:**
The Mormons camped here and lightened their wagons by burying cannonballs and shot.

☐ **B. Mormon graves near Richardson's Point Camp:**
The sources differ on the location of these two graves. The graves were located and marked in 1985, but "one must ask locally for directions to visit them" (Kimball, 1991).

☐ **C. Indian Creek Camp:**
This camp was located at the "B. Ellis farm." The creek crossing became known as "Ellis' Ford" (WPA Federal Writers Program, Van Buren County, 1940).

☐ **D. Vernon Prairie:**
Brigham Young stopped in this area to let their cattle and other livestock graze.

☐ **E. Des Moines River Ford at Bonaparte:**
A Mormon Trail wayside marker in Bonaparte next to a restored 1878 flour mill locates the approximate crossing area. Diarists indicate the site was near a place called Bonaparte Mills where the Des Moines River had a rock bottom. Several Mormons who died en route were buried at Bonaparte, but their grave sites are as yet unidentified.

☐ **F. Reed's Creek Camp:**
Ten acres were cleared by the Mormons for a short stay at this campsite.

☐ **G. Town of Farmington:**
The Mormons purchased goods and supplies from Farmington's merchants.

■ **H. Town of Bentonsport:**
In 1846, Mormon craftsmen found temporary construction jobs in Bentonsport. They built the Mason House Inn (NRHP) and several other buildings in the town.

☐ **I. Fordyce Tavern:**
"Two and one-half miles southeast of Winchester, this tavern still stands (along the Dragoon Trail). Many Mormons stopped for a night here. Mormon burials are nearby" (IMTA). (This site was associated with the Mormon Trail after 1846. It is not shown on the map.)

☐ **J. County seat Town of Keosauqua:**
The 1843 Van Buren County court house (NRHP) was the site of three concerts by Pitt s Nauvoo Band. The band performed to raise money for the trip west. The band members were from the encampment at Richardson s Point. (This site is not shown on the map.)

☐ **K. Ely Ford:**
Located in Lacey-Keosauqua State Park, a commemorative metal marker attached to a large pink stone at the river's edge marks the site of the ford used by "later emigrating companies" of Mormons (Kimball, 1988). (This site was associated with the Mormon Trail after 1846. The site is not shown on the map.)

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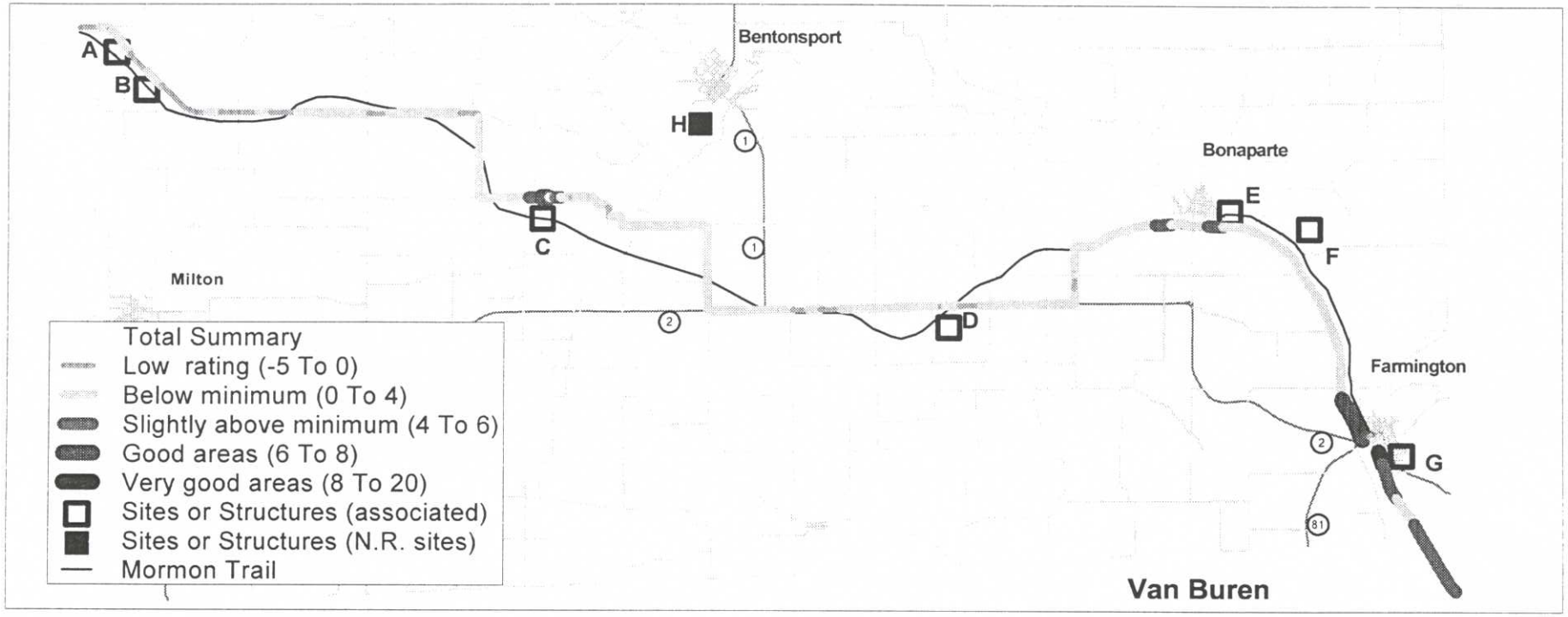

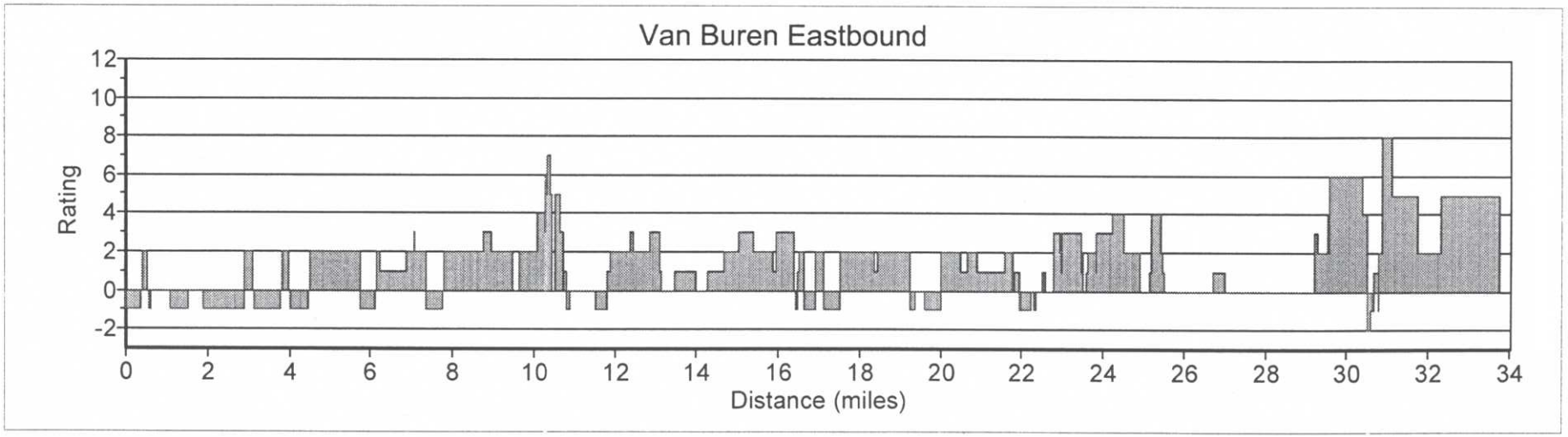

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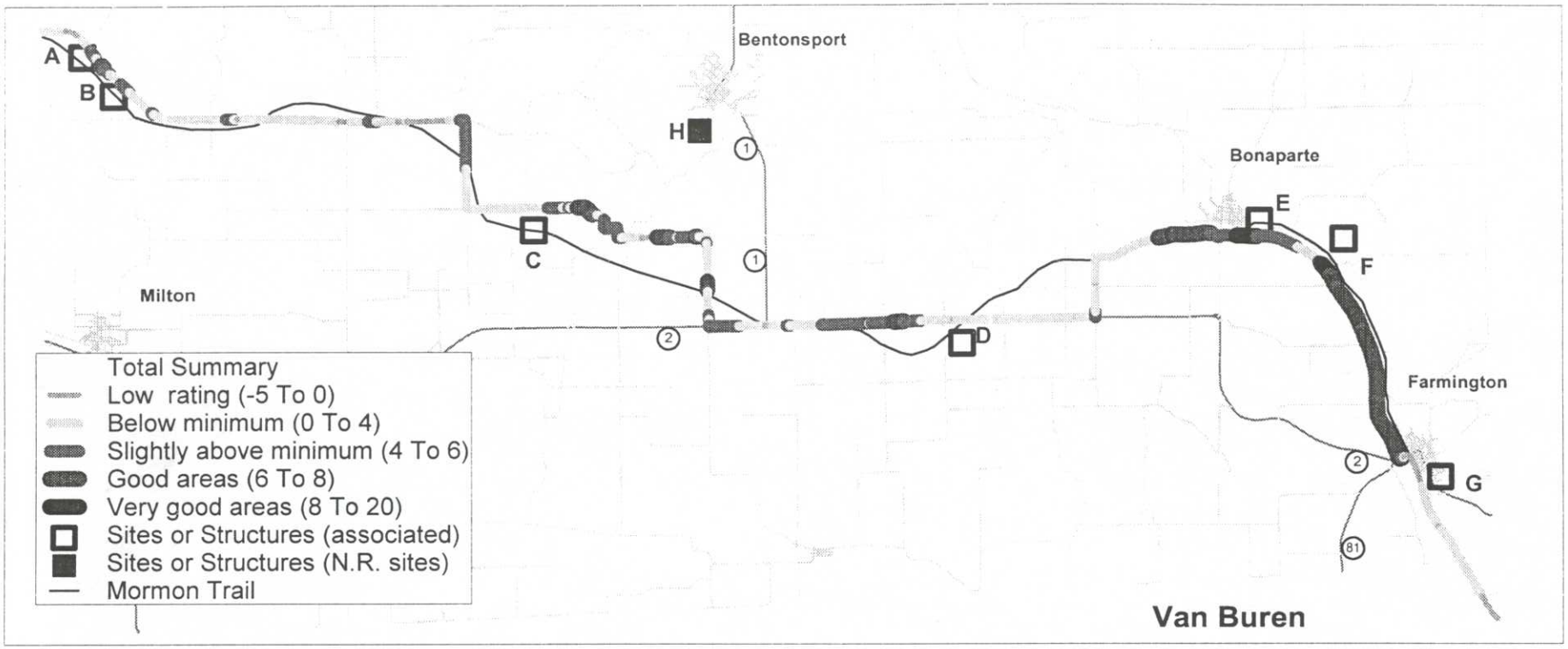

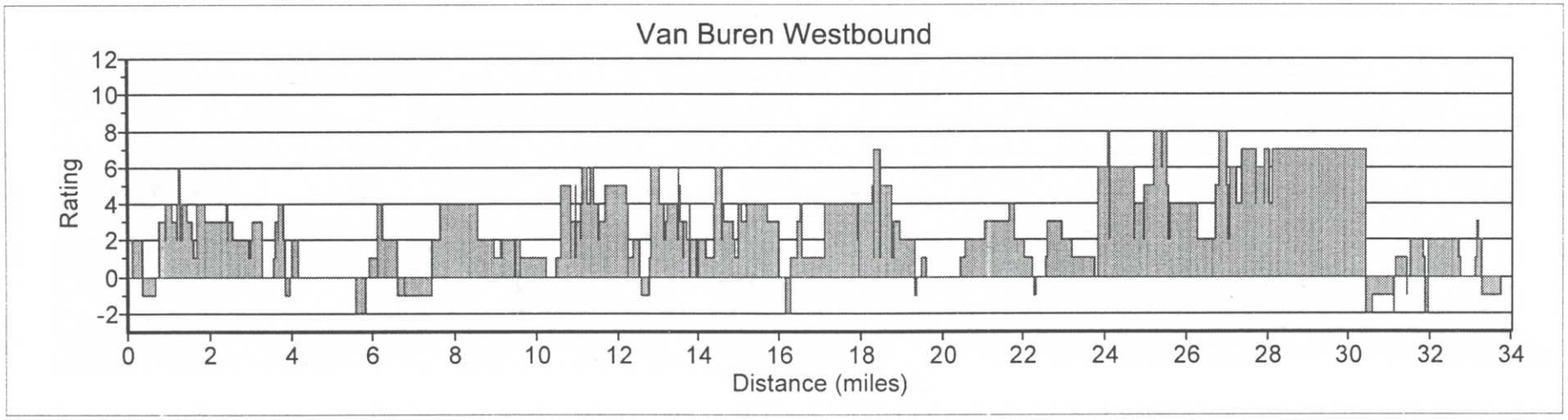

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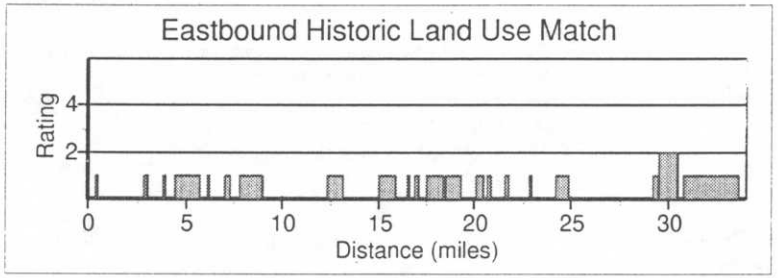

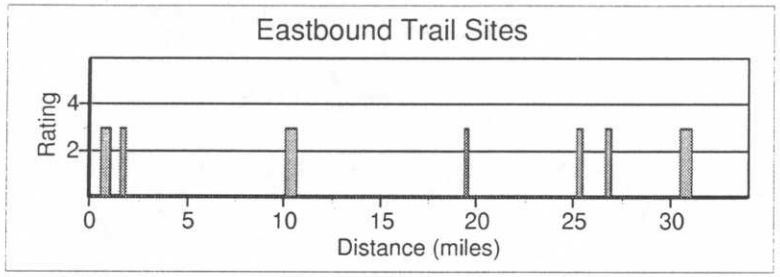

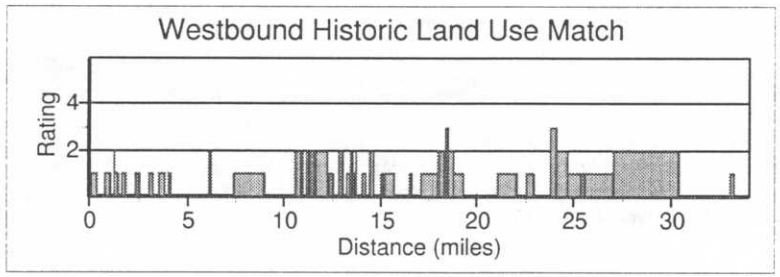

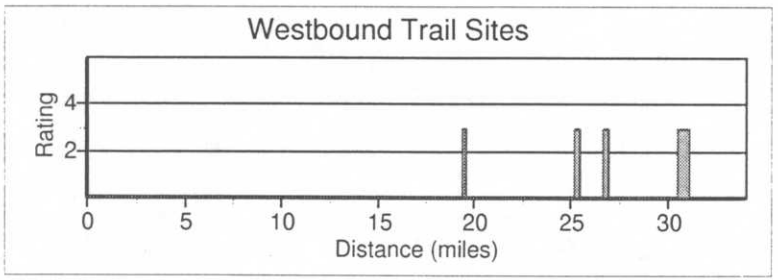

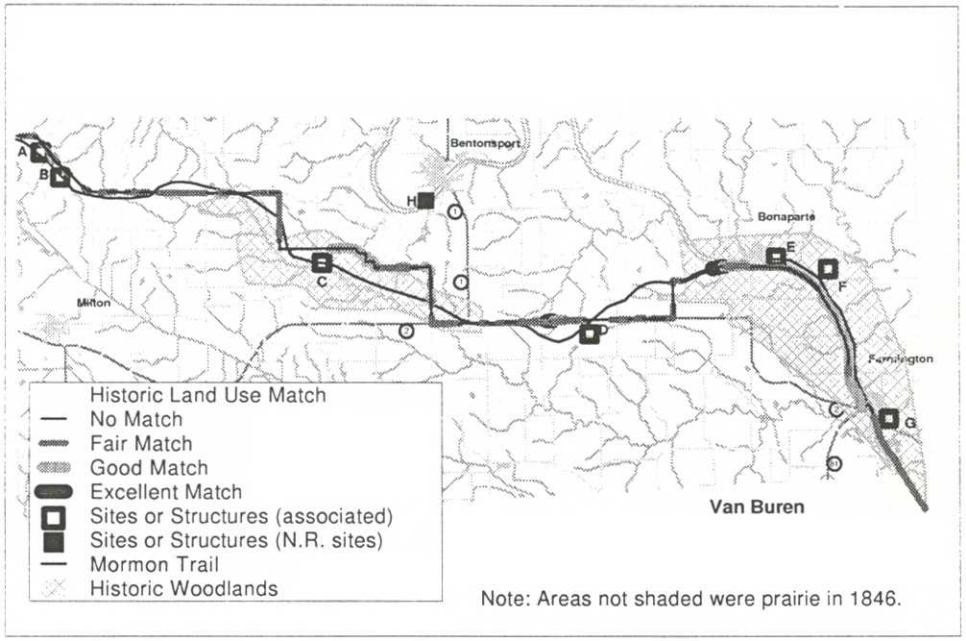

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 33.75 miles

Road Surface Types:
Gravel: 15.79 miles
Hard Surface: 17.96 miles

General Area Comments:
Iowa highway 2 in Van Buren County is designated as the Mormon Trail tour route by Iowa DOT. The Woodlands Scenic Byway designated by Iowa DOT crosses the inventoried route near Bonaparte. Sections of the inventoried route could be combined nicely with one or both of these designated routes as a historic byway loop.

Evaluation Data - Van Buren County:
High Rating:
Eastbound: 8
Westbound: 8

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 1.44
Westbound: 2.65

Percent of Route Rated Above 4:
Eastbound: 12.53%
Westbound: 36.43%

Average Rating when Rating is Above 4:
Eastbound: 5.18
Westbound: 5.32

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 16.83%
Westbound: 25.81%

Grasslands:
Eastbound: 21.08%
Westbound: 23.63%

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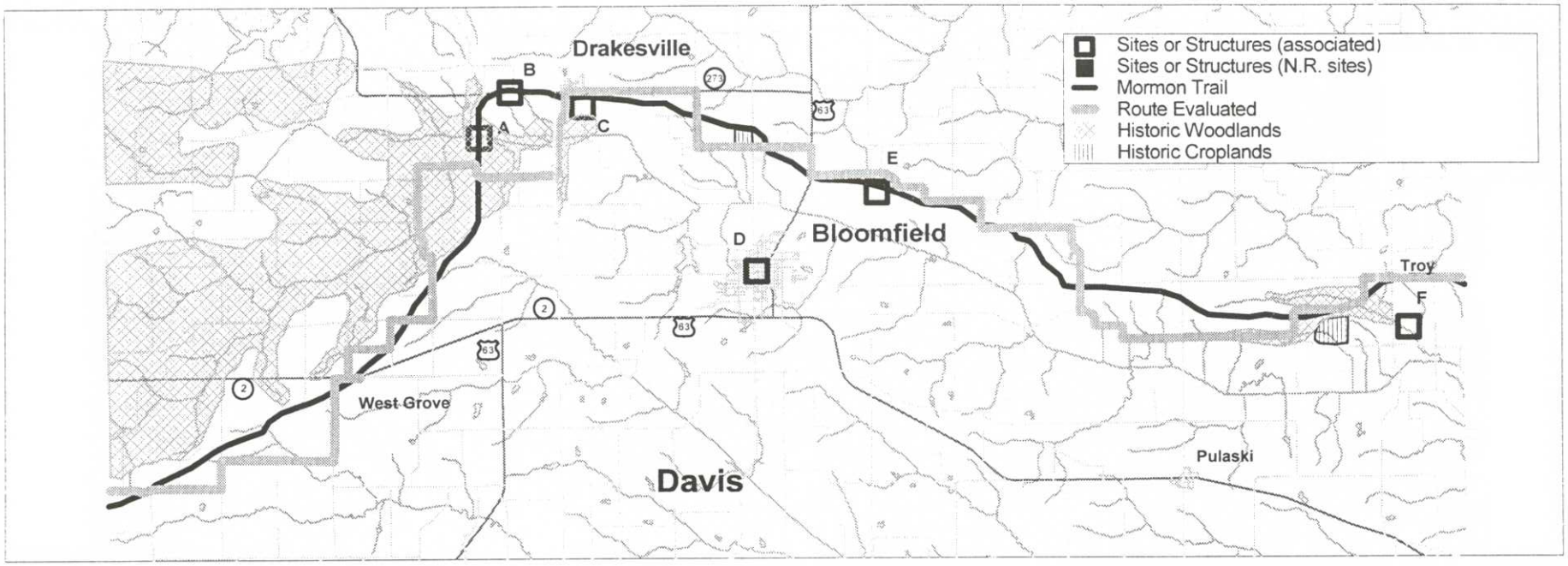

In western Davis County the Mormon Pioneer group turned south. Later groups would follow a northern route now called the "Mormon Trace." The two routes would later join about 80 miles to the west.

Historic Land Use Along the Mormon Trail:
The trail in Davis County was located primarily in prairie grasslands. The Pioneer Trail meandered along the north side of the woodlands bordering the Fox River to Drakesville. The trail then turned to the southwest crossing the woodlands along the Fox River.

Historic and Other Sites Associated with the Trail:
The National Park Service study (Kimball, 1991) contains no sites recommended for NRHP within Van Buren County. The Office of the State Archaeologist has no recorded sites associated with the Mormon Pioneer Trail.

☐ **A. Fox River Crossing:**
This crossing was used by Brigham Young in late March 1846

☐ **B. Start of the Mormon Trace:**
The Mormon Trace was used by later Mormon groups. The later groups, beginning in mid 1846 to about 1852, followed a trail along the north side of the Chariton River. The Mormon Trace eventually rejoined the Pioneer Trail in Clarke County about 80 miles to the west.

☐ **C. Mormon-built log cabin at Drakesville:**
This cabin was moved from its original location (unknown) to a park in the north part of Drakesville.

☐ **D. Bloomfield:**
The Davis County Historical Museum contains a "Mormon Log Cabin."

☐ **E. Evan's camp:**
This site was used in March 1846 in an area of "abundant timber" (IOTA).

☐ **F. Stringtown Stagecoach Station.**
This historic stagecoach station, built in 1842, was an appealing stop for many Mormon emigrants; several groups or companies, following a southerly detour from the Pioneer Trail, camped or passed through Stringtown.

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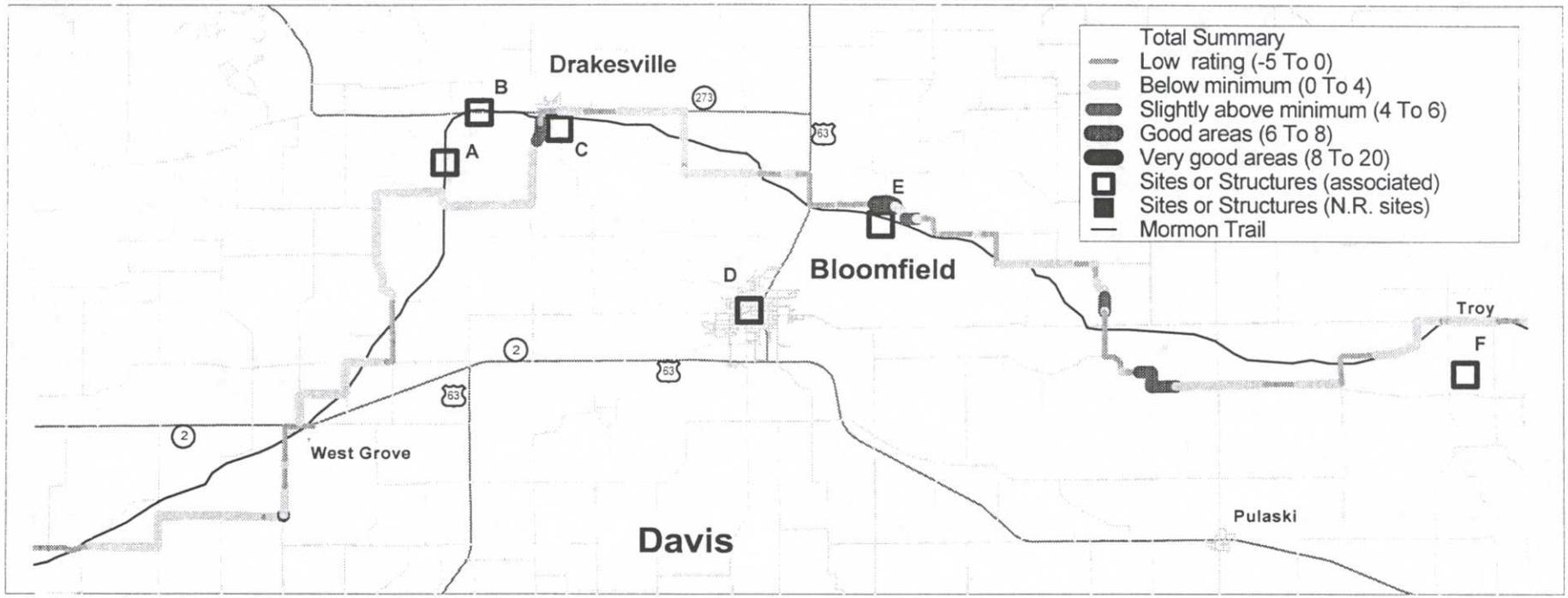
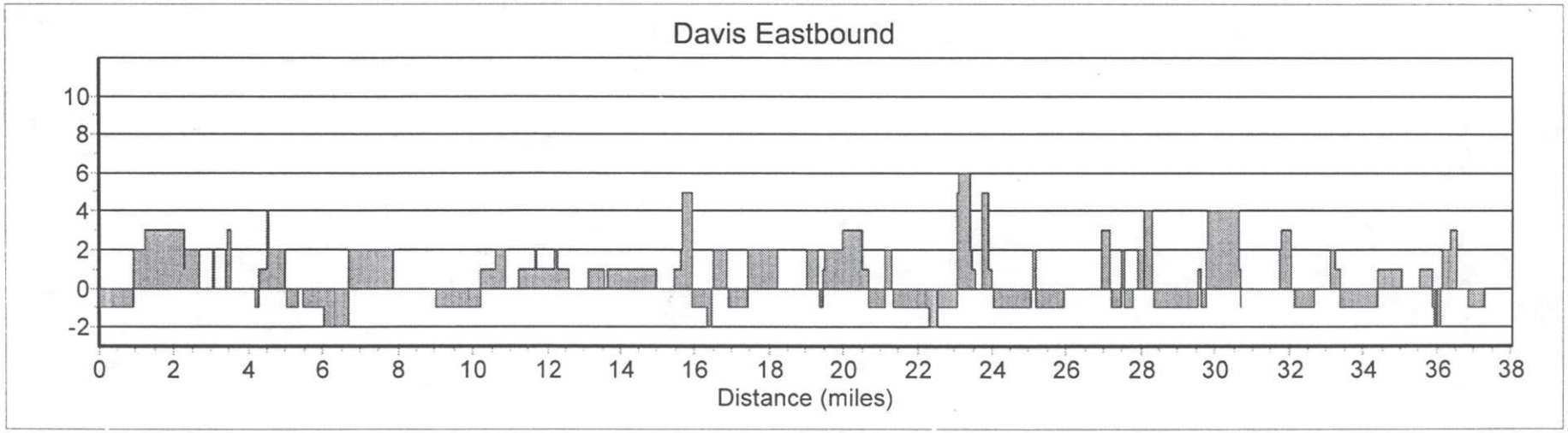

Total Summary
Low rating (-5 To 0)
Below minimum (0 To 4)
Slightly above minimum (4 To 6)
Good areas (6 To 8)
Very good areas (8 To 20)
Sites or Structures (associated)
Sites or Structures (N.R. sites)
Mormon Trail
Drakesville
Bloomfield
Troy
West Grove
Pulaski
Davis
A
B
C
D
E
F
273
63
2


Davis Eastbound
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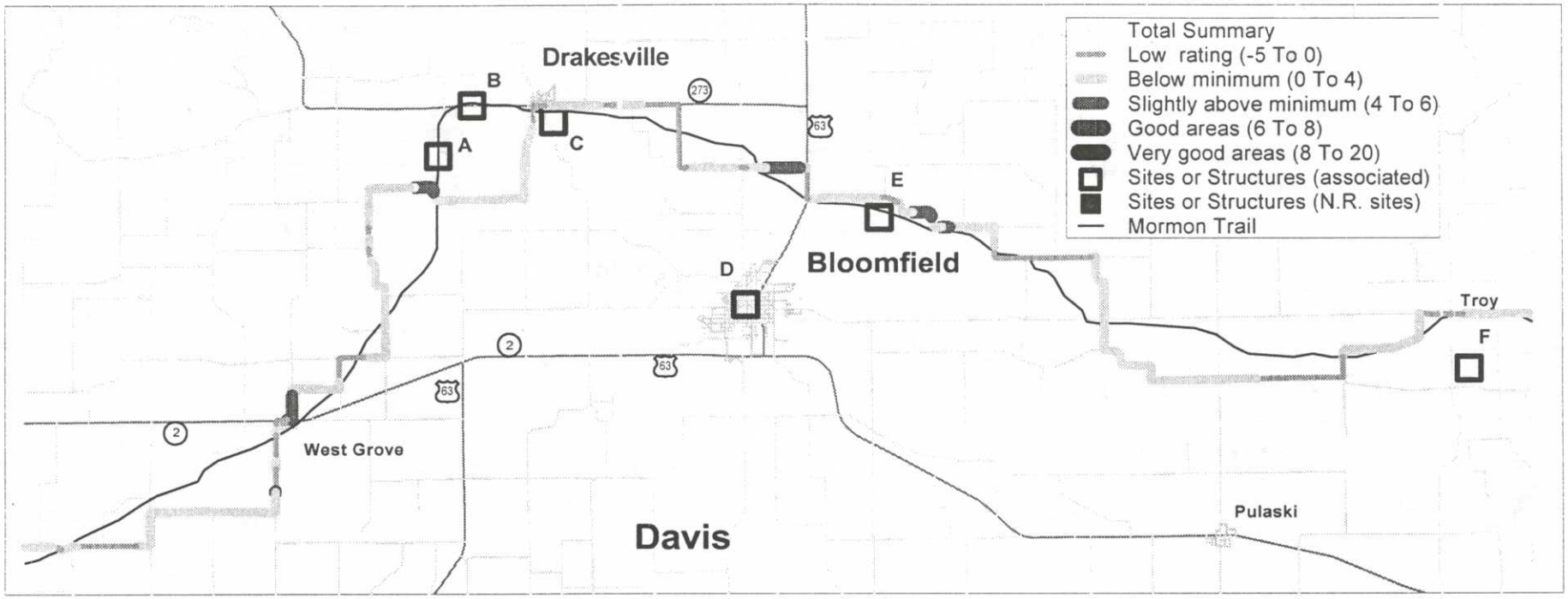
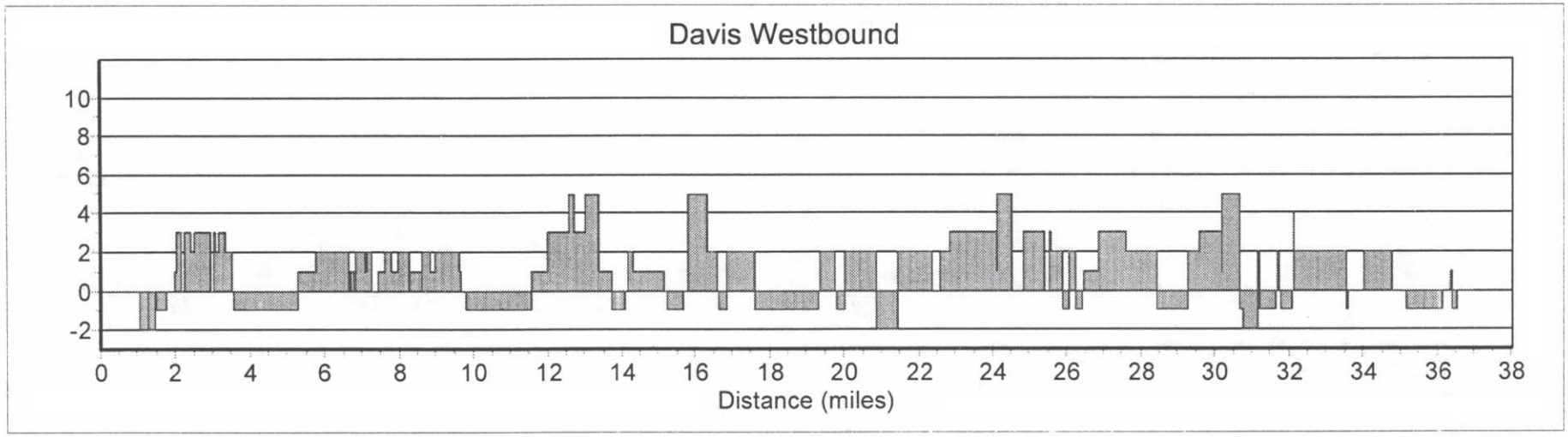
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38
Distance (miles)





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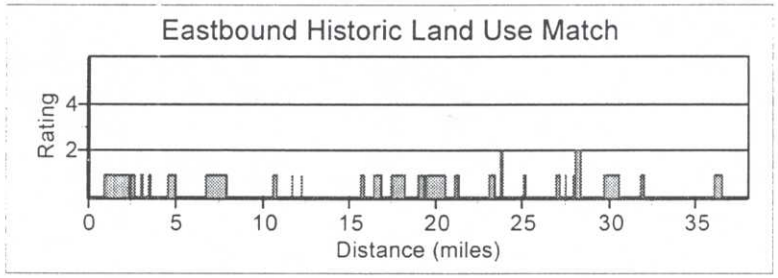

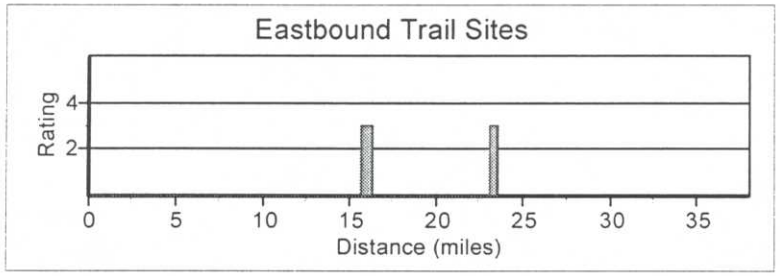

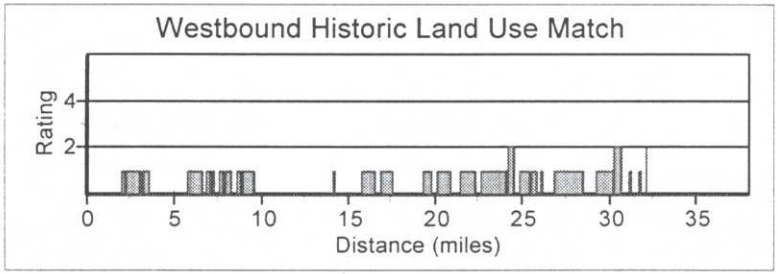

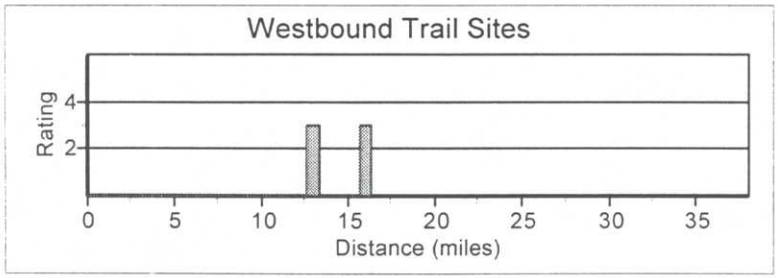

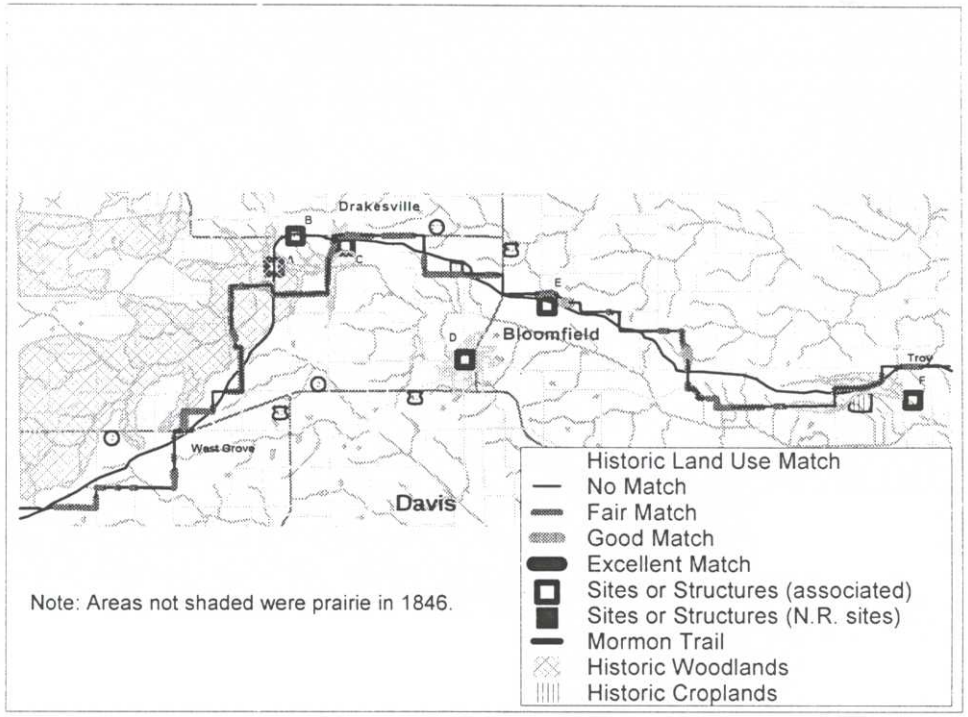

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 36.77 miles

Road Surface Types:
Gravel: 21.51 miles
Hard Surface: 15.26 miles

General Area Comments:
Iowa highway 2 in Davis County is designated as the Mormon Trail tour route by Iowa DOT. Part of the inventoried route follows the Woodland Scenic Byway designated by the Iowa DOT.

Evaluation Data - Davis County:

High Rating:
Eastbound: 6
Westbound: 5

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 0.51
Westbound: 1.00

Percent of Route Rated Above 4:
Eastbound: 5.16%
Westbound: 5.07%

Eastbound: 4.59
Westbound: 4.98

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 1.01%
Westbound: 0.29%

Grasslands:
Eastbound: 24.91%
Westbound: 37.42%

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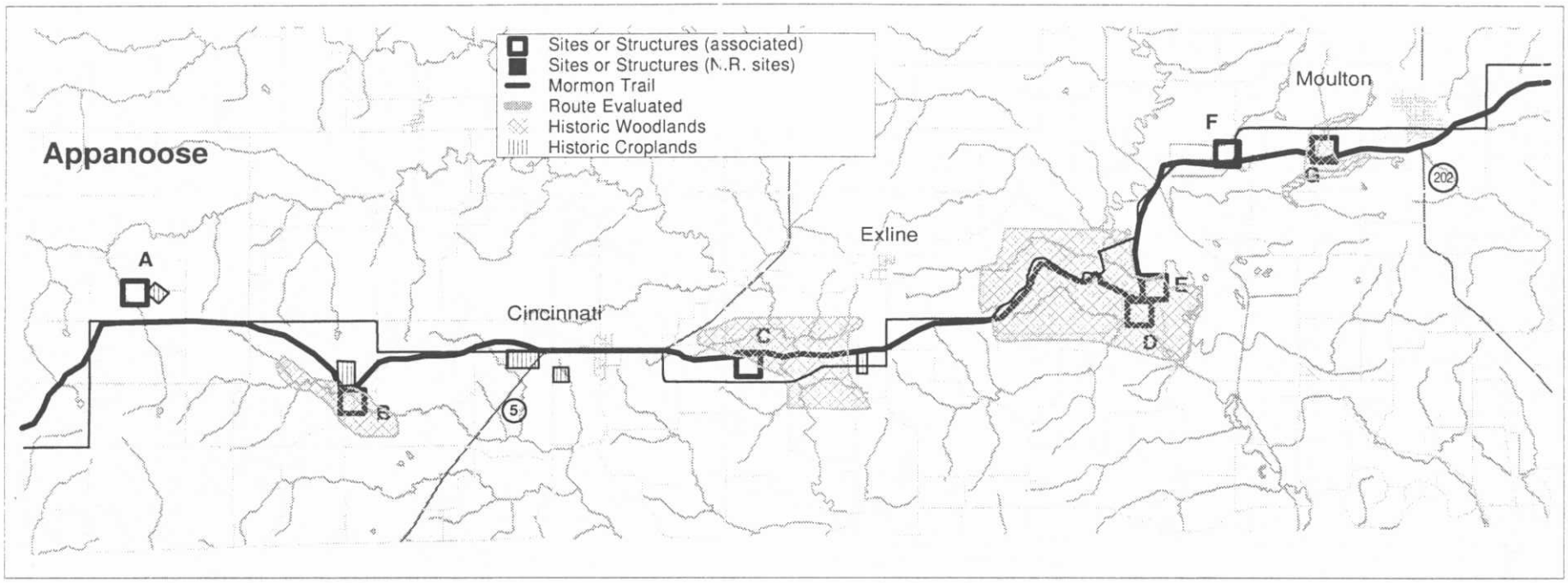

Existing trails in Appanoose County were used the Mormon Pioneer Group. Among these was a trail used by the Mormons ten years earlier as they traveled east from Missouri to Nauvoo Illinois. The "Mormon Trace" route followed by later groups begins in the northeast part of the county.

Historic Land Use Along the Mormon Trail:
The trail in Appanoose County was located in prairie grasslands. The trail meandered along watershed divides thereby avoiding stream crossings. Woodlands were only encountered along the Chariton River and Kirkendall Creek.

Historic and Other Sites Associated with the Trail:
The National Park Service study (Kimball, 1991) contains no sites recommended for NRHP within Appanoose County. The Office of the State Archaeologist has no sites associated with the Mormon Pioneer Trail.

☐ **A. Kirkendall Camp:**
This campsite was named for a settler who had a cabin nearby.

☐ **B. West Shoal Creek Camp:**
The 1846 travelers after camping at this site left the earlier (1838) eastbound trail that Mormons had followed from Missouri to Nauvoo. A visible depression on the south side of Shoal Creek is a remnant of this earlier trail. The campsite is thought to have been used both in 1838 and in 1846 because of a good spring located there "Jump Spring" (IMTA).

☐ **C. Shoal Creek Camp:**
The Pioneer group stayed at this site for two days. It was a main camp.

☐ **D. Chariton River Camp:**
The entire group stayed here for several days while leaders regrouped them into three companies (Kimball, 1991). The camp site is located southwest of the river crossing.

☐ **E. Chariton River Crossing:**
The Mormons crossed what was then the Chariton River along the section line between Sections 25 and 26 of Caldwell Township. In 1906 the river was straightened, and the old river bed is now part of Pigeon Creek. The crossing site later became known as Pilkey Ford.

☐ **F. Trail Ruts:**
Ruts are visible north of the southern "jog" in the county's road system near a farm house.

☐ **G. Coffman's Point Camp:**
This campsite is located on the north side of Locust Creek.

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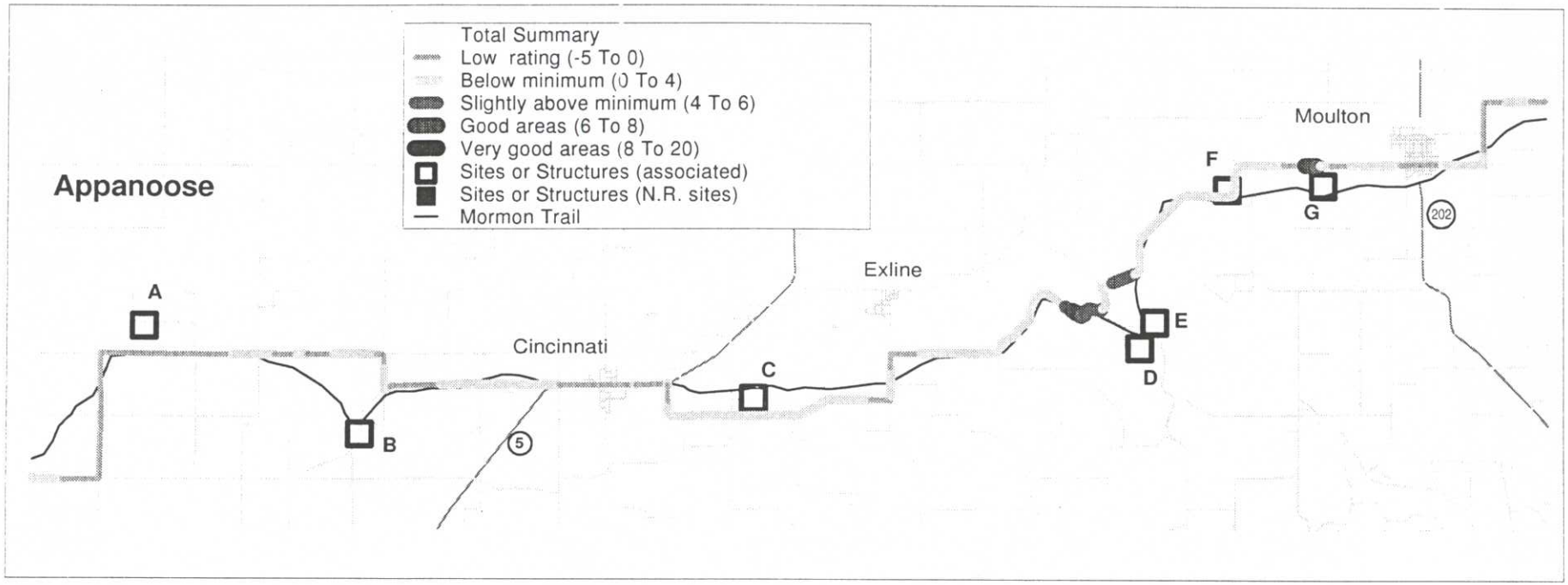

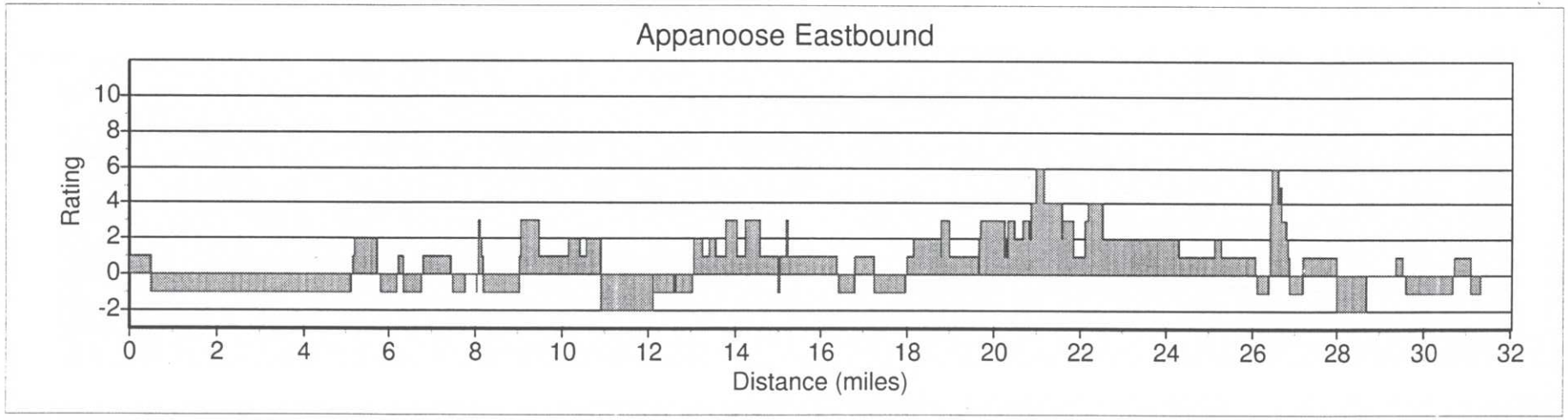

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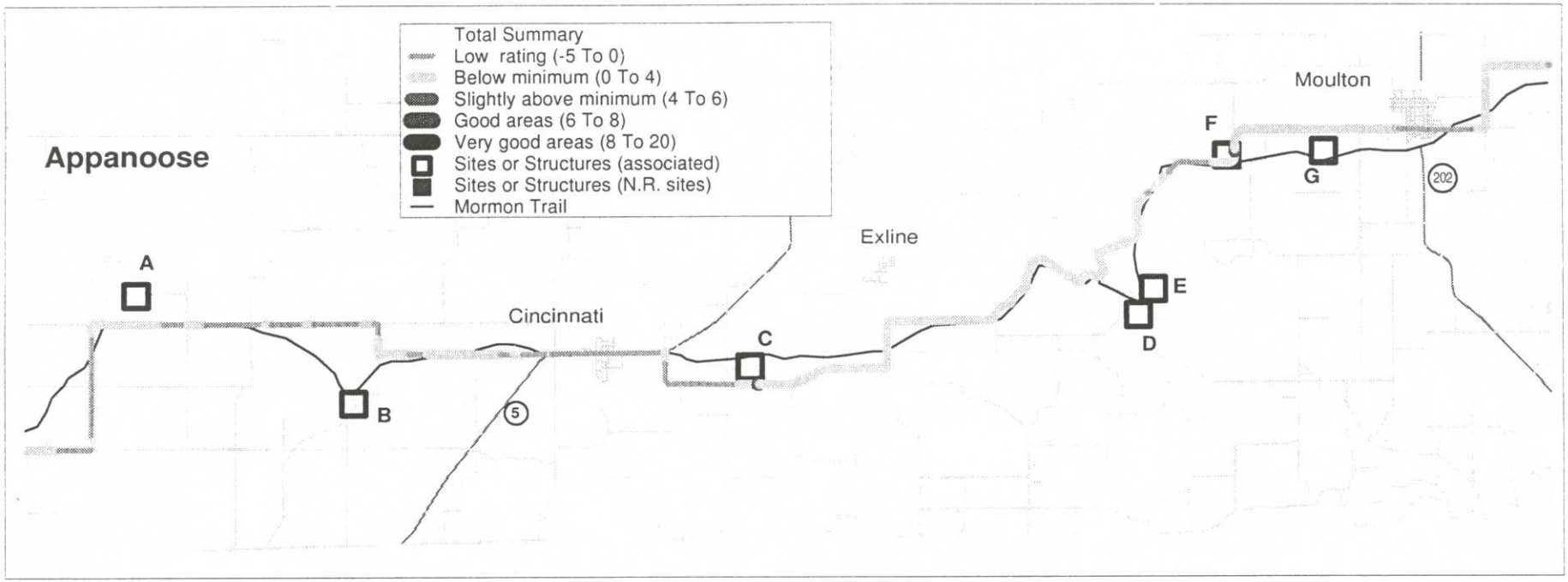

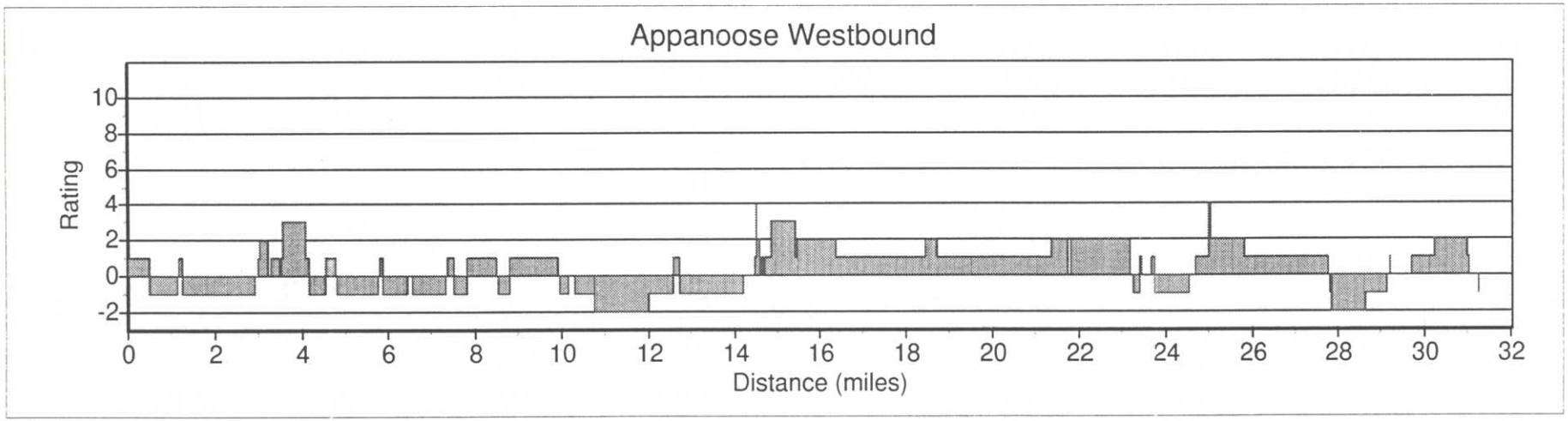

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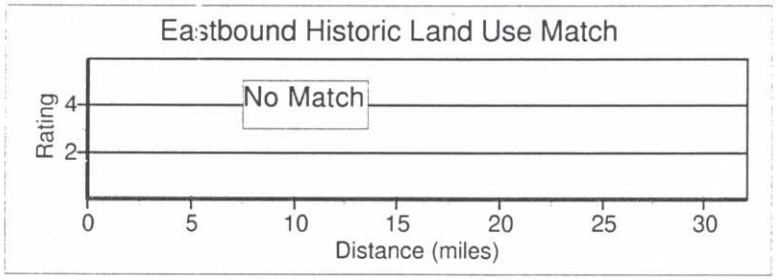

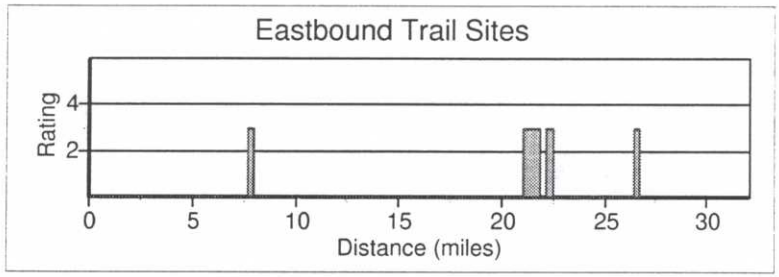

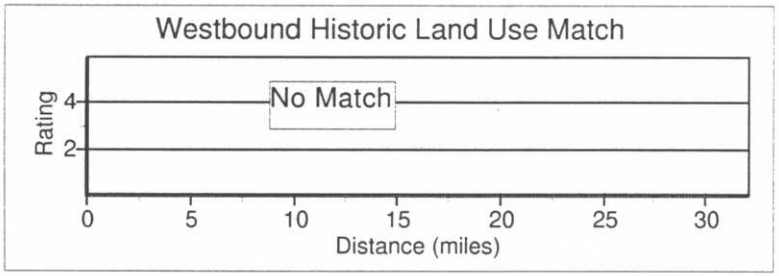

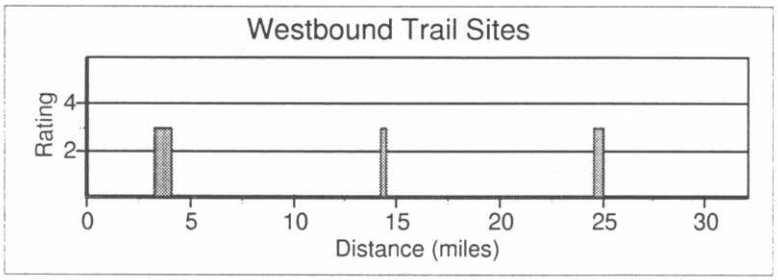

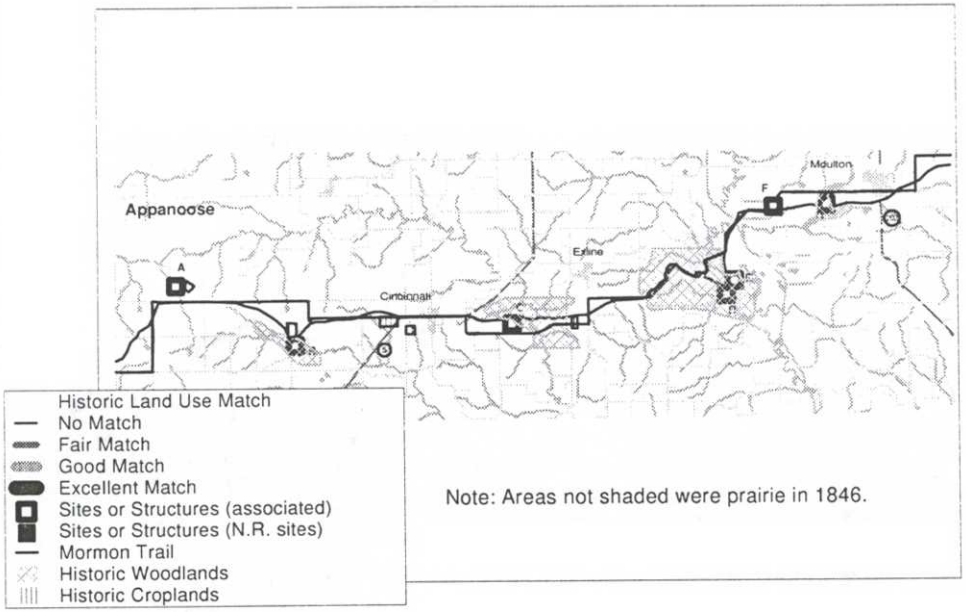

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 31.49 miles

Road Surface Types:
Gravel: 28.76 miles
Hard Surface: 2.73 miles

General Area Comments:
Iowa highway 2 in Appanoose County is designated as the Mormon Trail tour route by Iowa DOT.

Evaluation Data - Appanoose County:

Eastbound: 6
Westbound: 4

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 0.56
Westbound: 0.34

Percent of Route Rated Above 4:
Eastbound: 4.32%
Westbound: 0.25%

Average Rating when Rating is Above 4:
Eastbound: 4.55
Westbound: 4.00

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0%
Westbound: 0%

Grasslands:
Eastbound: 0%
Westbound: 0%

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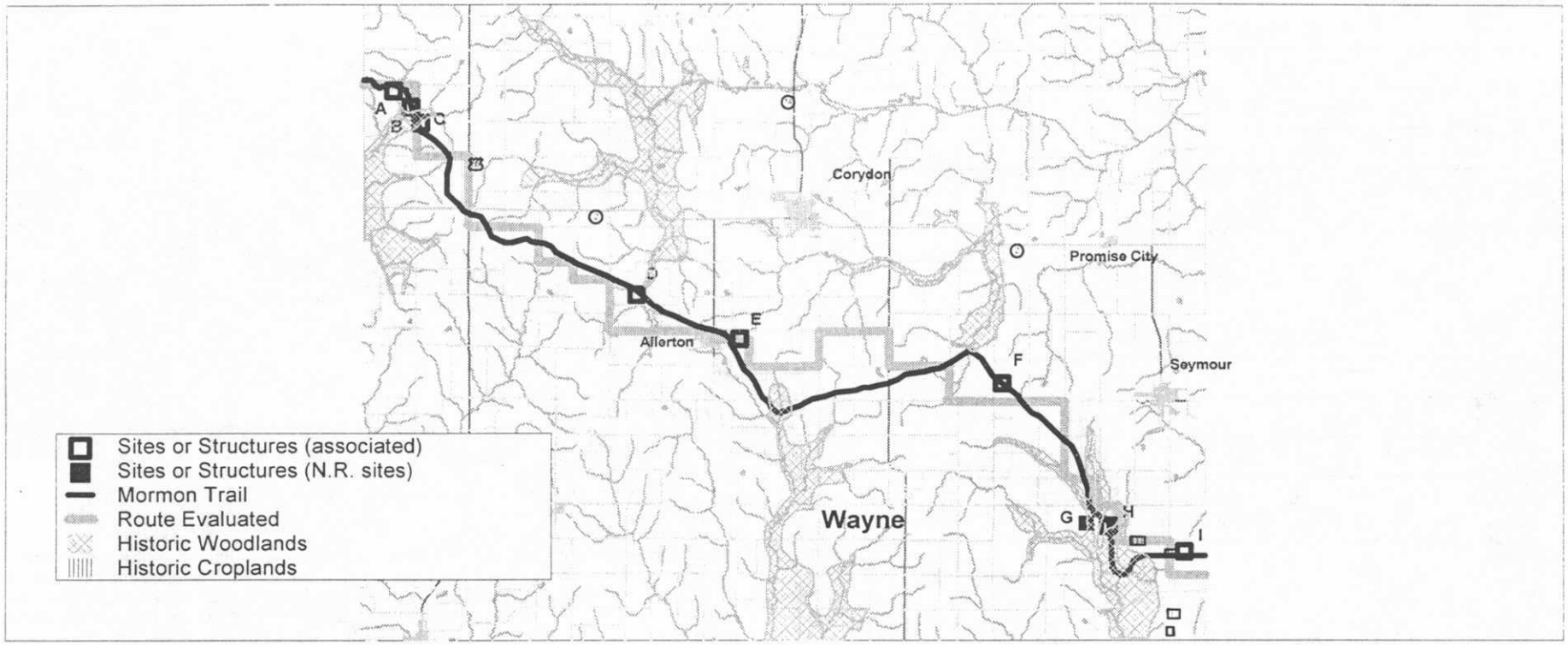

The original Pioneer Trail of 1846 through Wayne County was used only once or twice before being abandoned in the spring of 1846 for the more direct routes through Monroe and Lucas counties. Trail ruts may remain but they are most likely associated with later, non-Mormon use.

Historic Land Use Along the Mormon Trail:
The trail was almost entirely located in prairie grasslands. The only significant woodlands encountered were along Locust Creek in the southeastern part of the county.

Historic and Other Sites Associated with the Trail:
The Office of the State Archaeologist has no sites associated with the Mormon Pioneer Trail

☐ **A. Trail ruts:**
Trail ruts are said to be visible "west of Steele Creek, rising to Artillery Grove" (IMTA). This seems highly unlikely given that the Mormons only followed this route once or twice in 1846. The rut remains are more likely associated with later, non-Mormon use.

☐ **B. Muddy Creek Camp:**
"This camp was in the low area between Muddy Creek, and Steele Creek" (IMTA).

☐ **C. Pleasant Grove Camp:**
"This camp was on a level area of prairie just short of Muddy Creek, and Steele Creek. The county road is between these two creeks" (IMTA).

☐ **D. Camp Creek Camp:**
This campsite is located just north of the present Bob White State Park. "Camp was made on the west side of the creek because of a prairie fire to the east" (IMTA).

☐ **E. Pleasant Point Camp:**
A campsite located on a ridge southeast of present-day Allerton.

☐ **F. Rolling Prairie Camp:**
Some of the 1846 pioneers who camped at Locust Creek Camp No. 2. used this campsite.

☐ **G. Locust Creek Camp No. 2:**
A major campsite, located on a ridge, one-half mile to the west of the first Locust creek Camp. A well-known Mormon hymn was written at this campsite. This is the only historic site in the county mentioned in Kimball's National Park Study. Very near this camp is a small cemetery (Tharp Cemetery) where the county and the Mormon Church have placed a marker.

☐ **H. Locust Creek Camp No. 1:**
A campsite is located on a ridge between two creeks. The site is near Locust Creek Camp No. 2.

☐ **I. Hickory Ridge Camp:**
This campsite may have been used by only a part of the Pioneer group.

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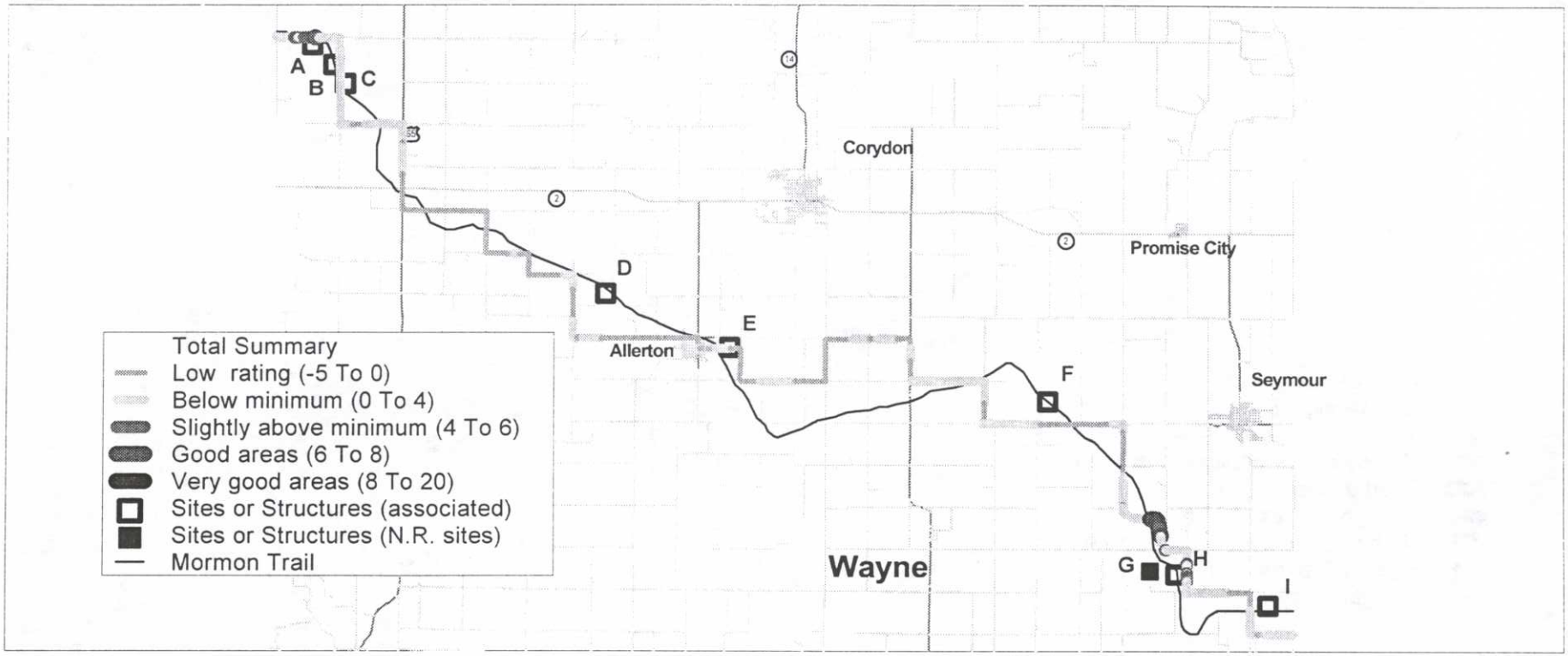
A
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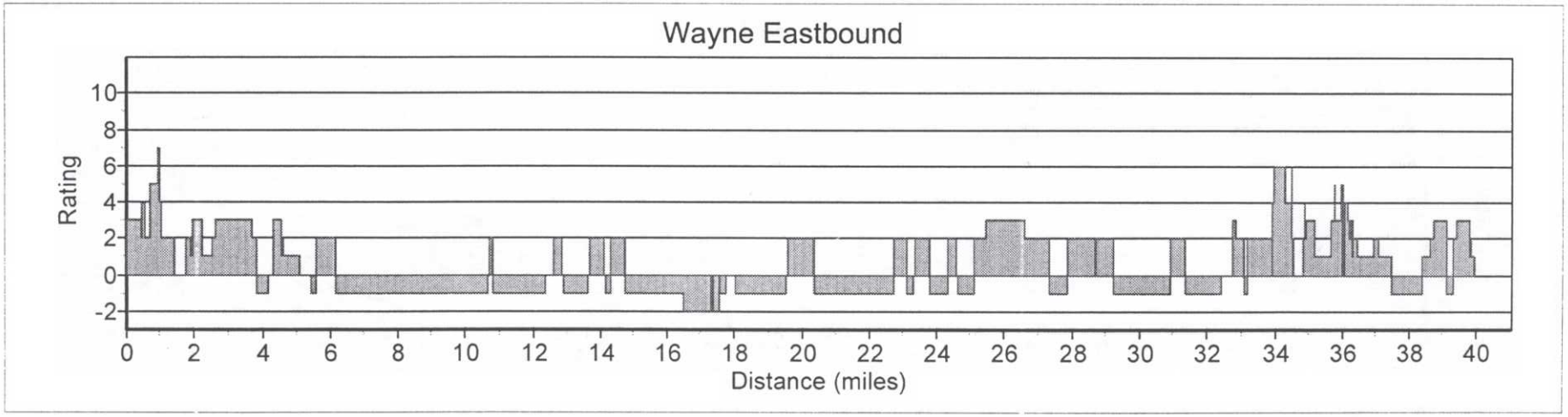
Corydon
Promise City
Allerton
Seymour
Wayne
Total Summary
Low rating (-5 To 0)
Below minimum (0 To 4)
Slightly above minimum (4 To 6)
Good areas (6 To 8)
Very good areas (8 To 20)
Sites or Structures (associated)
Sites or Structures (N.R. sites)
Mormon Trail


Wayne Eastbound
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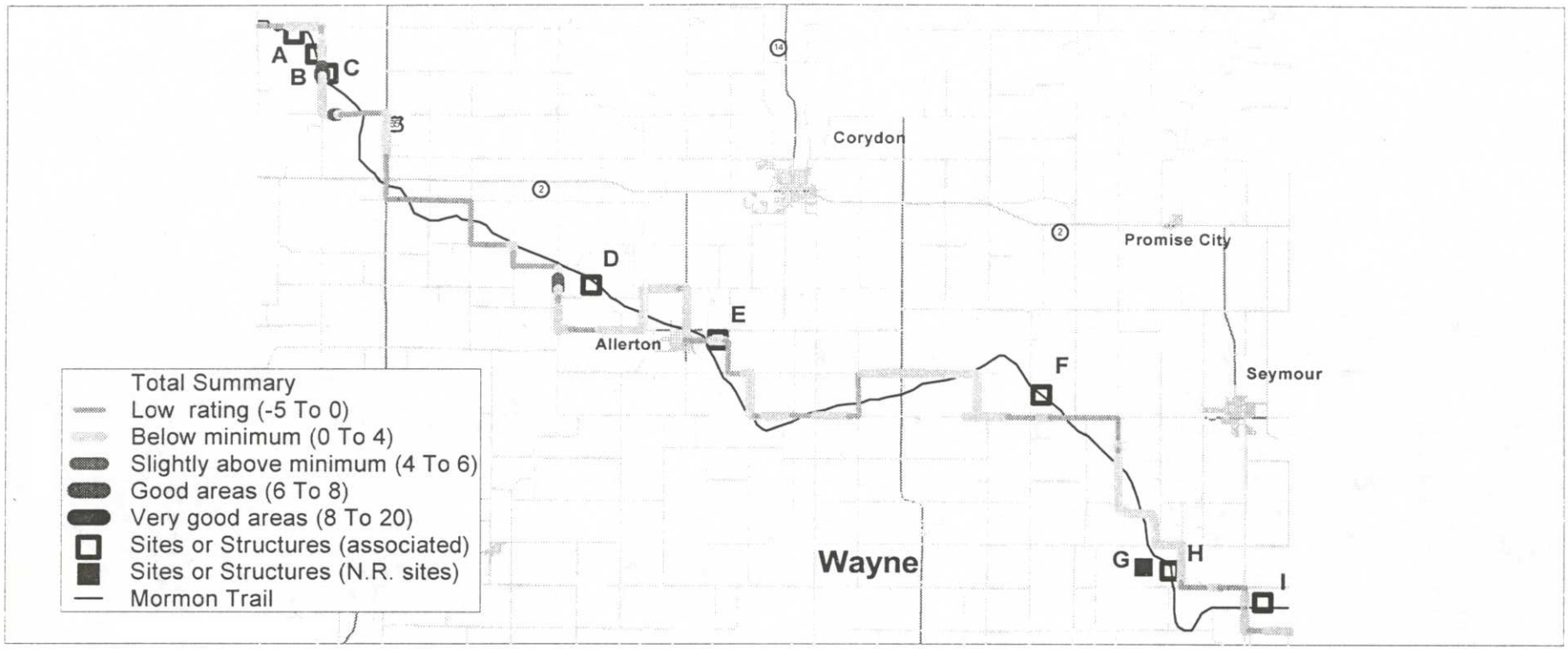
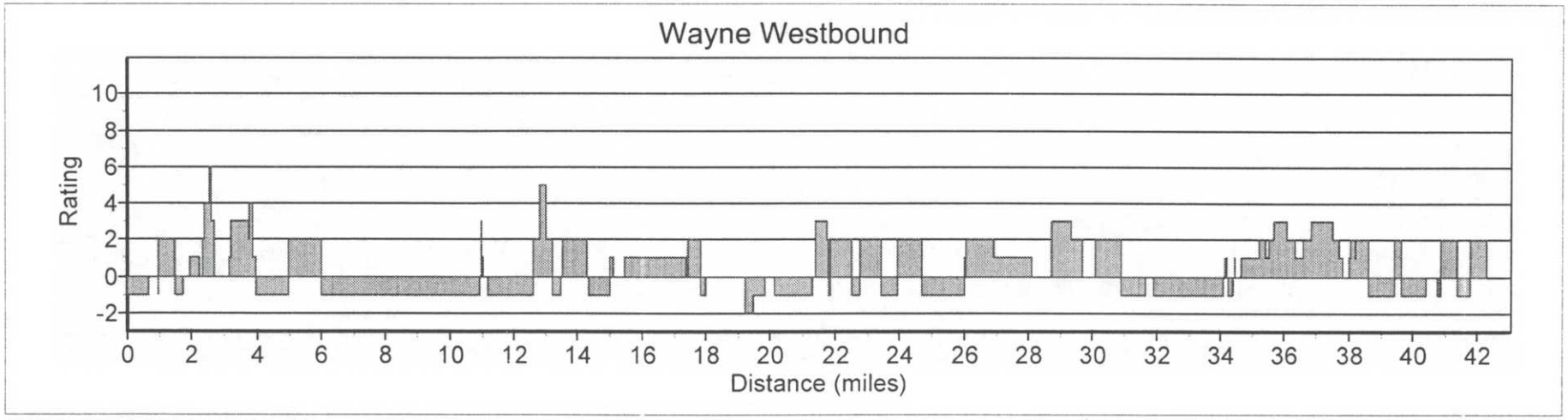
Distance (miles)





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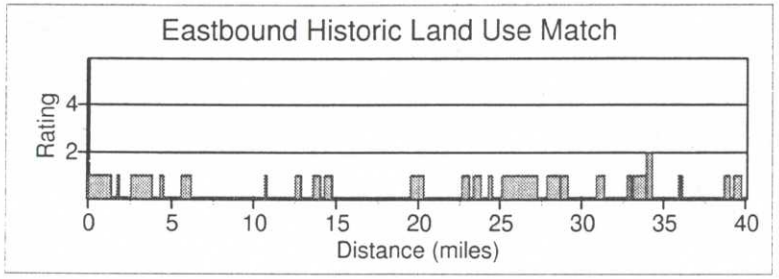

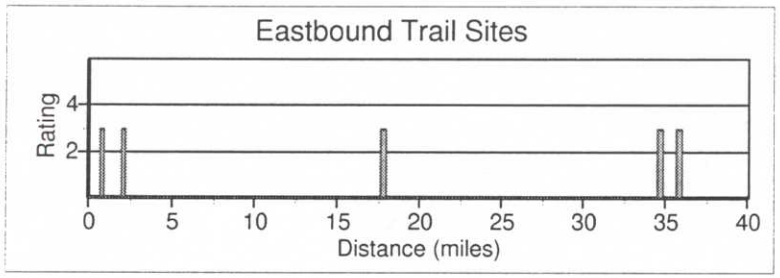

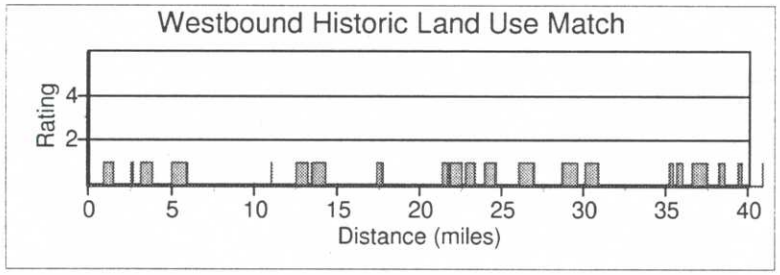

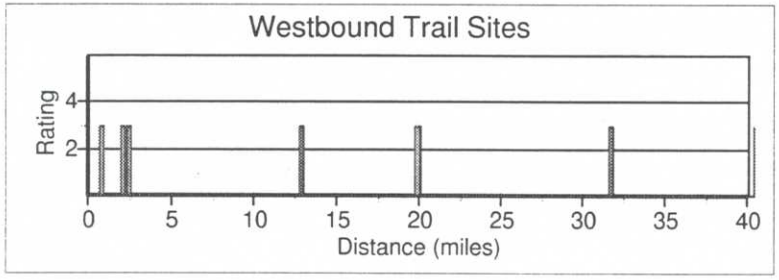

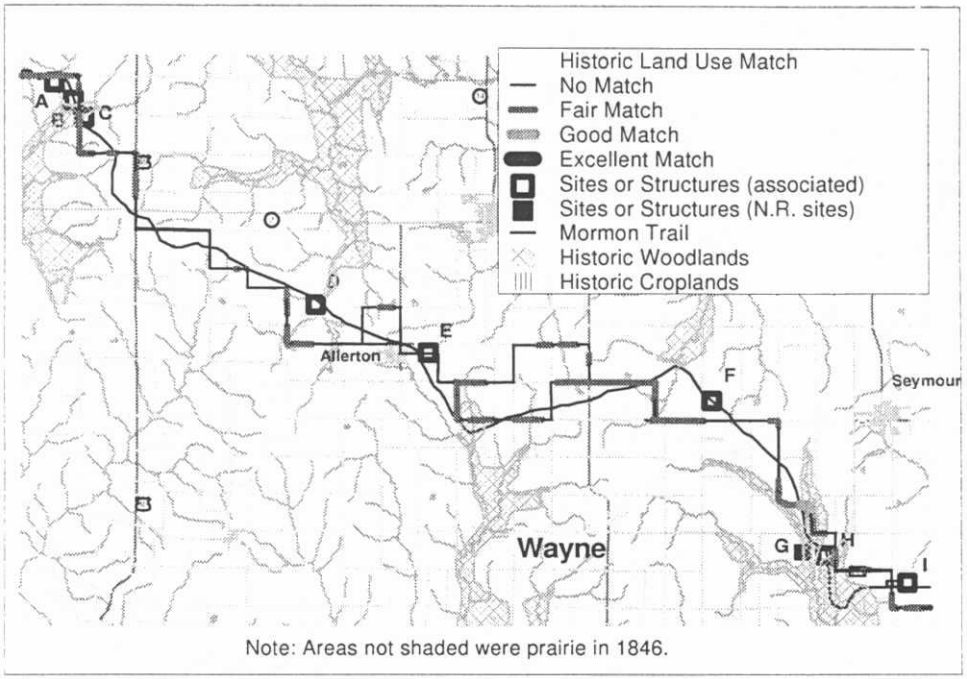

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 37.96 miles

Road Surface Types:
Gravel: 28.30 miles
Hard Surface: 9.66 miles

General Area Comments:
Iowa Highway 2 in Wayne County is designated as the Mormon Trail tour route by Iowa DOT

Evaluation Data - Wayne County:

High Rating:
Eastbound: 7
Westbound: 6

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 0.49
Westbound: 0.40

Percent of Route Rated Above 4:
Eastbound: 2.99%
Westbound: 1.35%

Average Rating when Rating is Above 4:
Eastbound: 4.93
Westbound: 4.75

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0.40%
Westbound: 4.52%

Grasslands:
Eastbound: 32.39%
Westbound: 24.53%

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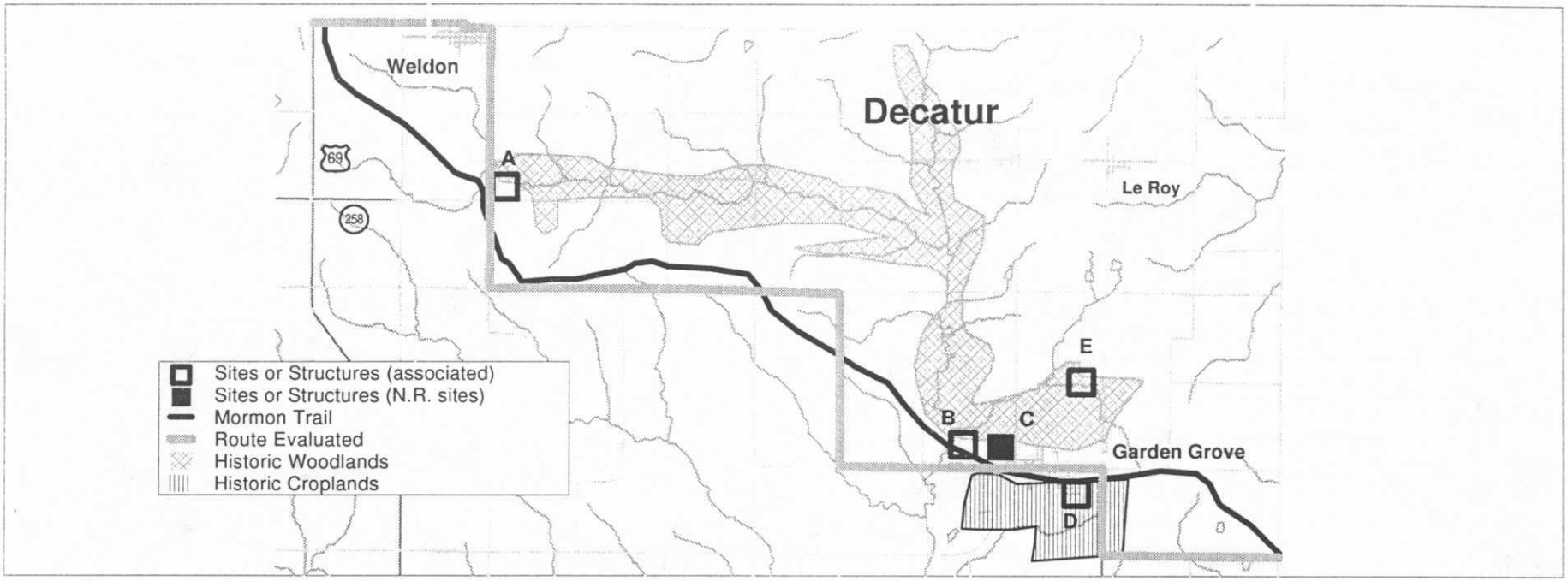

Brigham Young's companies passed through the northeastern corner of Decatur County in the spring of 1846, establishing a way station at Garden Grove. The route they followed was used just once or twice before being abandoned around May 1846, for another a second route from Dodge's Point near Iconium (in Appanoose County) to Garden Grove. This second route was itself soon abandoned for the route termed the Mormon Trace which passed through Monroe and Lucas county bypassing Garden Grove.

Evidently there was still some traffic between the northern alternative (Mormon Trace) and Garden Grove. A trail to Garden Grove branched off the northern route in southeastern Clarke County and proceeded south to intersect the Pioneer Trail just east of present-day Garden Grove. Both the Garden Grove and Mt. Pisgah way stations were in use from 1846 through 1852. Traffic between them may have followed the original Pioneer Trail or the branch from the northern alternative.

Historic Land Use Along the Mormon Trail:
The trail in northeastern Decatur County generally moved through prairie grasslands. The Garden Grove area and the nearby Weldon River were the only locations with woodland land use.

Historic and Other Sites Associated with the Trail:
The National Park Service study (Kimball, 1991) contains one site recommended for NRHP within Decatur County. The Office of the State Archaeologist also has one site associated with the Mormon Pioneer Trail.

☐ **A. Hickory Thunder Camp:**
A Pioneer route campsite used once in May 1846.

☐ **B. Garden Grove Way Station's Site:**
This site is the original settlement, located by the National Park Service archaeologist S. De Vore in 1993. It is on the "north side of the county section line road on the ridge top overlooking the Weldon River . . . to the west . . . the site is now in pasture" (OSA site form, 1993).

■ **C. Trailside Historic Park:**
This small county park located a about one mile west of Garden Grove contains a Mormon Cemetery. No graves are visible, but the cemetery site is marked with a metal marker on a sandstone slab. The marker is surrounded by a fence.

☐ **D. Garden Grove town park marker:**
A large boulder with a bronze plaque is in the town's park. The town of Garden Grove evolved from the temporary settlement created by the Mormons in 1846. The camp may have lasted as late as 1853 when more permanent settlers bought the improved land and cabins from the Mormons.

☐ **E. Mormon Pool Creek/trail to the northern "Mormon trace":**
This northern trail crosses Mormon Pool Creek, " . . . so named because some baptisms were performed there" (IMTA). This area is marked on the original government surveys (1846-47) as Garden Grove.

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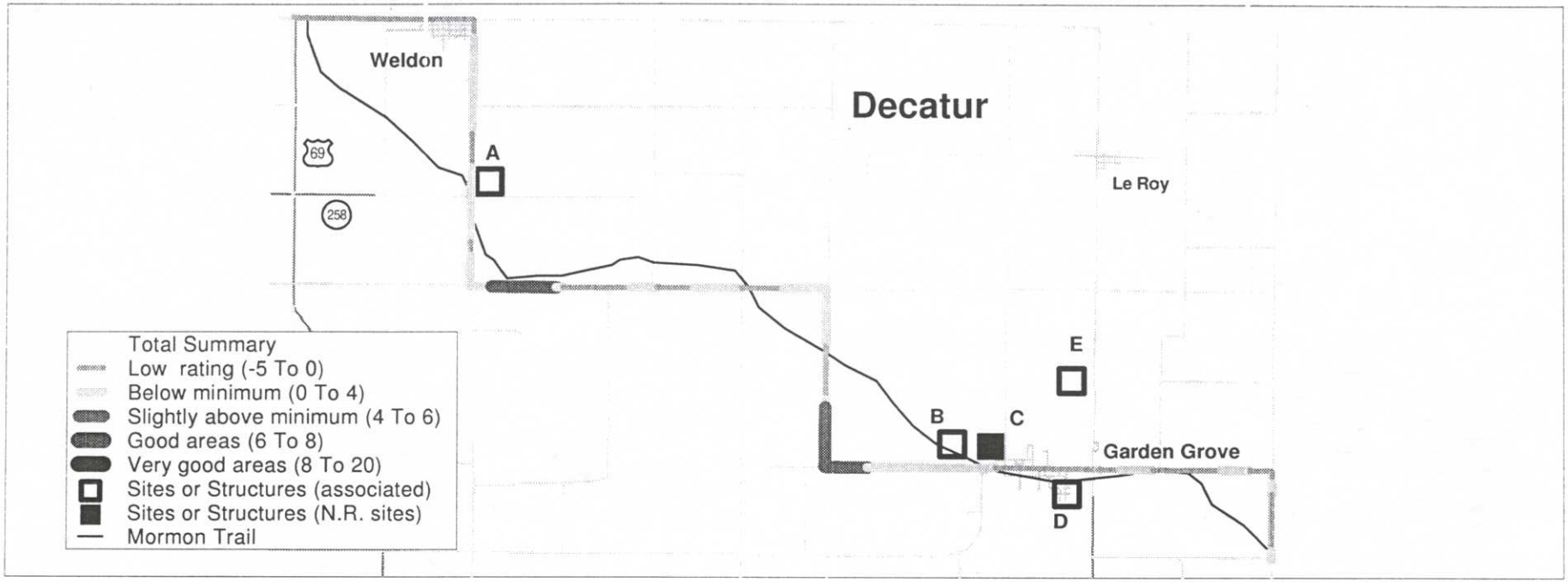
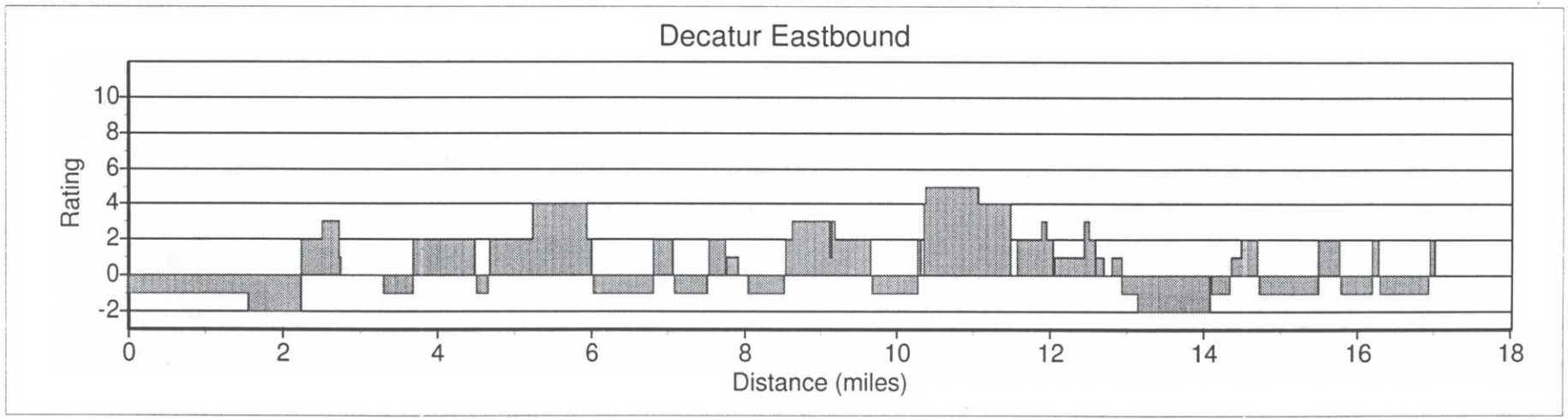
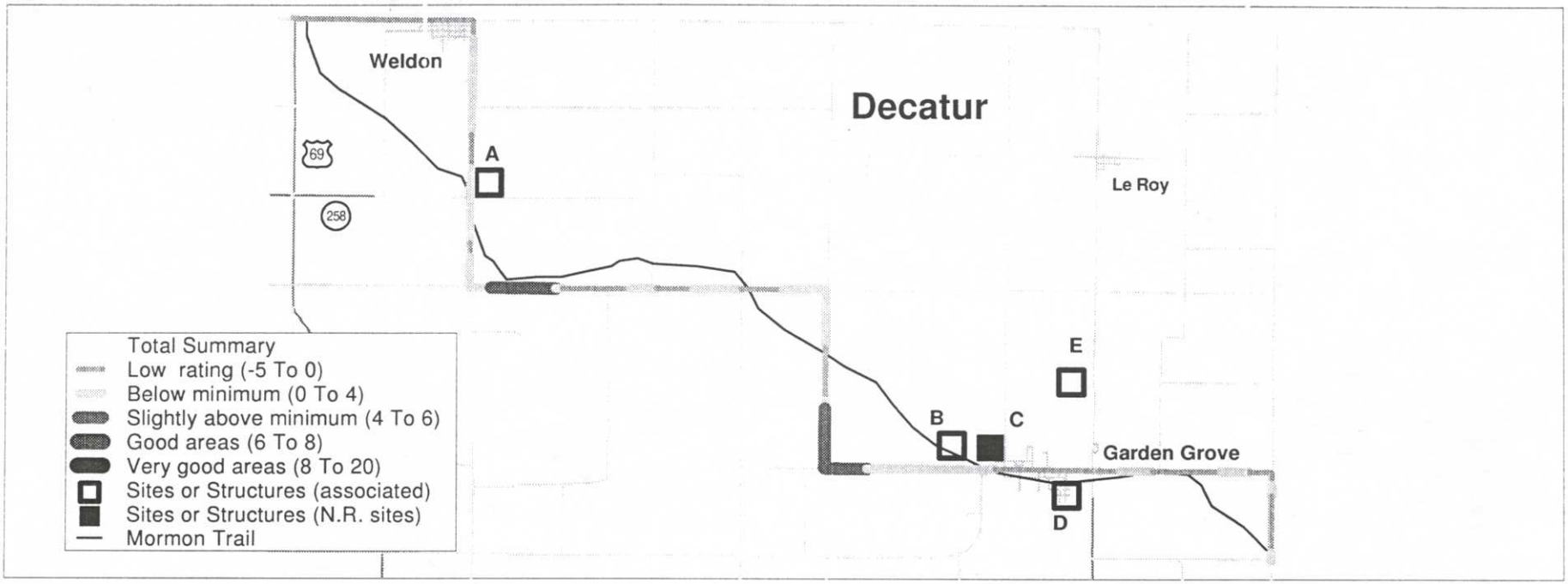
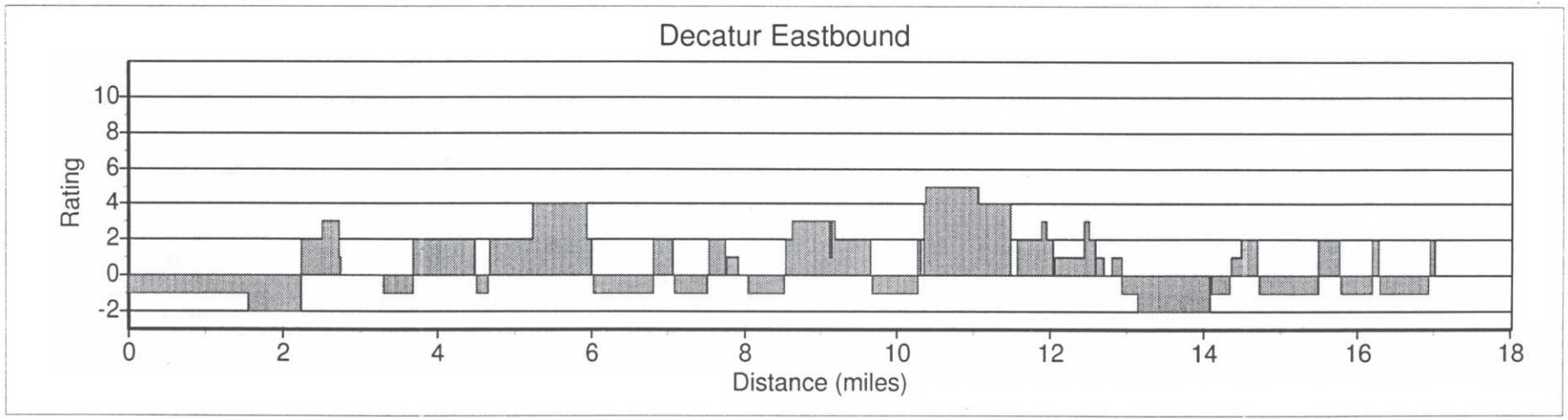

Weldon
Decatur
69
258
A
Le Roy
E
B
C
Garden Grove
D
Total Summary
Low rating (-5 To 0)
Below minimum (0 To 4)
Slightly above minimum (4 To 6)
Good areas (6 To 8)
Very good areas (8 To 20)
Sites or Structures (associated)
Sites or Structures (N.R. sites)
Mormon Trail


Decatur Eastbound
Rating
10
8
6
4
2
0
-2
0
2
4
6
8
10
12
14
16
18
Distance (miles)





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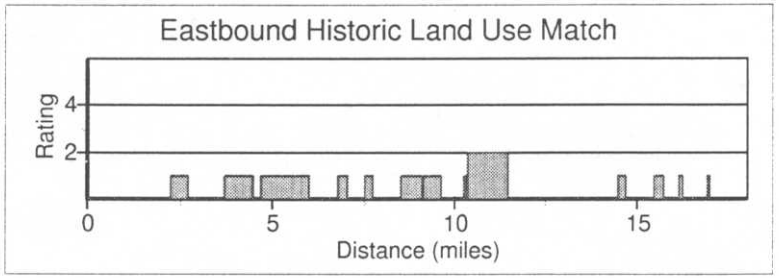

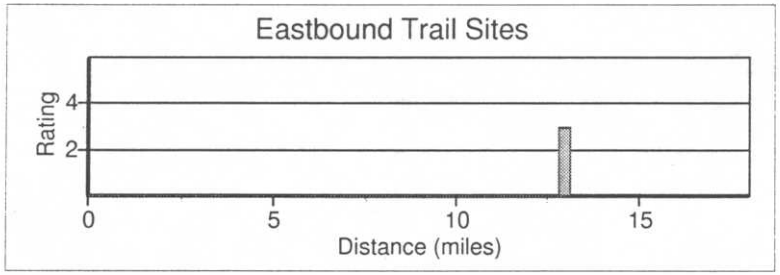

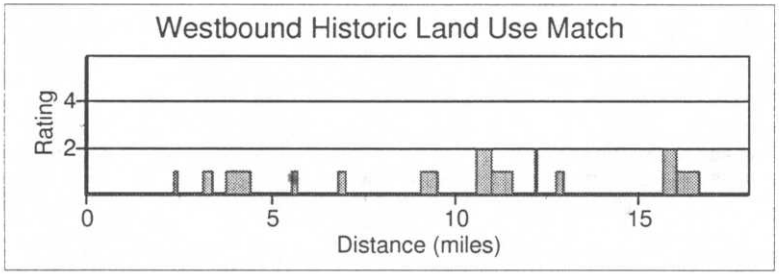

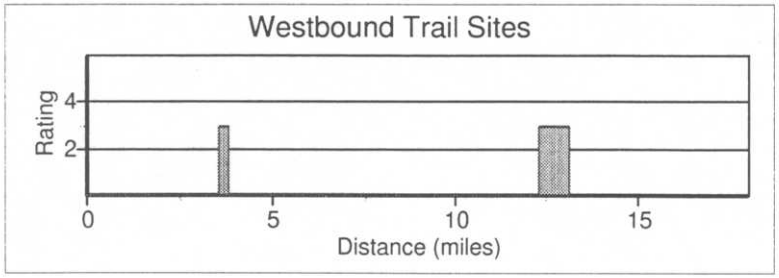

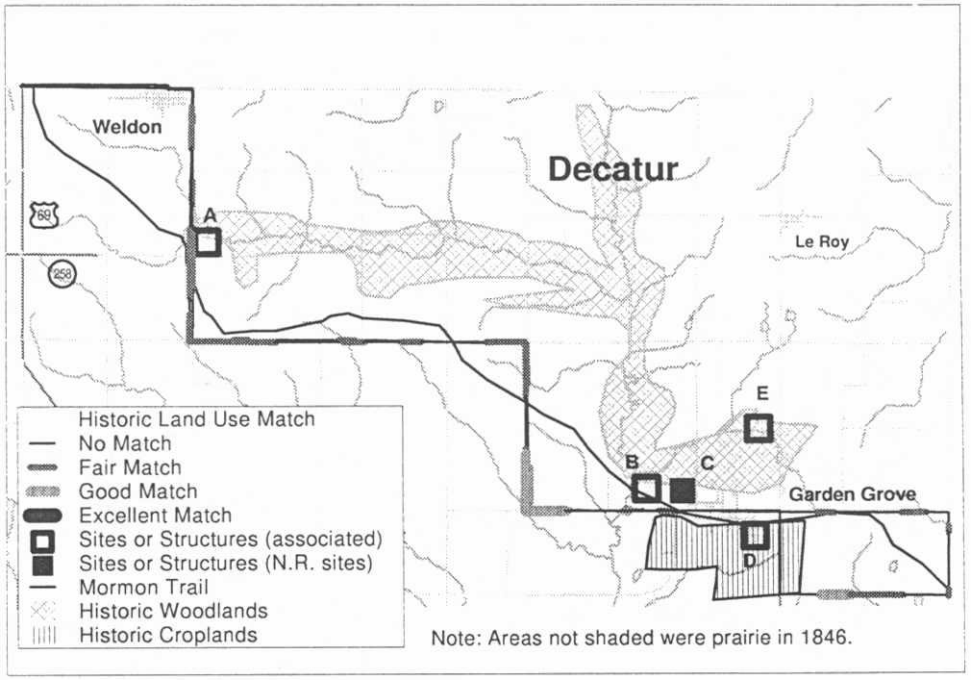

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 17.14 miles

Road Surface Types:
Gravel: 7.35 miles
Hard Surface: 9.79 miles

General Area Comments:
Iowa 2 and US 69 in Decatur County are designated as the Mormon Trail tour routes by Iowa DOT.

Evaluation Data - Decatur County:

High Rating:
Eastbound: 5
Westbound: 8

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 0.56
Westbound: 0.31

Percent of Route Rated Above 4:
Eastbound: 10.83%
Westbound: 9.47

Average Rating when Rating is Above 4:
Eastbound: 4.37
Westbound: 5.45

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0%
Westbound: 0.20%

Grasslands:
Eastbound: 35.27%
Westbound: 23.40%

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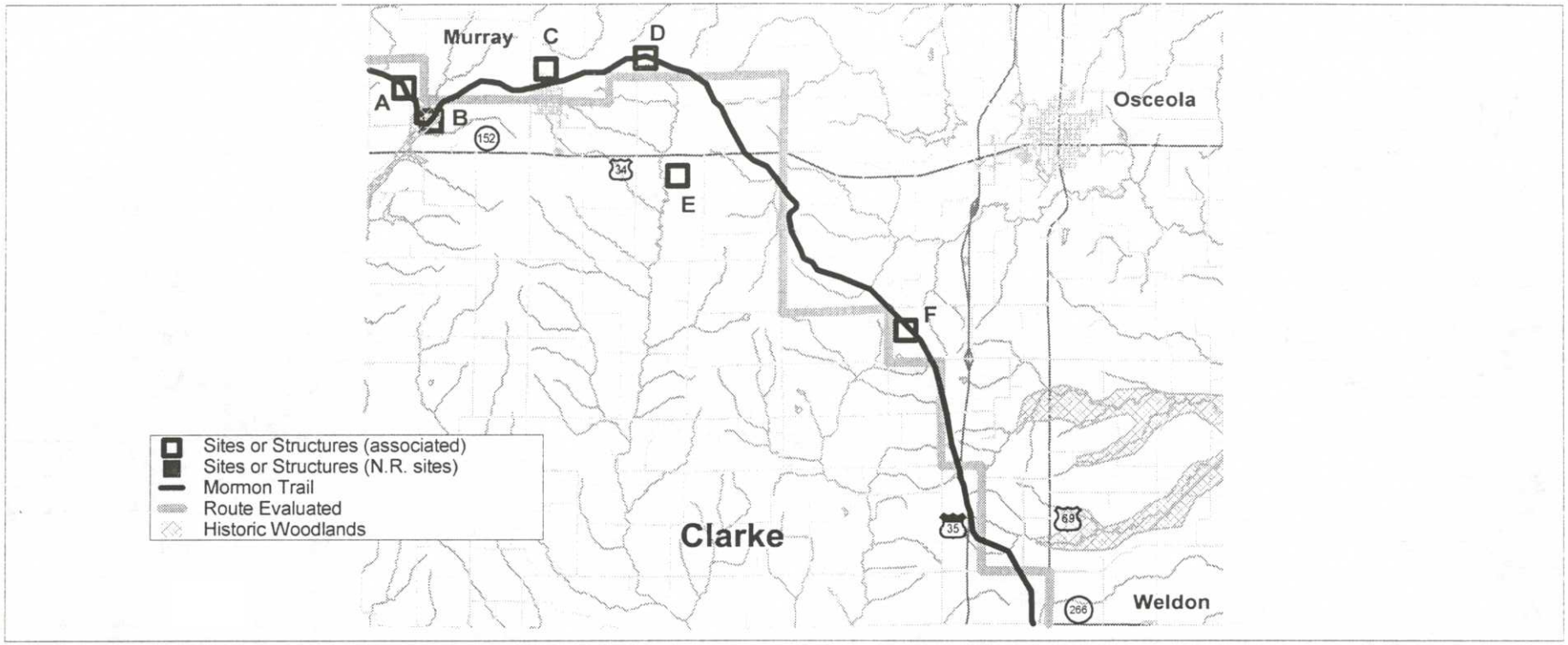

Clarke County contains the western junction of the two trails which had split more than 70 miles to the east. The northern route, called the "Mormon Trace" by the Iowa Mormon Trail Association (ITMA), and the "Pioneer Route" followed by Brigham Young join in the south-central part of the County.

Historic Land Use Along the Mormon Trail:
The trail in Clarke County was located through prairies. The route followed the ridge between drainage areas with infrequent stream crossings.

Historic and Other Sites Associated with the Trail:
The following sites are all identified and described by the Iowa Mormon Trail Association.

☐ **A. Trail Ruts:**
Trail ruts can be seen " . . . at the end of the gravel road that goes west from Murray" (IMTA).

☐ **B. Sevenmile Creek Camp:**
A campsite located on the east side of Sevenmile Creek was used in May of 1846. It was recently located by the Murray School project.

☐ **C. White Breast Crook Camp:**
This site was a Pioneer route camp used in May 1846.

☐ **D. Crooked Crook Camp:**
This site on the Pioneer route was used in May 1846.

☐ **E. Trail Ruts:**
Trail ruts on the south side of US 34 are described as running ". . . from the top of a high area to the low area along Long Creek" (ITMA).

☐ **F. Willow Bridge Camp:**
A campsite at this location along the pioneer route was used in 1846.

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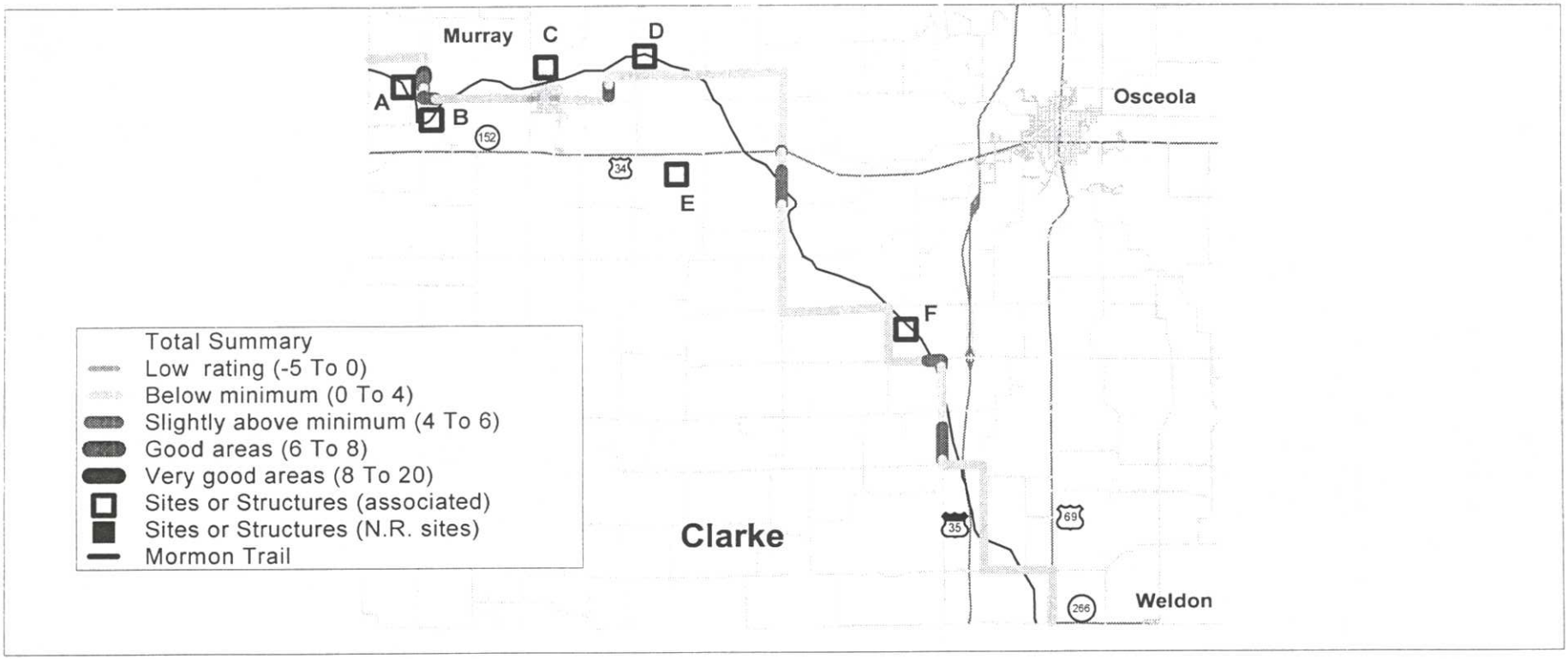

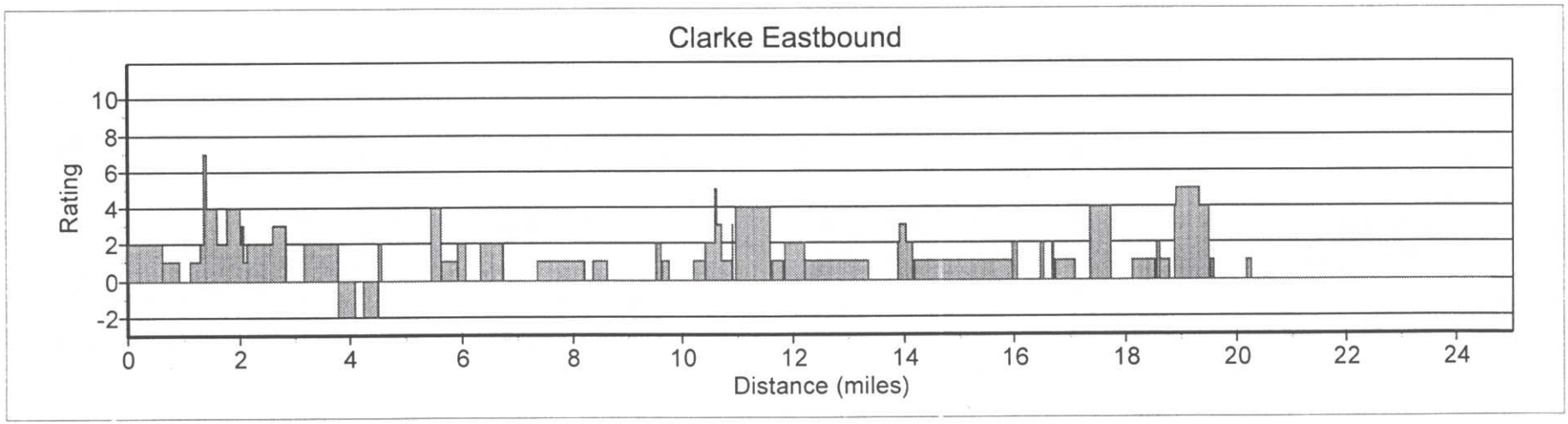

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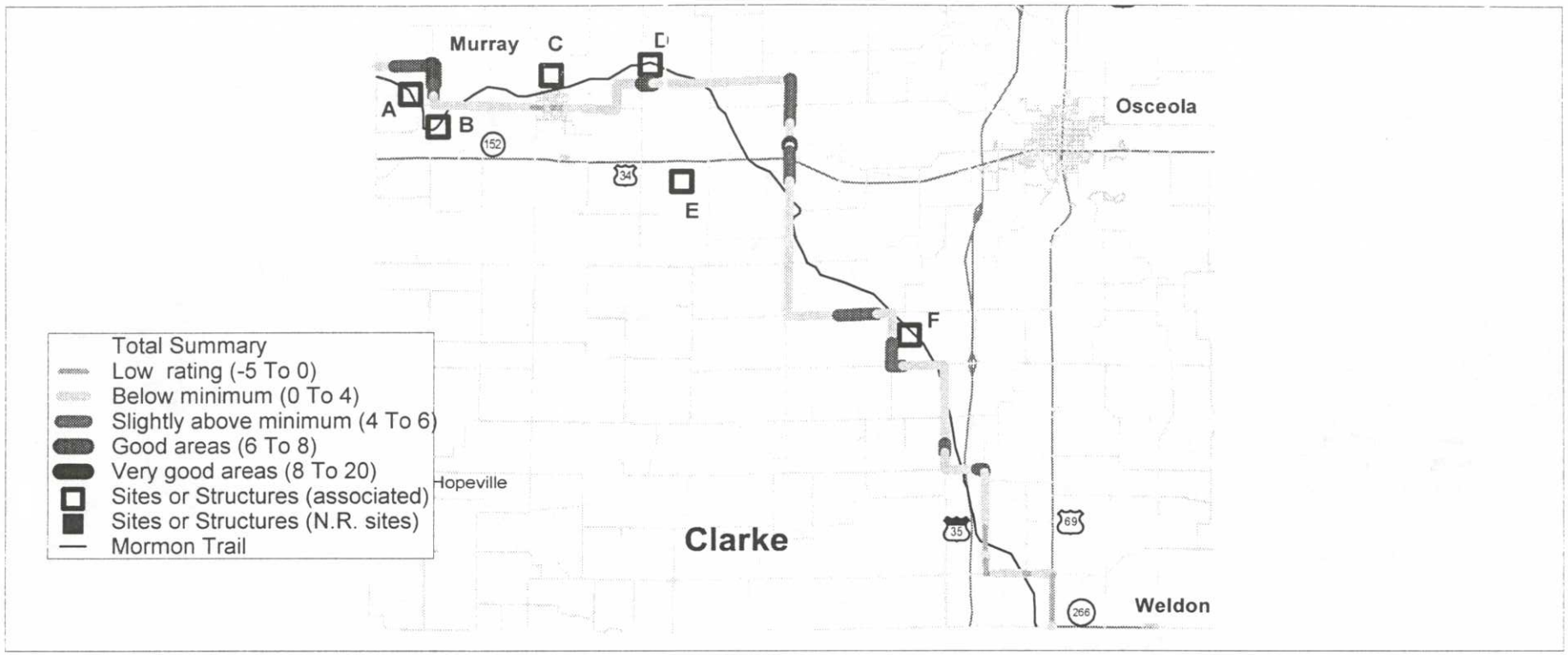

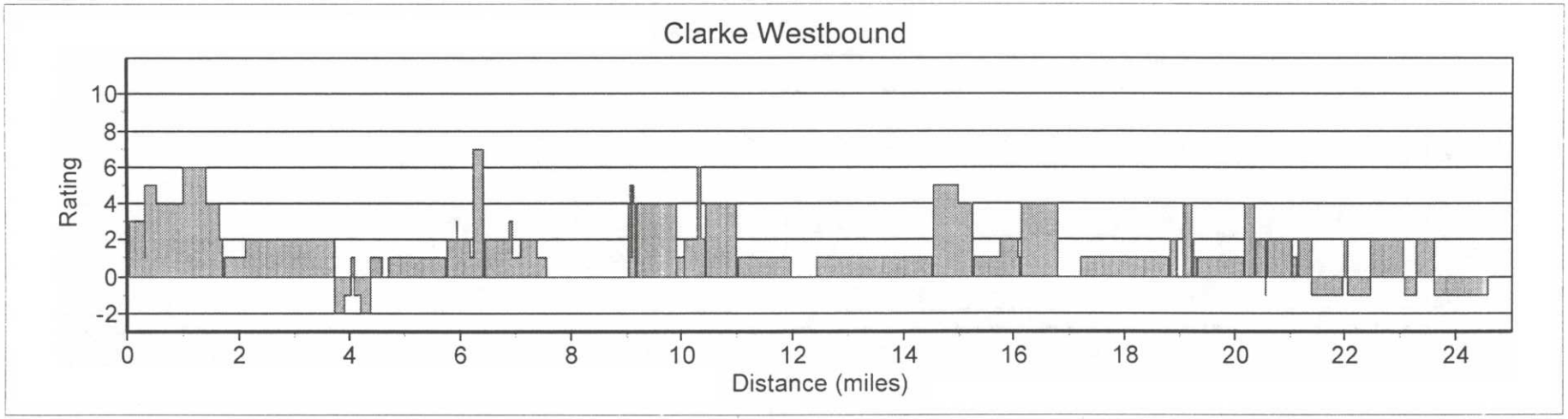

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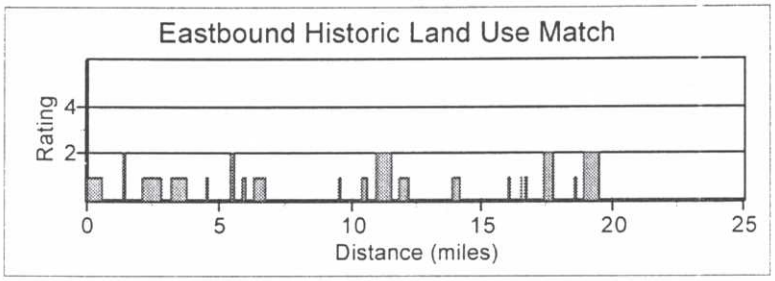

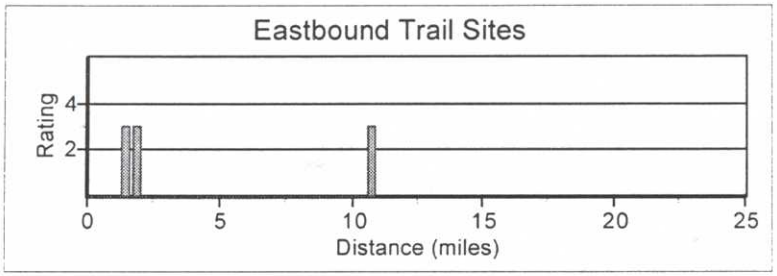

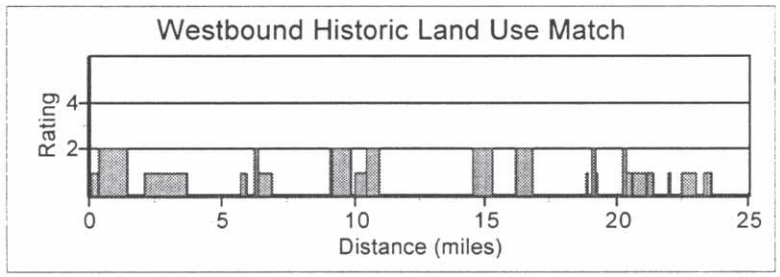

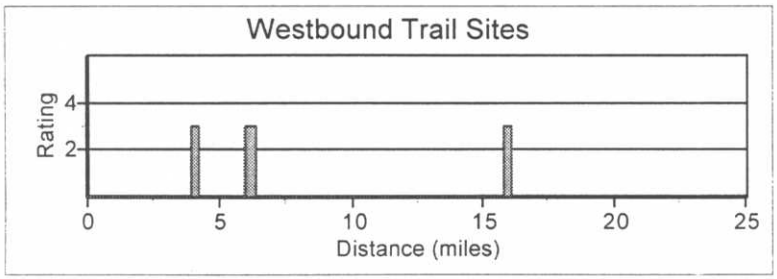

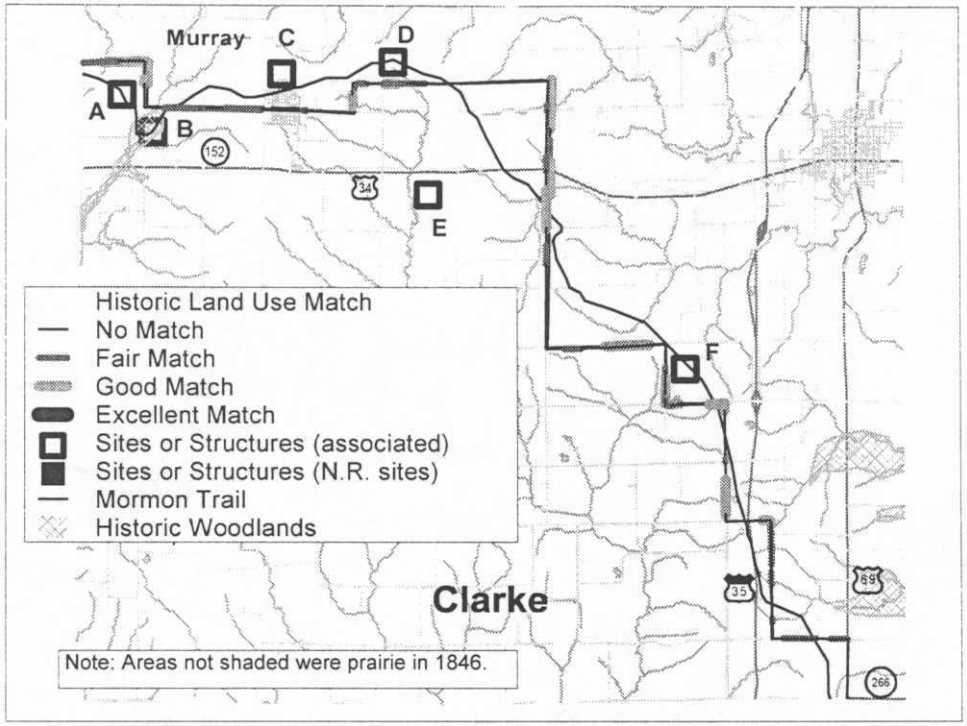

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 22.53 miles

Road Surface Types:
Gravel: 17.41 miles
Hard Surface: 5.12 miles

General Area Comments:
US Highway 34 in Clarke County is designated as the Mormon Trail tour route by Iowa DOT

Evaluation Data - Clarke County:

High Rating:
Eastbound: 7
Westbound: 7

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 0.98
Westbound: 1.54

Percent of Route Rated Above 4:
Eastbound: 9.51%
Westbound: 18.82%

Average Rating when Rating is Above 4:
Eastbound: 4.27
Westbound: 4.46

Percent of Route That Matches Historic Land Use:
Woodlands:
Eastbound: 0%
Westbound: 0%

Grasslands:
Eastbound: 22.6%
Westbound: 37.6%

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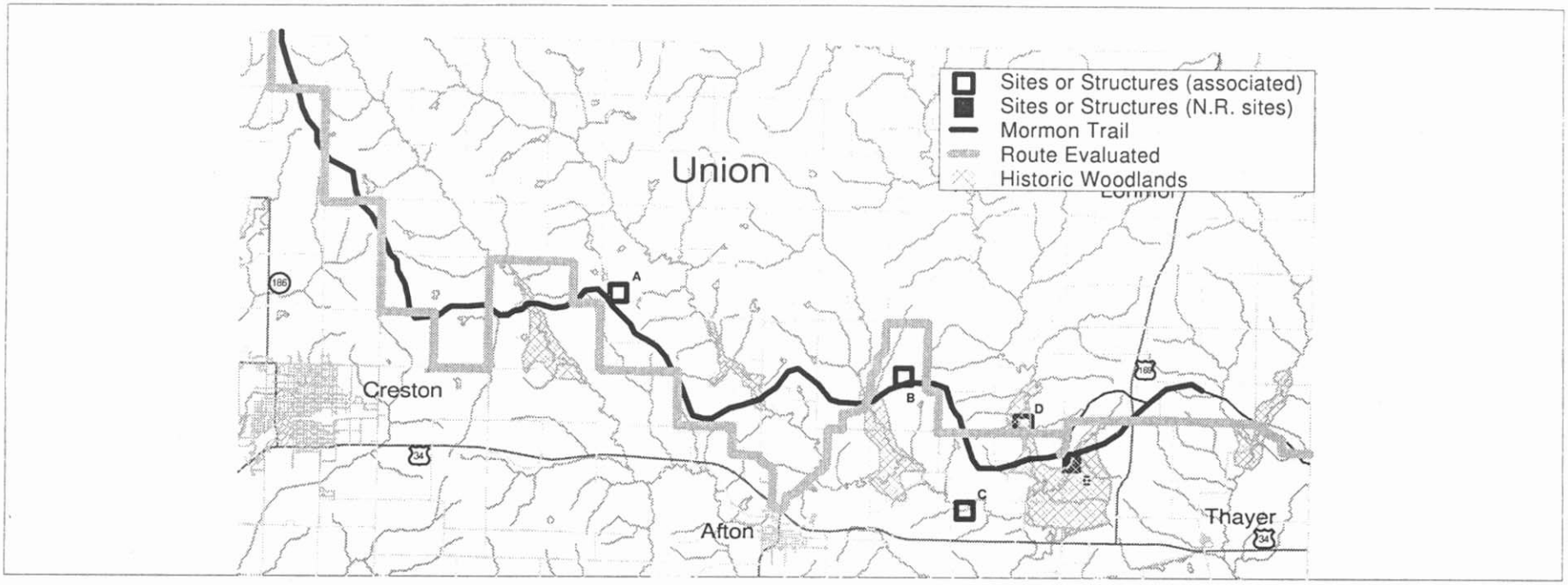

The Mormon Trail divides for a short distance into two routes near U.S. 169, just east of Mt. Pisgah. The southern branch of this deviation is that followed by Brigham Young's companies in May 1846; the later northern branch avoids crossing a creek and enters Mt. Pisgah from the north.

The Mormons left their mark in the naming of creeks and rivers in Union County. Several major creeks, such as Fourmile Creek, were named for their distance from Mt. Pisgah. Also, what might properly be called the Thompson River was misnamed the "Grand River" by the Mormons, who were familiar with the Grand River in Missouri. When they came upon the Union County river, they thought it was the same as the aforementioned Grand River. Actually, the Union County river flows into the Grand River in Missouri. The dispute over the correct name of the river in Union County . . . Thompson or Grand . . . continues today. Both the USGS and the Iowa Geological Survey identify it on their maps as the Thompson River, but the Iowa legislature passed legislation in 1985 directing it to be called the Grand River, and that is the name by which the Iowa DOT and local residents know it.

Historic Land Use Along Mormon Trail:
The trail in Union County was located through prairie grasslands. The route followed the ridge between drainage areas with infrequent stream crossings.

Historic and Other Sites Associated with the Trail: The National Park Service study (Kimball, 1991) recommended the Mt. Pisgah site in Union County for the NRHP. The Iowa Office of the State Archaeologist has numerous sites identified in the Mt. Pisgah vicinity.

☐ **A. Twelvemile Creek Camp:**
This site is another Pioneer campsite. It is located about ½ mile east of Twelvemile Creek.

☐ **B. Grand River Camp:**
A campsite for a Brigham Young band (the "pioneer" group). It was used from 1846.

☐ **C. Later Camp:**
A campsite located on the west side of the Grand River was used " . . . during the years of migration" (IMTA).

☐ **D. Second Crossing:**
This site offered an alternate crossing of the Grand River. It is located north of the Pisgah ford.

■ **E. Mt. Pisgah Way Station Site:**
This was the second permanent way station established by the Mormons in Iowa in 1846. It was occupied until 1852. During this time the settlement farmed more than 1000 acres and built log cabins as well as community and religious structures over an area of several square miles. Only a cemetery (no grave markers) and various memorials and markers remain. The Mt. Pisgah cemetery is a designated State Preserve, and it is located in a nine-acre County Conservation Board park. In 1994 a National Park Service archaeologist visited the area and filed information on eleven archaeological sites, which have been evaluated as potentially eligible for the National Register of Historic Places. These sites, which include the cemetery and ten additional sites located on private property surrounding the park and preserve, represent only a fraction of the extensive activity that occurred between 1846 and 1852.

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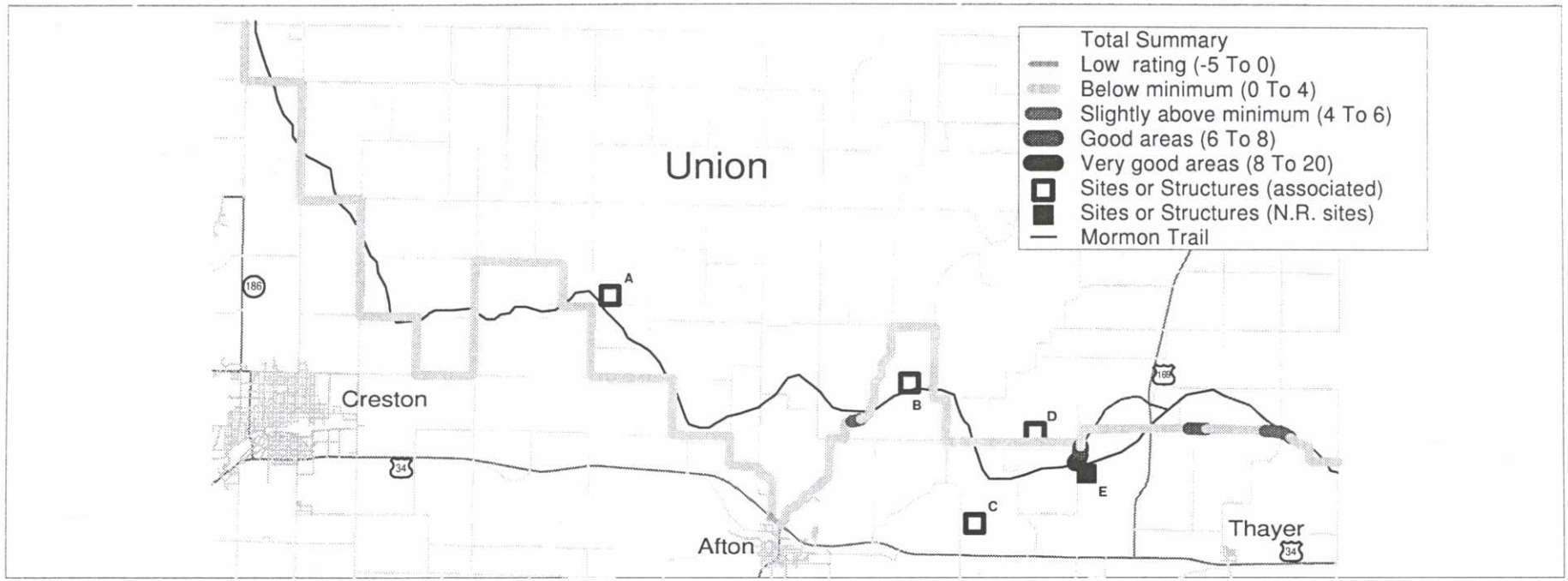
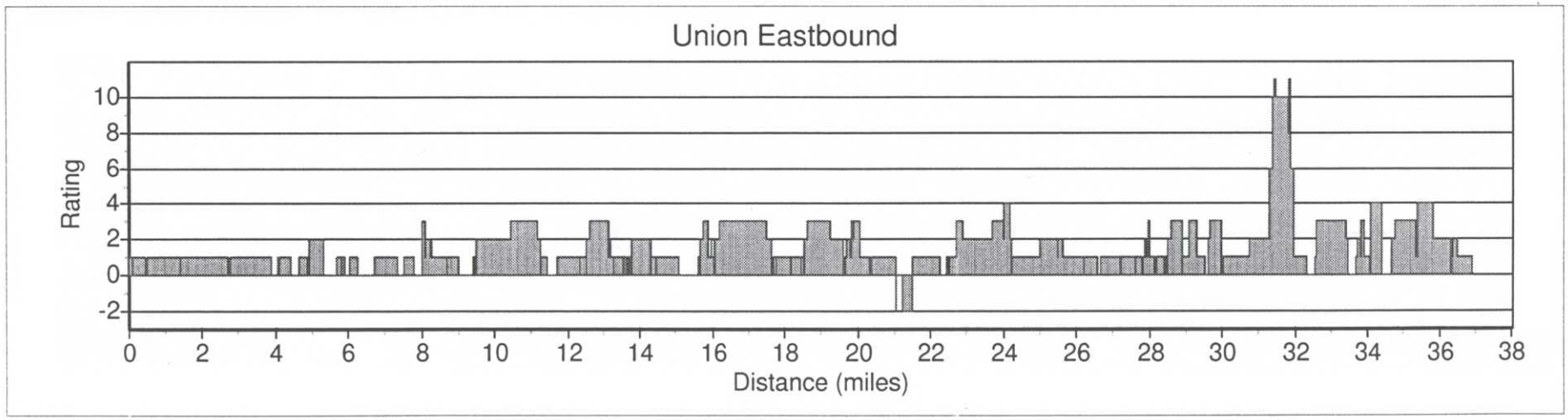
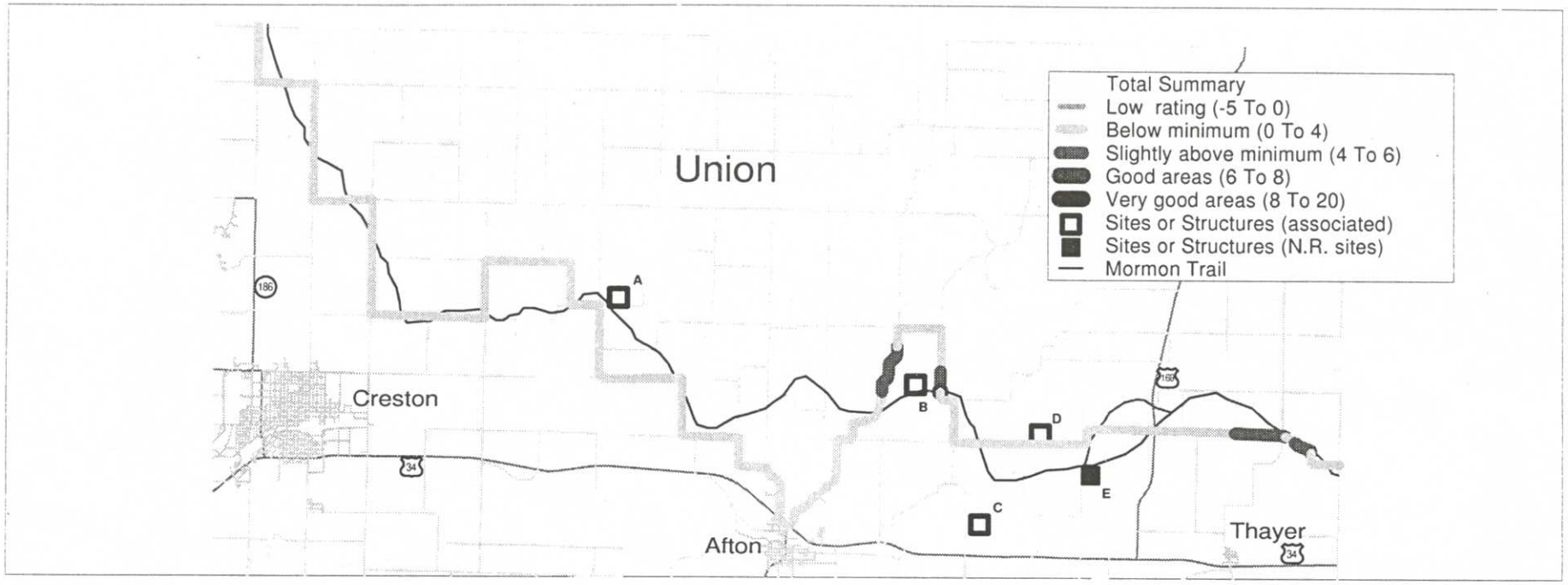
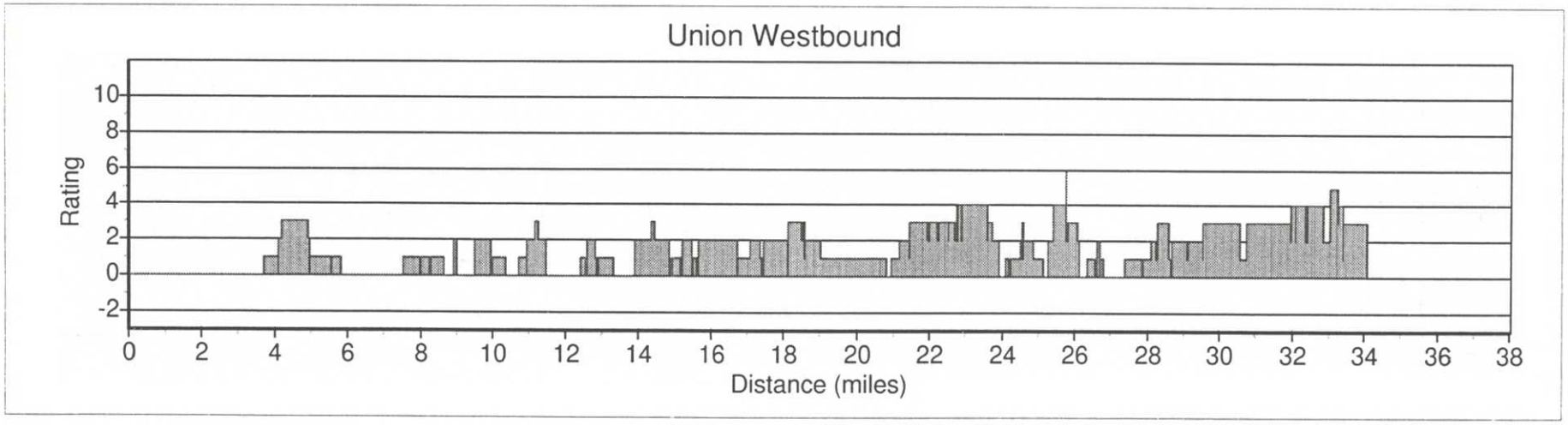

Total Summary
Low rating (-5 To 0)
Below minimum (0 To 4)
Slightly above minimum (4 To 6)
Good areas (6 To 8)
Very good areas (8 To 20)
Sites or Structures (associated)
Sites or Structures (N.R. sites)
Mormon Trail
Union
Creston
Afton
Thayer
A
B
C
D
E
186
34
169


Union Eastbound
Rating
10
8
6
4
2
0
-2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38
Distance (miles)





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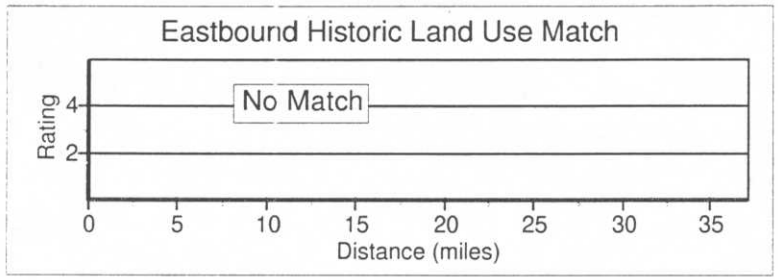

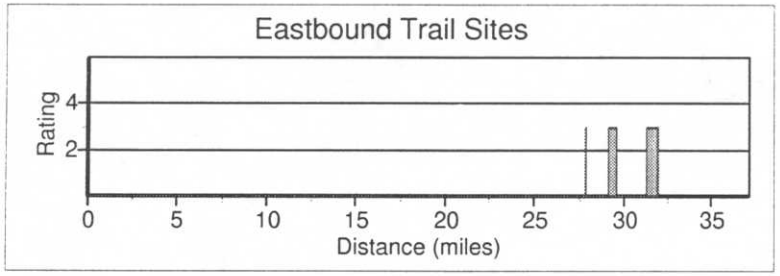

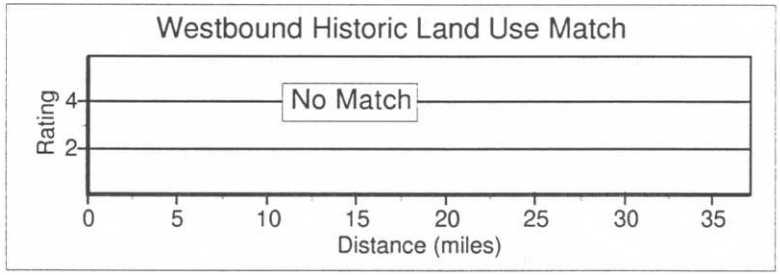

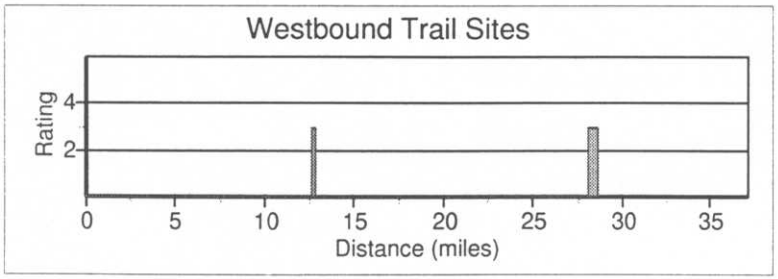

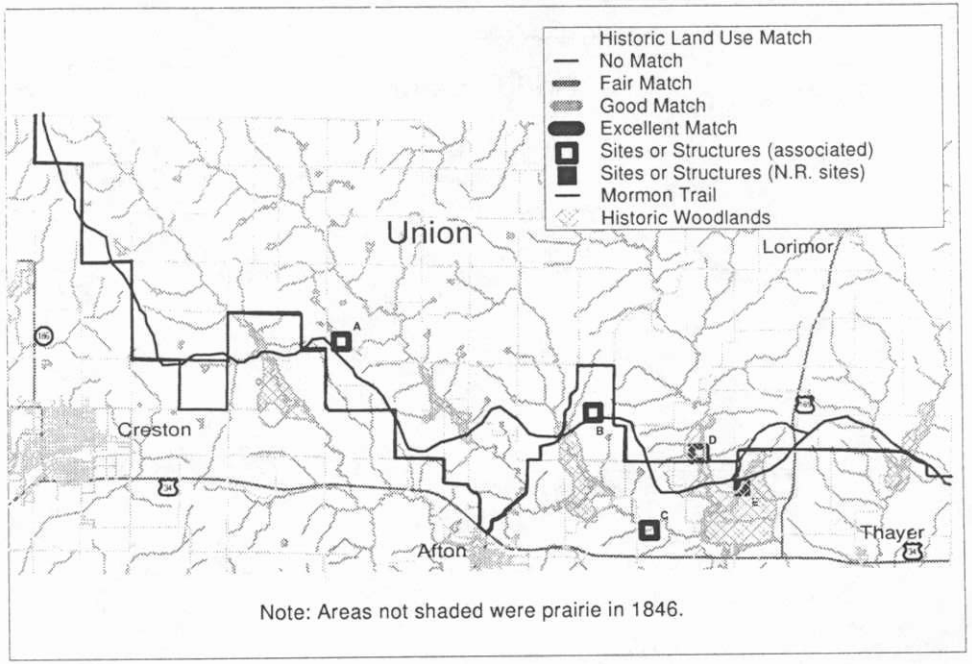

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 36.50 miles

Road Surface Types:
Gravel: 31.00 miles
Hard Surface: 5.50 miles

General Area Comments:
US Highway 34 and Iowa Highway 25 in Union County is designated as the Mormon Trail tour routes by Iowa DOT

Evaluation Data - Union County:

High Rating:
Eastbound: 11
Westbound: 6

Low Rating:
Eastbound: -2
Westbound: 0

Average Rating:
Eastbound: 1.59
Westbound: 1.51

Percent of Route Rated Above 4:
Eastbound: 4.18%
Westbound: 7.08%

Average Rating when Rating is Above 4:
Eastbound: 6.19
Westbound: 4.11

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0%
Westbound: 0%

Grasslands:
Eastbound: 0%
Westbound: 0%

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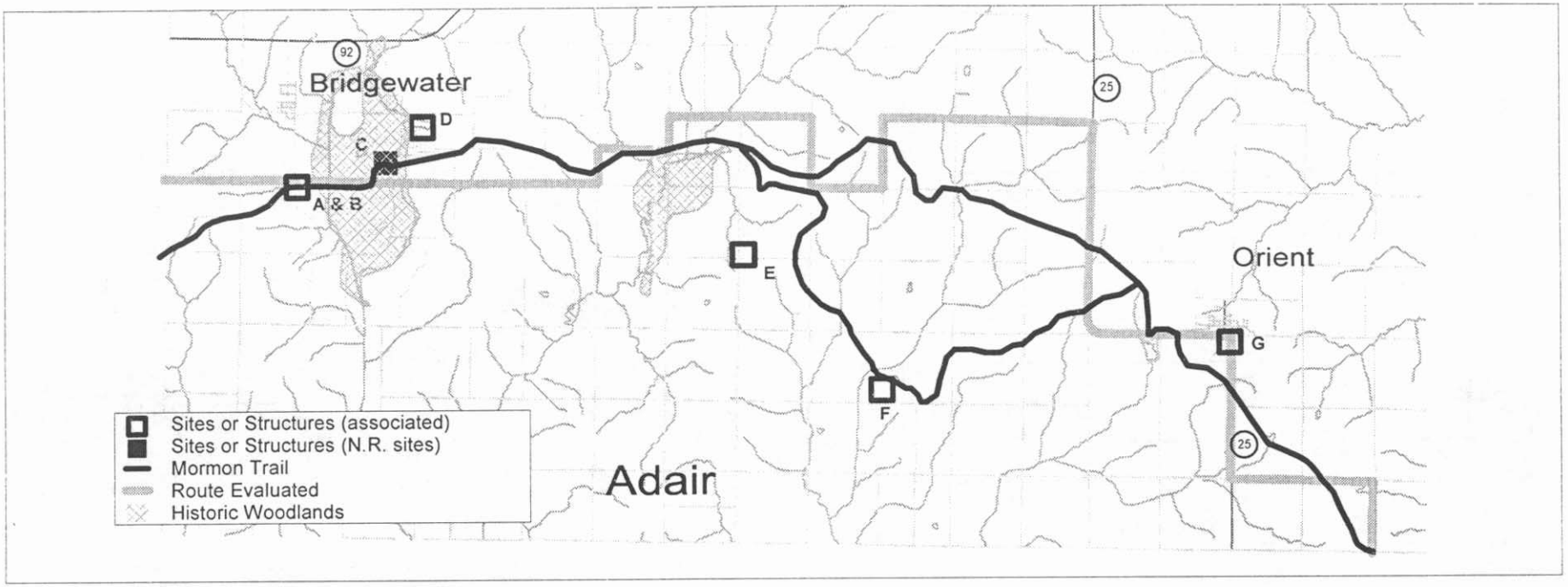

The Mormon Trail crosses the southwest portion of Adair County. West of the Orient community the trail divides into two routes. The southern route was used by Brigham Young in 1846. The northern route was followed by other Mormon groups in the following years.

Historic Land Use Along the Mormon Trail:
The trail in Adair County followed the ridges between drainage areas. Nearly all of the trail was located in prairie grasslands. Scattered woodlands were encountered only in the Nodaway River valley.

Historic and Other Sites Associated with the Trail:
The National Park Service study (Kimball, 1991) did not recommend any sites in Adair County for the NRHP. The Iowa Office of the State Archaeologist has no recorded sites.

☐ **A. Shoal or Small Creek Camp:**
"The location of the campsite on June 5, 1846 was on the banks of the West Branch of the Middle Nodaway River not far from Bridgewater" (IMTA).

☐ **B. Mormon Trail Ruts:**
These wagon ruts are said to be not well preserved and the precise location is unknown.

■ **C. Mormon Trail Ruts:**
"Some of the very few, if not the only, extant Mormon Trail ruts in Iowa..." these are ". . .deeply eroded ruts....running east and west for about one quarter of a mile" (Kimball 1991). "Mormon Trail ruts are very rare in Iowa for several reasons: the Iowa portion of the trail was much less used than the Nebraska and Wyoming portions, soft soil did not hold and preserve the ruts well, and most of the ruts that did remain after the Mormons passed have since been destroyed by the plow" (Kimball 1991).

☐ **D. Mormon Trail County Park:**
This park is a commemorative site only. It is located about ½ mile north of the trail and 2 miles east of Bridgewater.

☐ **E. Mormon Child's Grave:**
Local lore says a 5-year old Mormon child was buried in the Old Union Cemetery.

☐ **F. Bromberry Hill Camp:**
This is a Pioneer campsite used in 1846.

☐ **G. Marker In the Town of Orient:**
A red sandstone commemorative marker placed by the Iowa DAR in 1917 can be found on the school grounds along Iowa Highway 25 in Orient.

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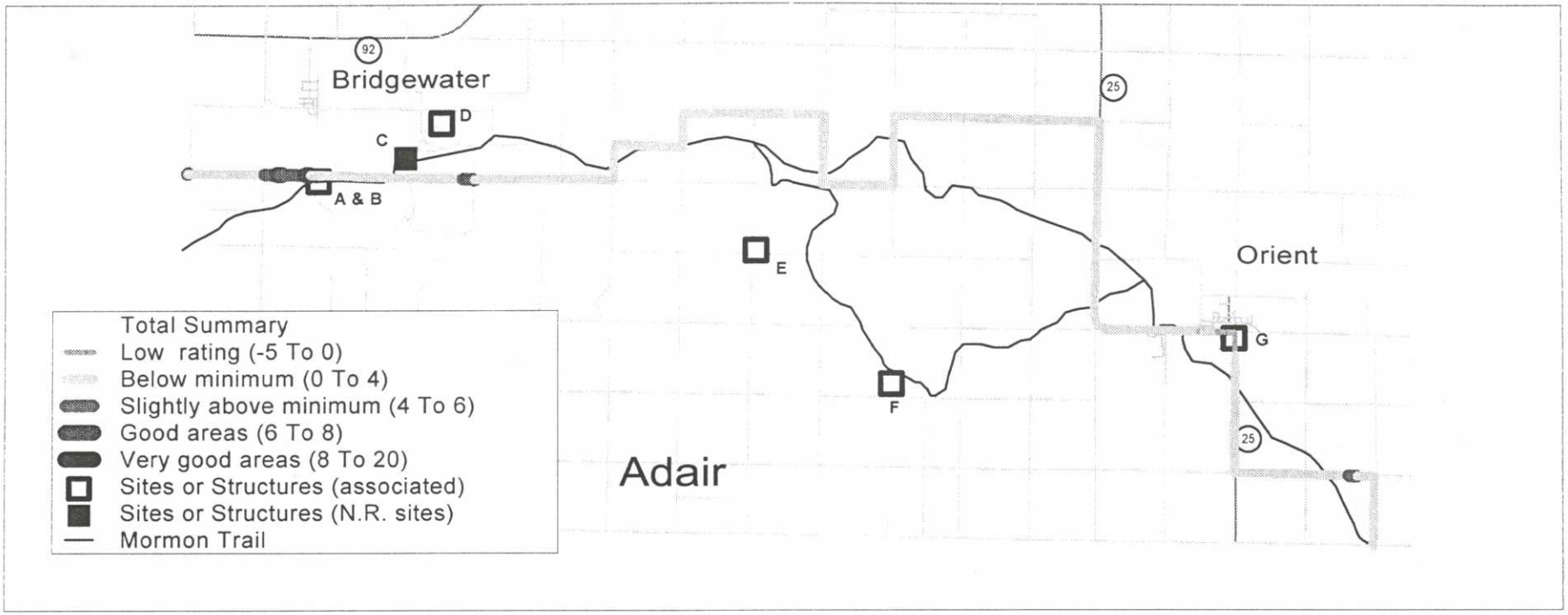
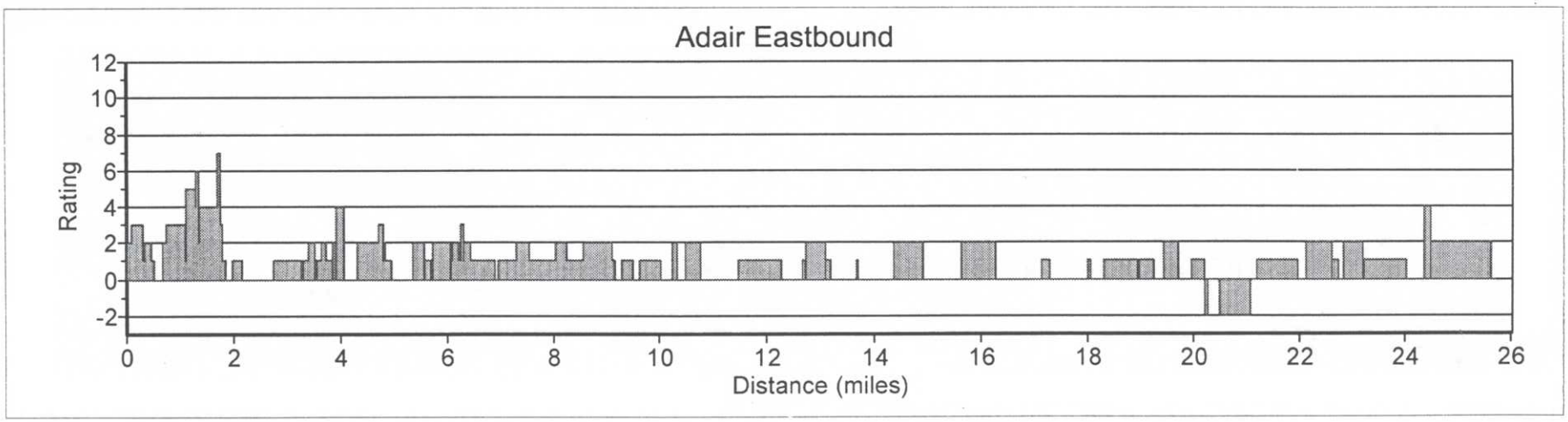

92
Bridgewater
D
C
C
A & B
E
Orient
G
F
25
25
Adair
Total Summary
Low rating (-5 To 0)
Below minimum (0 To 4)
Slightly above minimum (4 To 6)
Good areas (6 To 8)
Very good areas (8 To 20)
Sites or Structures (associated)
Sites or Structures (N.R. sites)
Mormon Trail


Adair Eastbound
Rating
12
10
8
6
4
2
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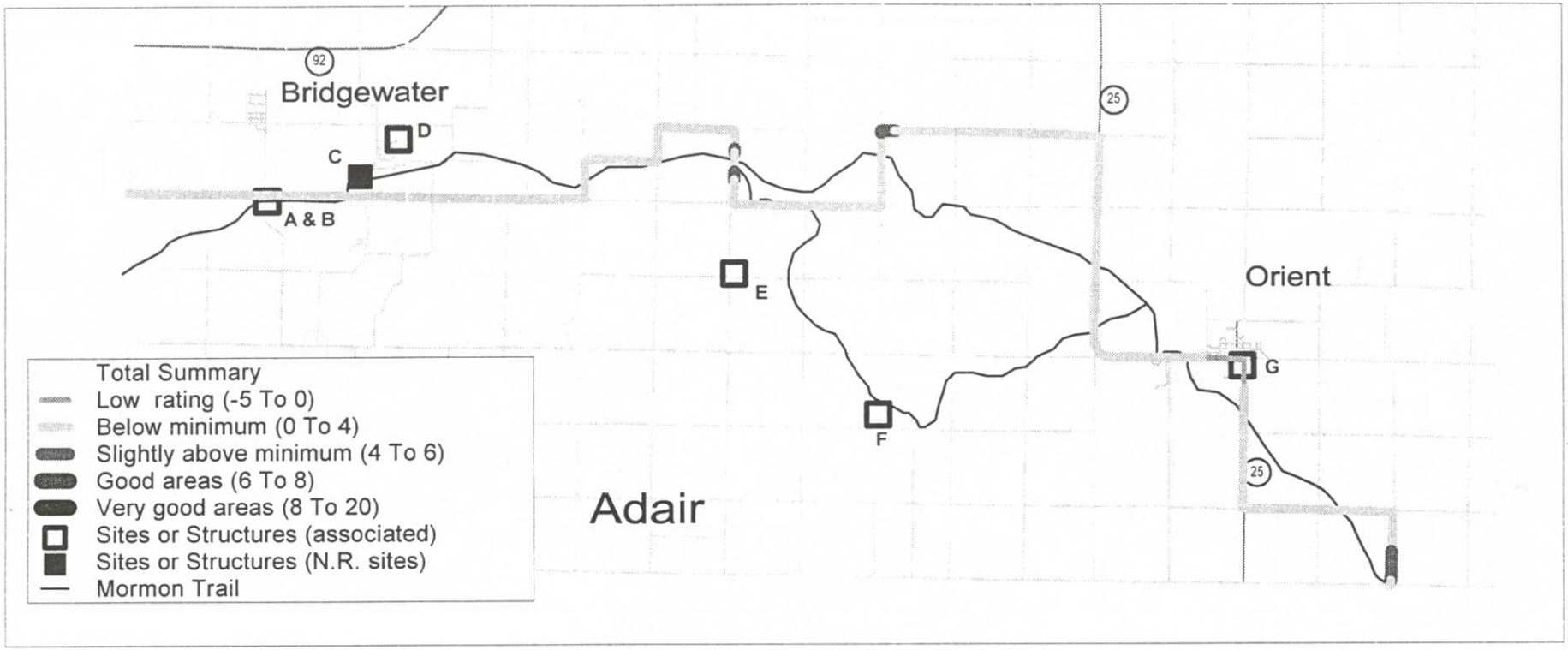
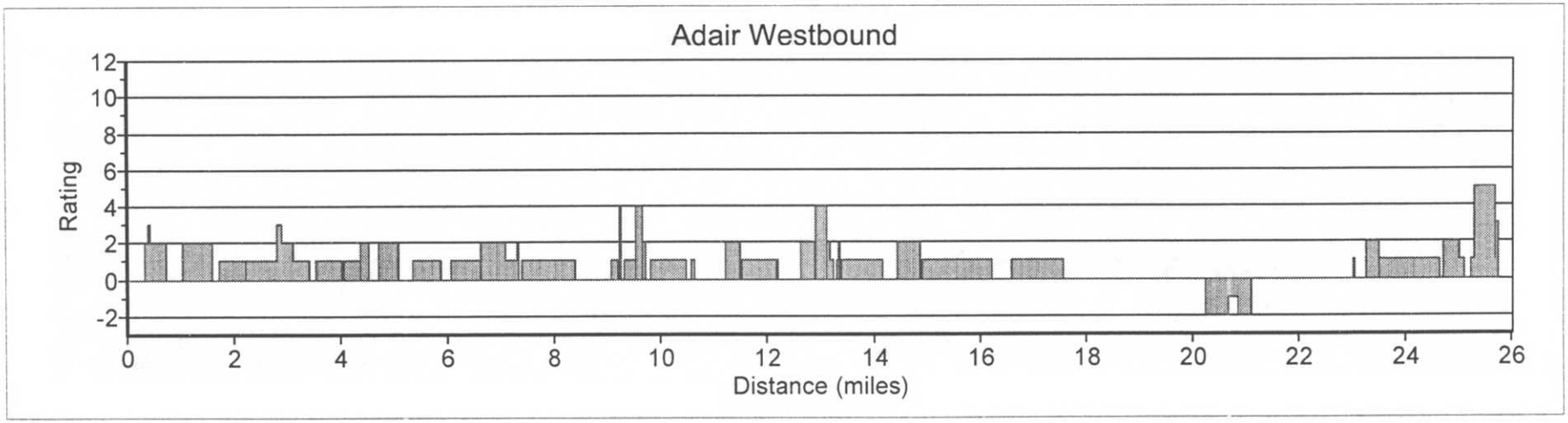
-2
0
2
4
6
8
10
12
14
16
18
20
22
24
26
Distance (miles)





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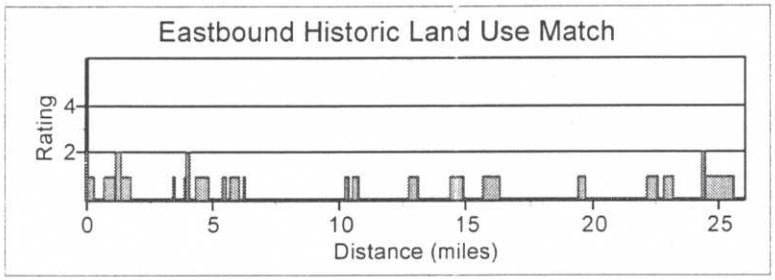

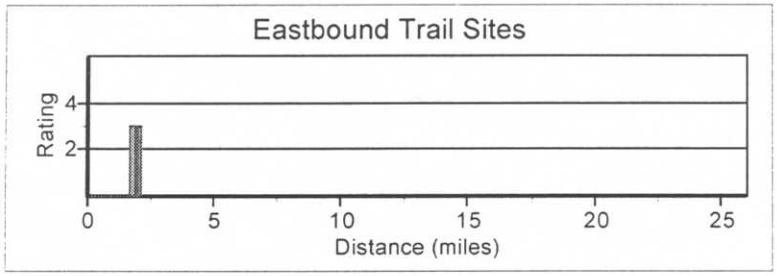

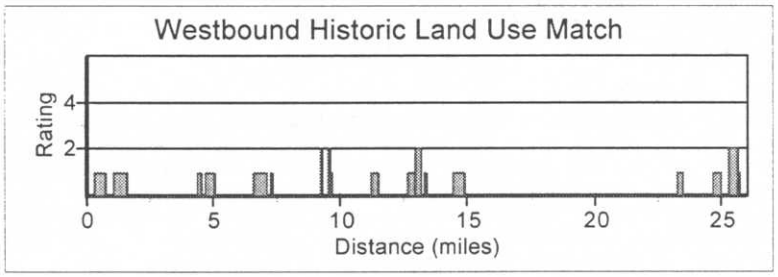

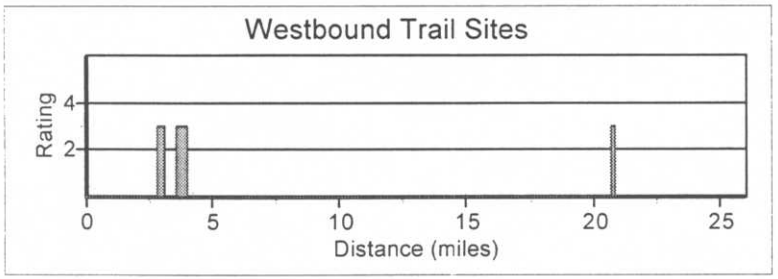

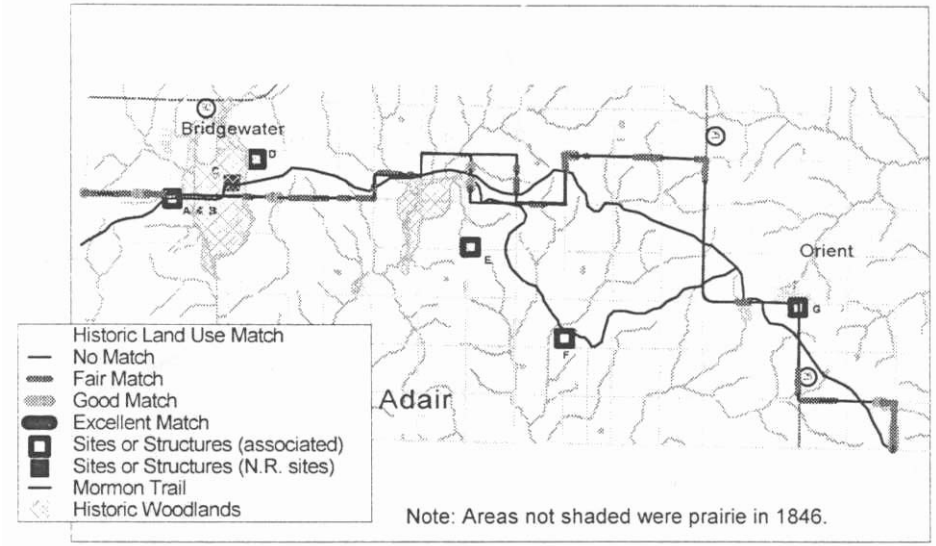

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 25.73 miles

Road Surface Types:
Gravel: 18.58 miles
Hard Surface: 7.15 miles

General Area Comments:
Iowa highway 92 and Iowa Highway 25 in Adair County are designated as Mormon Trail tour routes by Iowa DOT.

Evaluation Data - Union County:

High Rating:
Eastbound: 7
Westbound: 5

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 1.04
Westbound: 0.81

Percent of Route Rated Above 4:
Eastbound: 3.58%
Westbound: 2.99%

Average Rating when Rating is Above 4:
Eastbound: 4.52
Westbound: 4.53

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0%
Westbound: 0.23%

Grasslands:
Eastbound: 27.81%
Westbound: 17.09%

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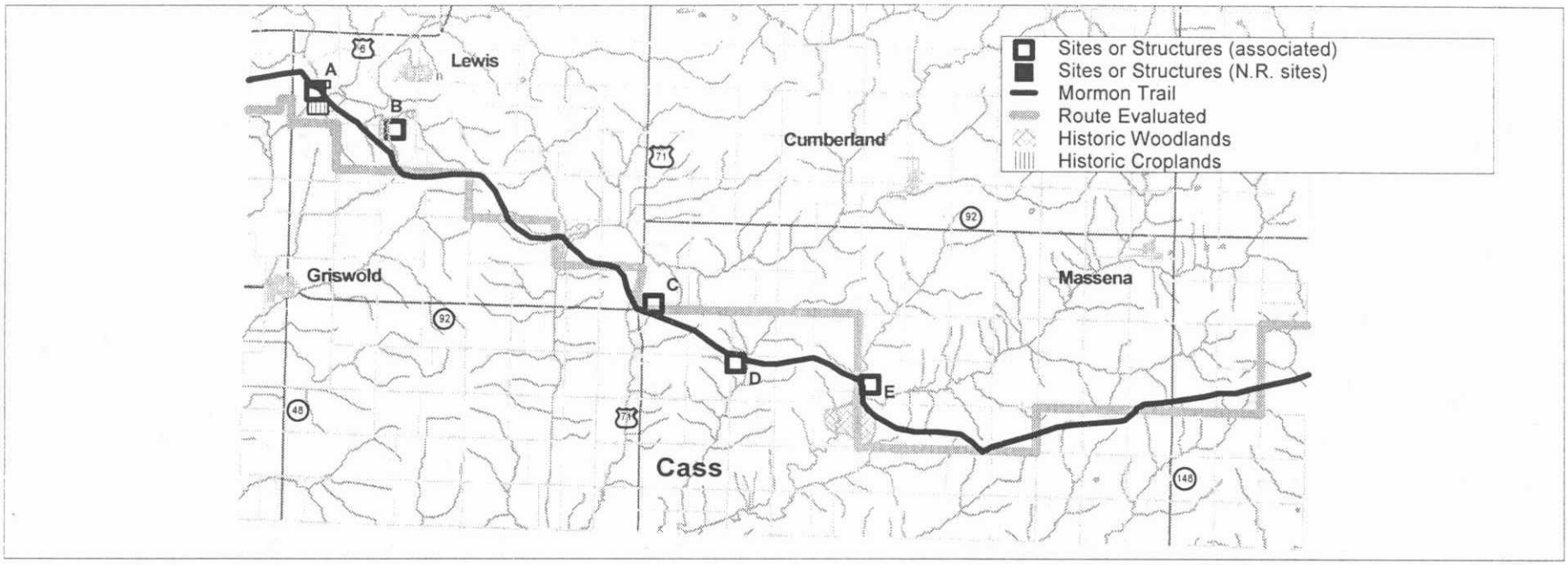

The 1846 Pioneer Trail and the 1850s Handcart Trail are both found in Cass County. The Pioneer Trail follows a westerly course and comes up slightly from the southeast to cross the East Nishnabotna River near the present town of Lewis.

Historic Land Use Along the Mormon Trail:
The entire trail in Cass County followed the grassland-covered ridges between drainage areas.

Historic and Other Sites Associated with the Trail:
The National Park Service study (Kimball, 1991) did not recommend any sites in Cass County for the NRHP. The Iowa Office of the State Archaeologist has no recorded sites.

☐ **A. East Nishnabotna River Crossing:**
The crossing is not accessible now, but the first Saints crossed on a bridge that Miller's Company built on June 8, 1846. In an archaeological investigation of 1994, the National Park Service described the site as: "a series of sedimentary rocks used as a pull out related to the Mormon crossing over the . . . River." It is located approximately two miles south of Lewis.

☐ **B. Gold Spring State Park:**
Faint trail ruts, a DAR marker, and a National Park Service marker are all found in or viewed from this park. (The ruts visible from this park cannot be associated with the Pioneer Trail, which, according to GLO maps, is over half a mile away.)

☐ **C. Pleasant Prairie Camp:**
This camp was used in early June 1846. The location was picked for its distance from Indians in the area.

☐ **D. Marker in Town of Lyman**:
The town postdates the passage of the 1846 Pioneer Trail Mormons, but a wooden sign placed on Main Street in the 1930s memorializes the trail.

☐ **E. Ring (Circled Wagons) Camp and Reno Cemetery:**
In June 1946, Brigham Young s pioneer company encamped here, a few miles distant from a Potawatomi camp. Apprehensive, the Mormons circled their wagons, the first time they had done so, and placed their cattle inside. In Reno Cemetery, about 200 feet east of the entrance, a bronze marker set in sandstone commemorates the Mormon pioneers. The cemetery itself is associated with the post-1846 community of Reno; claims that the east end of the cemetery was a Mormon burial ground are unverified, although it is known that two infants were buried at a site approximately one mile northwest of Ring Camp.

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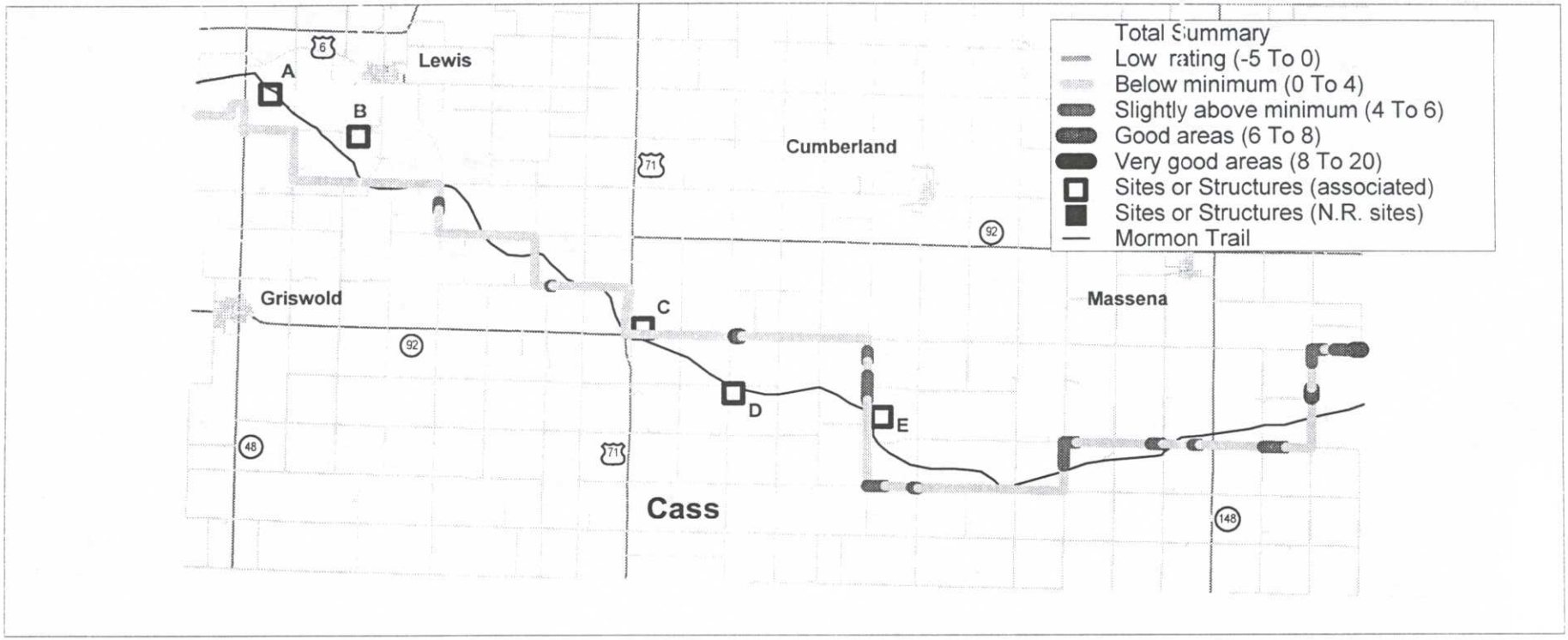
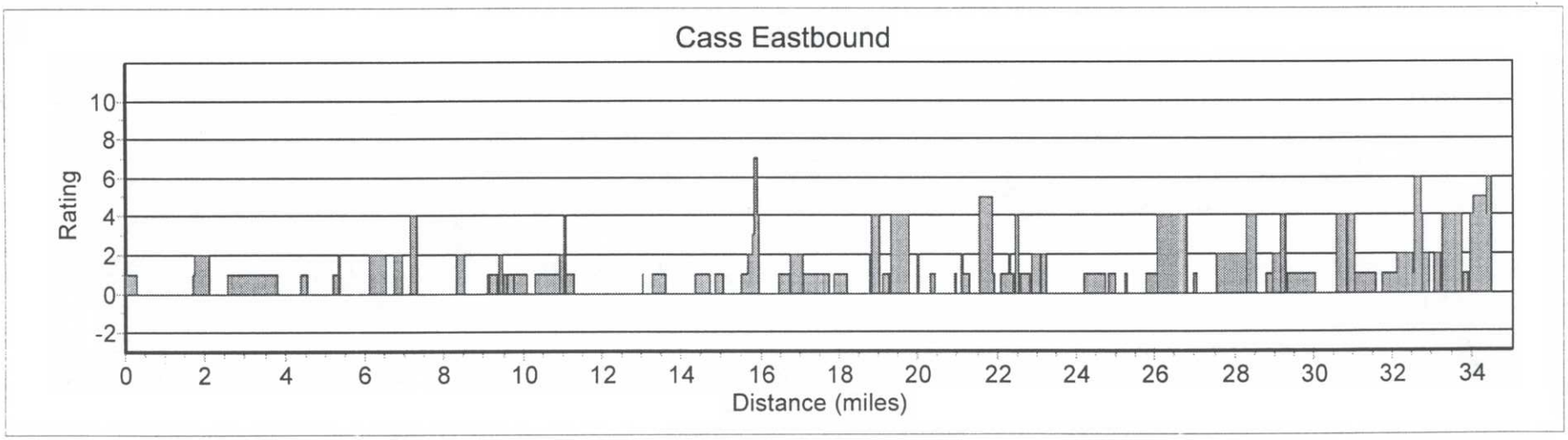

Total Summary
Low rating (-5 To 0)
Below minimum (0 To 4)
Slightly above minimum (4 To 6)
Good areas (6 To 8)
Very good areas (8 To 20)
Sites or Structures (associated)
Sites or Structures (N.R. sites)
Mormon Trail
Lewis
Cumberland
Griswold
Massena
Cass
A
B
C
D
E
6
71
92
48
148


Cass Eastbound
Rating
10
8
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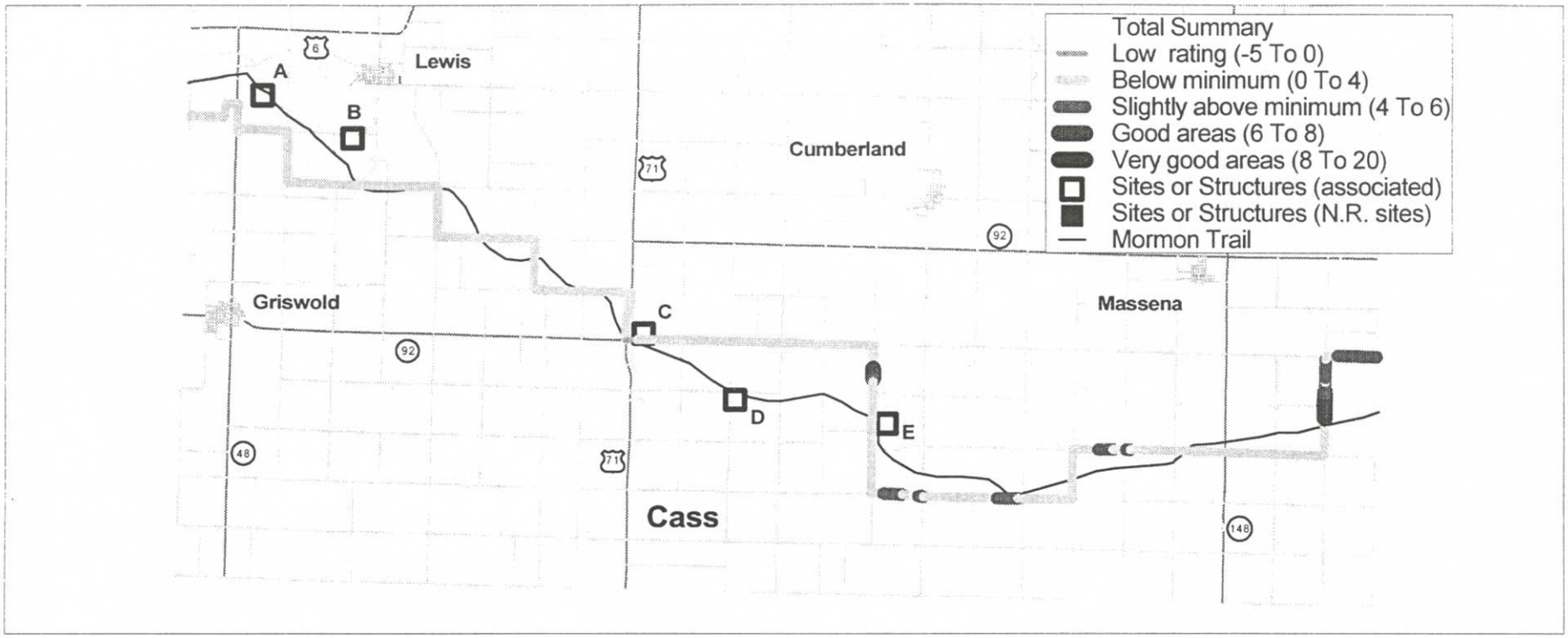
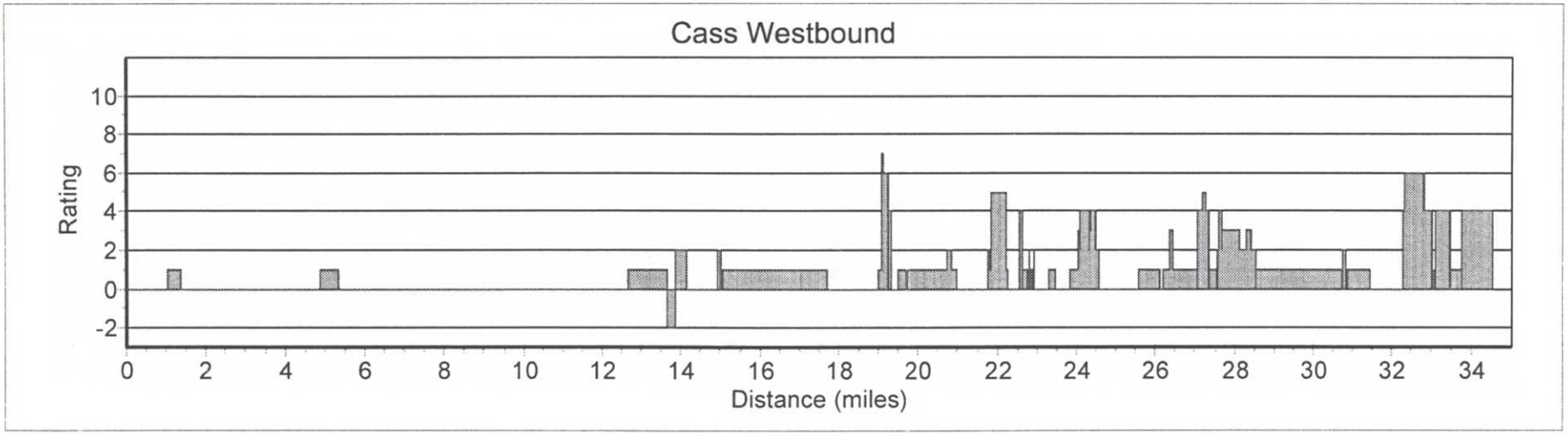
30
32
34
Distance (miles)





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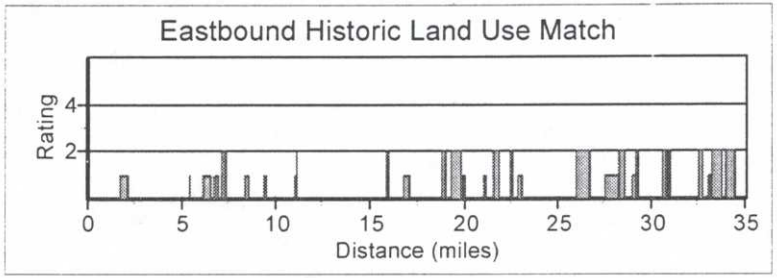

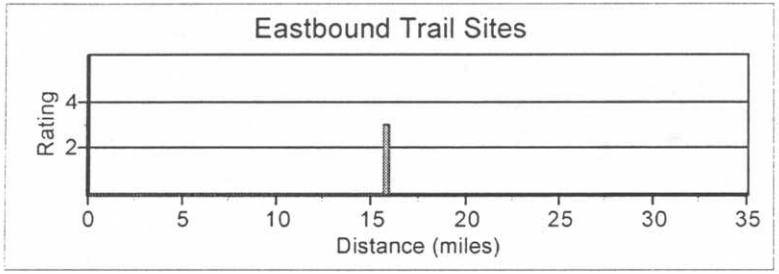

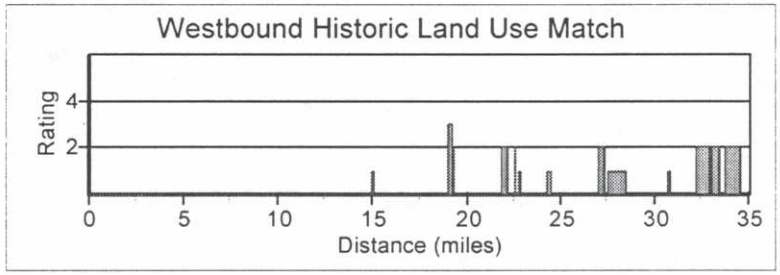

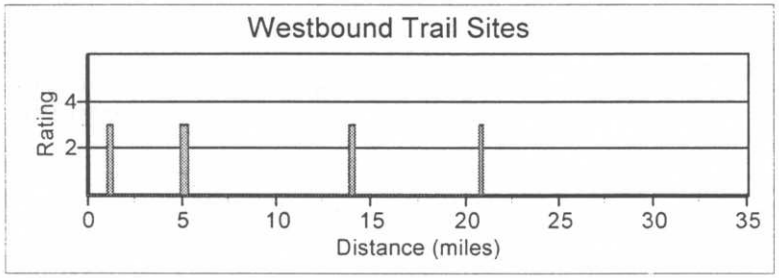

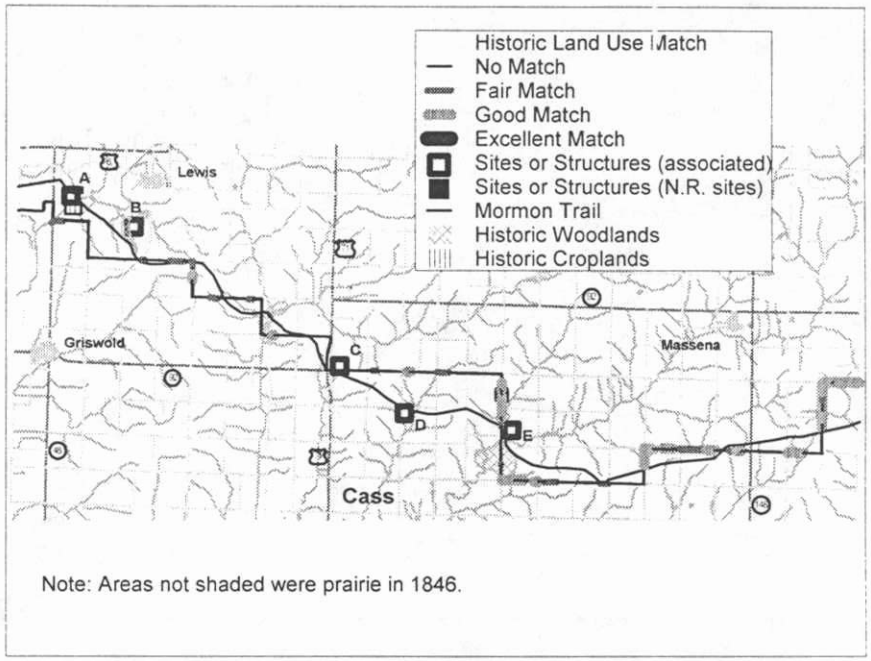

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest

Length: 31.88 miles

Road Surface Types:
Gravel: 23.78 miles
Hard Surface: 8.10 miles

General Area Comments:
Iowa Highway 92 in Cass County is designated as the Mormon Trail tour route by Iowa DOT.

Evaluation Data - Union County:

High Rating:
Eastbound: 7
Westbound: 7

Low Rating:
Eastbound: 0
Westbound: -2

Average Rating:
Eastbound: 1.07
Westbound: 0.87

Percent of Route Rated Above 4:
Eastbound: 12.24%
Westbound: 9.55%

Average Rating when Rating is Above 4:
Eastbound: 4.35
Westbound: 4.57

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0.12%
Westbound: 0%

Grasslands:
Eastbound: 21.49%
Westbound: 12.53%

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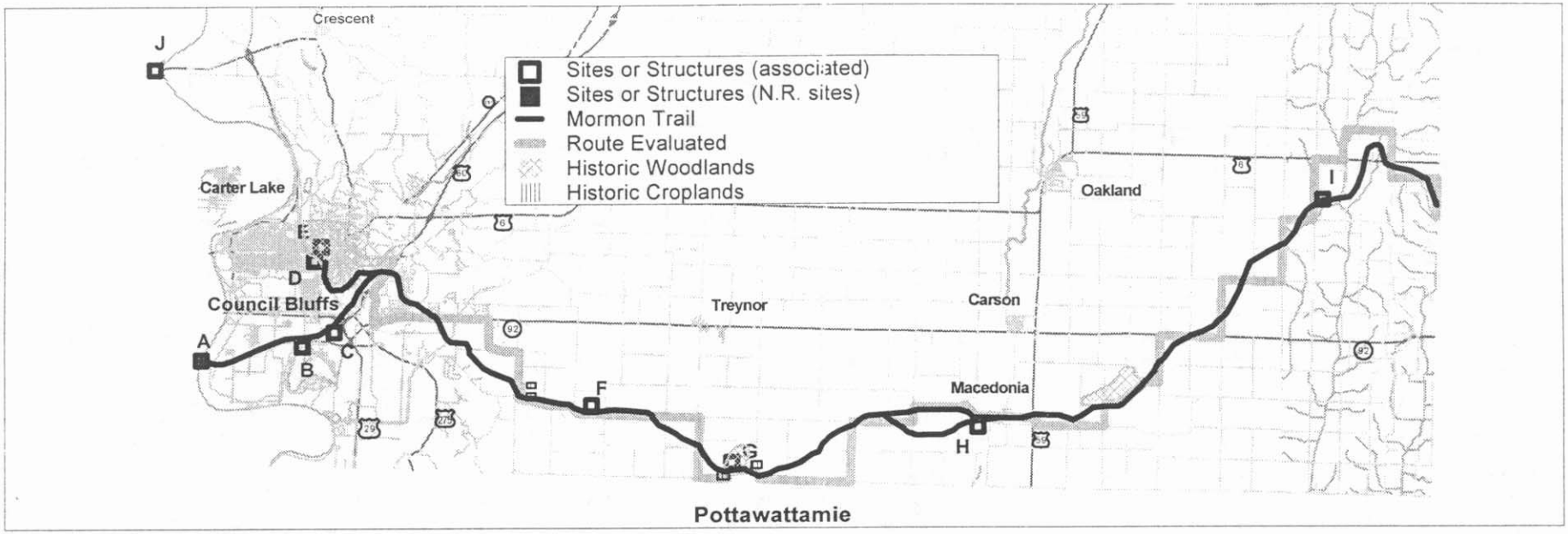

The 1846 Mormon Pioneer Trail used by Brigham Young was recorded by government surveyors when they surveyed in 1851-52. Since most of the later trail variants merged in Cass County, near present day Lewis, there is but one trail leading across Pottawattamie County. The trail does divide into two routes as can be noted on the map. The southern route is said to be Brigham Young's. Appendix B provides additional information on important Mormon sites in the vicinity of Council Bluffs.

Historic Land Use Along the Mormon Trail:
The entire trail in Pottawattamie County followed the ridges between drainage areas. The entire route was grassland. Woodlands were not encountered until the trail reached the Missouri River Valley.

Historic and Other Sites Associated with the Trail:
The National Park Service study (Kimball, 1991) identified a number of sites in Pottawattamie County.

☐ **A. Missouri River Camp:**
On June 14, 1846 the Mormon pioneers moved to a point one or two miles upriver from Peter Sarpy s trading post. They stayed here only two days. Less favorable conditions than were available at the Mosquito Creek Hill Camp led them to return to the previous site. Because the Missouri River channel has shifted, the Missouri River Camp site is now located on the Nebraska side of the river.

☐ **B. Mosquito Creek Camp No. 2:**
On June 16, 1846 Brigham Young led the pioneers back to the area near their June 13 campsite. They set up camp where Little Pony Creek empties into Mosquito Creek, located in today s urban environment 3/8 mile NW of the Iowa School for the Deaf.

☐ **C. Mosquito Creek Hill Camp:**
This was the first Mormon camp in the Council Bluffs area, which Brigham Young's company reached on June 13,1846. At that time, the spot overlooked the Missouri River, but the river has since shifted.

☐ **D. Kanesville Townsite:**
Many Mormons settled here in 1846-1847 to assist later groups bound for Utah. These Mormons also took advantage of business opportunities in this bustling frontier outfitting center, which teemed with California-bound travelers after gold was discovered in 1848 By early 1852, Kanesville s population had reached about 5,000, but most Mormons left after Brigham Young summoned them, in late 1851, to Utah.

☐ **E. Memorial Marker in Council Bluffs:**
The marker commemorates the passage of the Mormon trail through the area.

☐ **F. Keg Creek Camp:**
Campsite near a bridge over Silver Creek. It is not clear whether the 1846 travelers or later Mormons used the bridge.

☐ **G. Silver Creek Camp:**
Campsite used in 1846.

☐ **H. Macedonia:**
Mormons established the Macedonia settlement in 1848 and occupied it from time to time until 1852. A historical marker in Old Towne Park, one mile west of the present-day town, locates the site.

☐ **I. Pleasant Valley Camp:**
Campsite used in 1846. Located on the west side of Walnut Creek.

☐ **J. Mormon Pioneer Bridge Historic Marker:**
This marker is on the Nebraska side of the Mormon Pioneer Memorial Bridge that carries Interstate 680 over the Missouri River. It commemorates the three ferries (not all at this location) that Mormons used or operated from 1846 to circa 1850.

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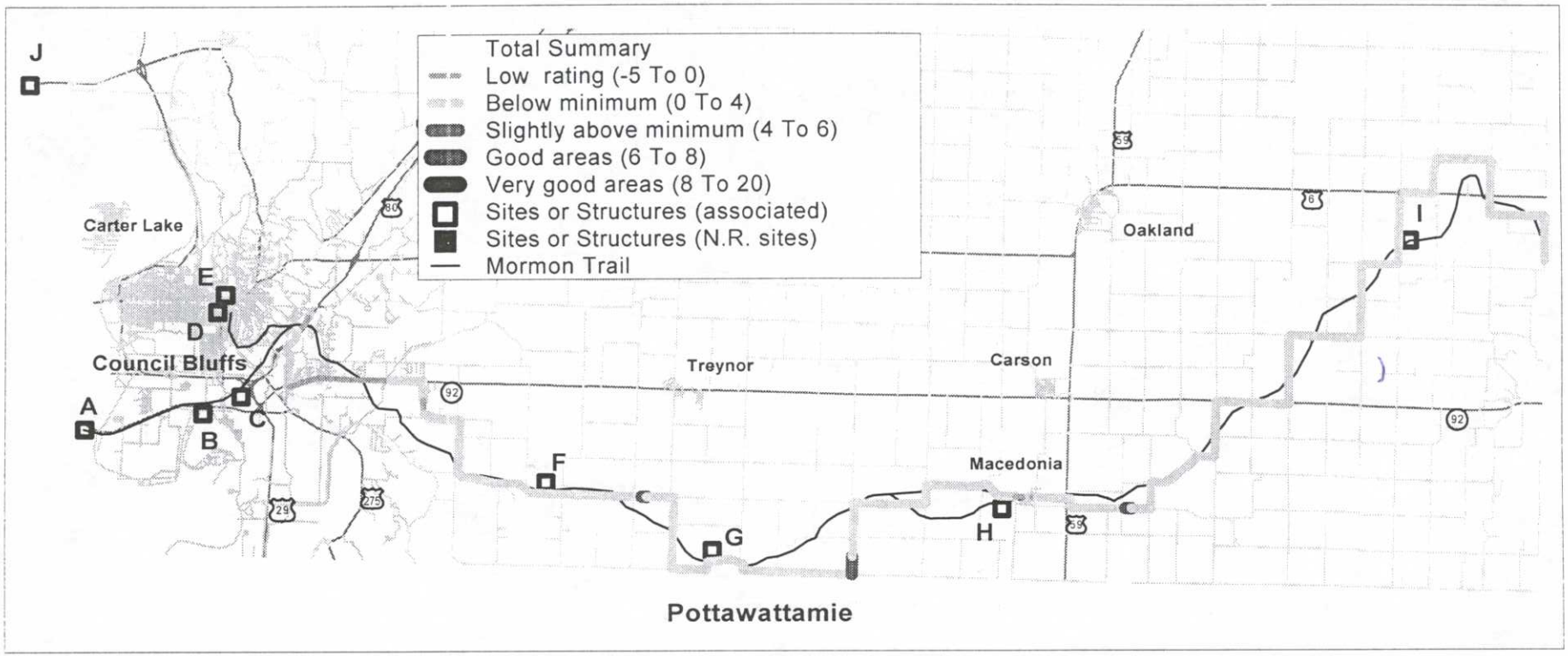

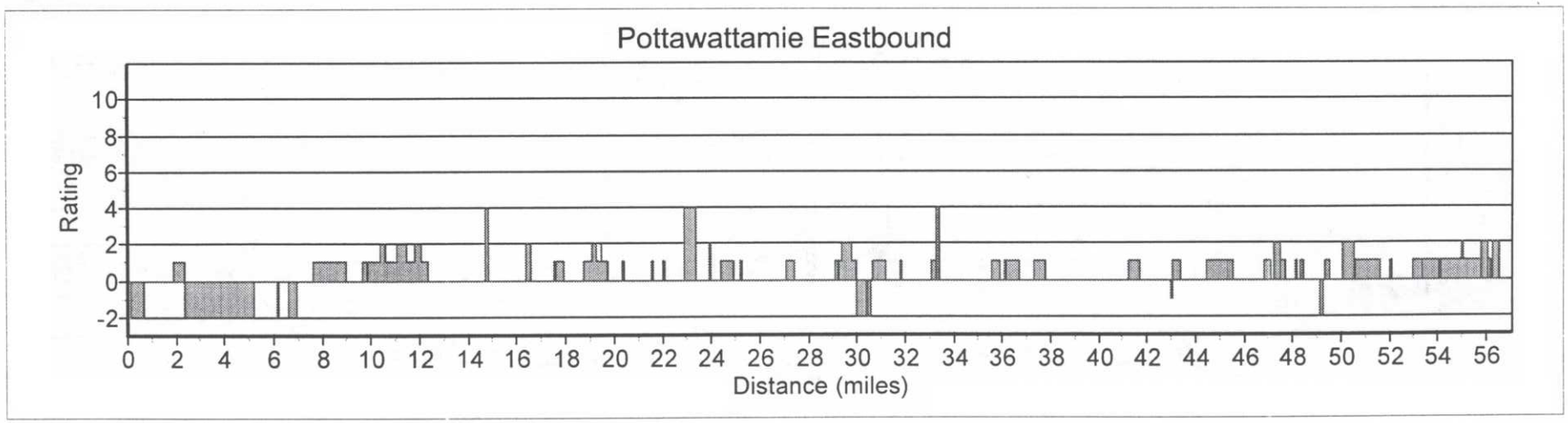

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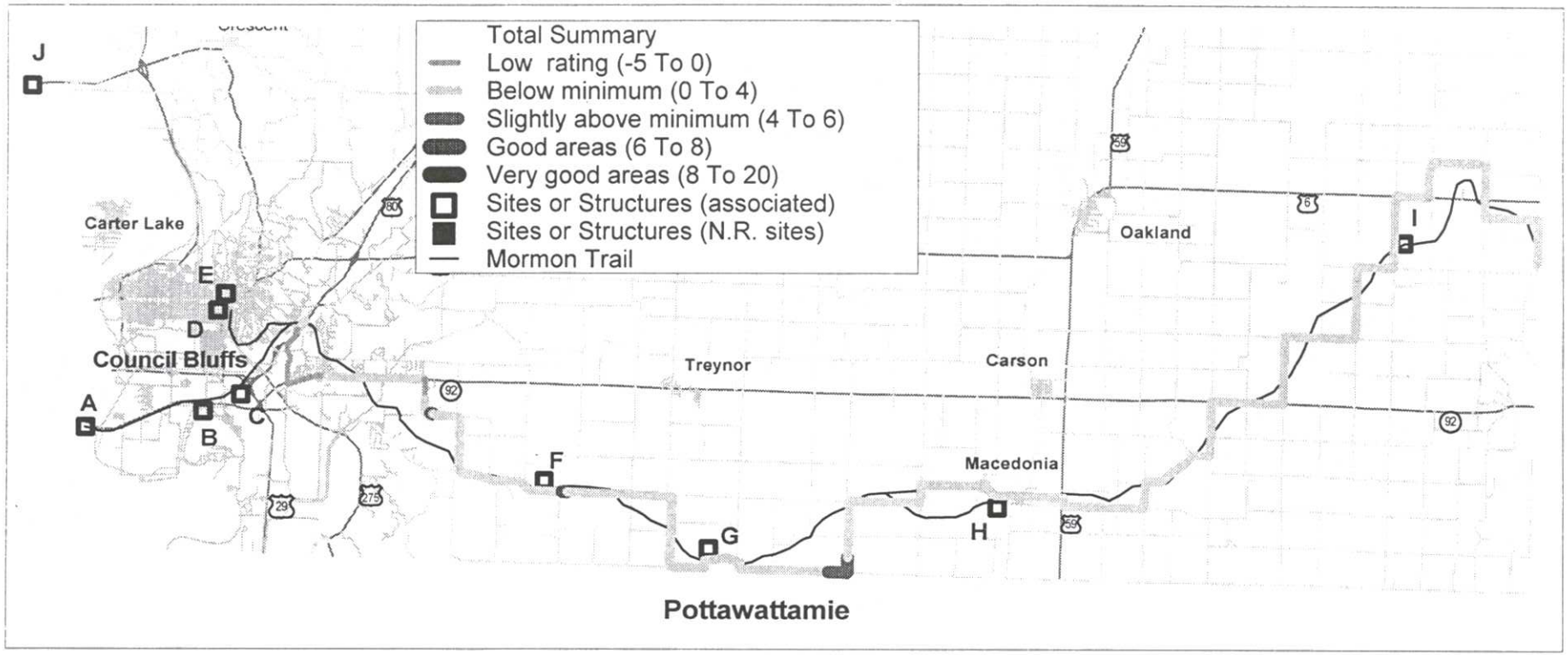

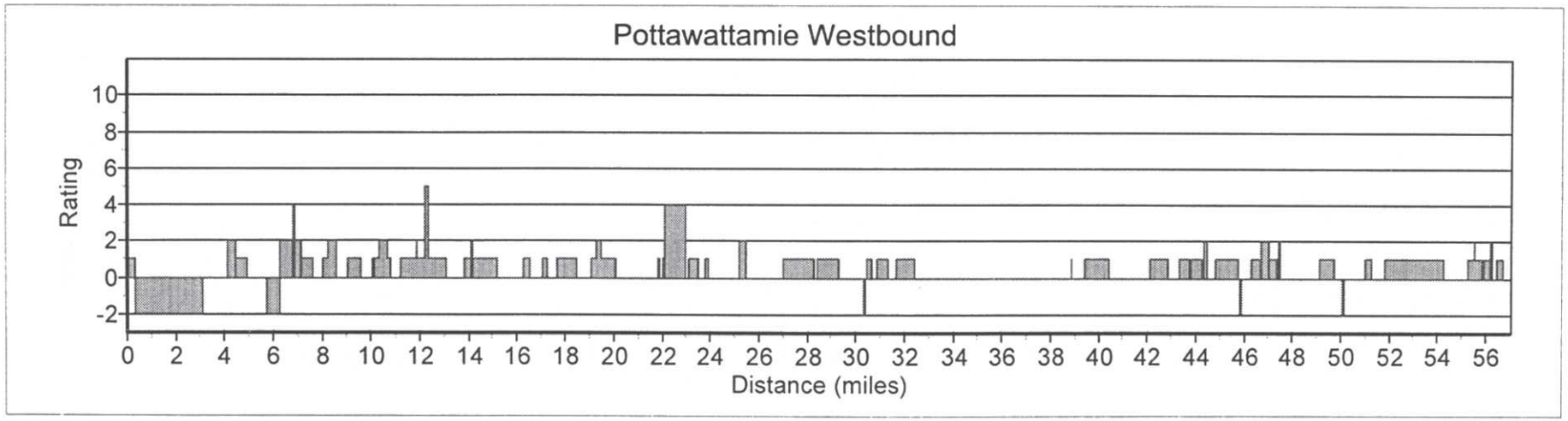

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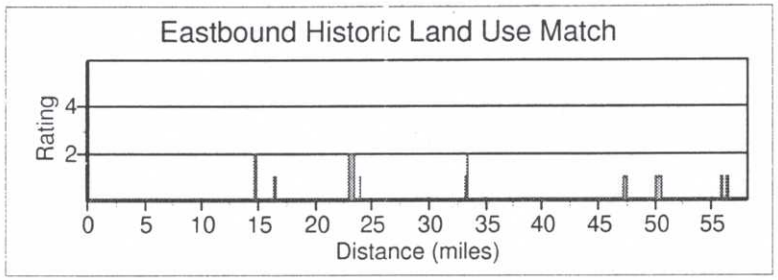

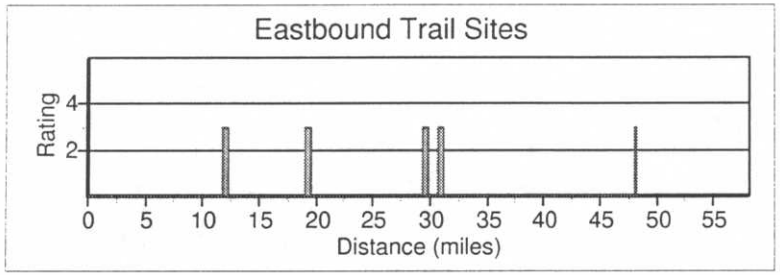

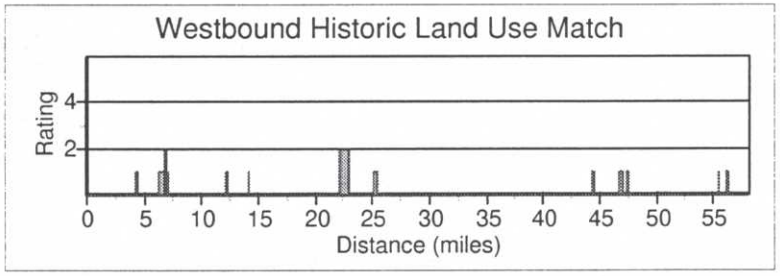

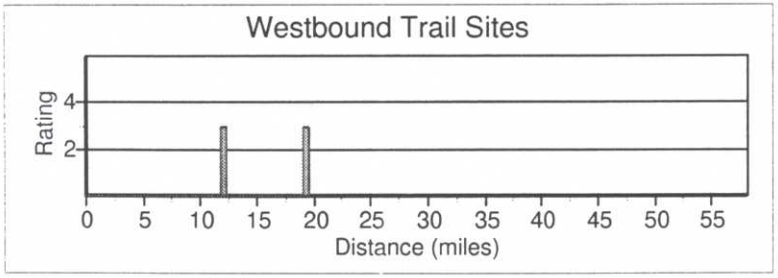

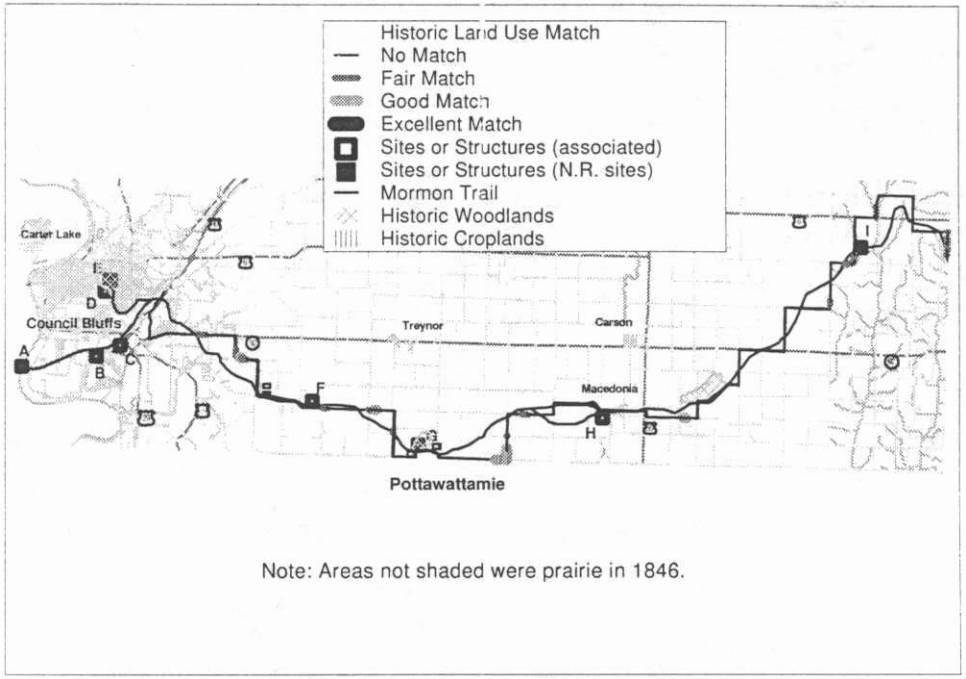

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 56.54 miles

Road Surface Types:
Gravel: 41.84 miles
Hard Surface: 14.71 miles

General Area Comments:
Iowa Highway 92 in Pottawattamie County is designated as the Mormon Trail tour route by the Iowa DOT.

Evaluation Data - Pottawattamie County:

High Rating:
Eastbound: 4
Westbound: 5

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 0.27
Westbound: 0.42

Percent of Route Rated Above 4:
Eastbound: 1.34%
Westbound: 2.01%

Average Rating when Rating is Above 4:
Eastbound: 4.00
Westbound: 4.12

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0%
Westbound: 0%

Grasslands:
Eastbound: 3.99%
Westbound: 5.76%

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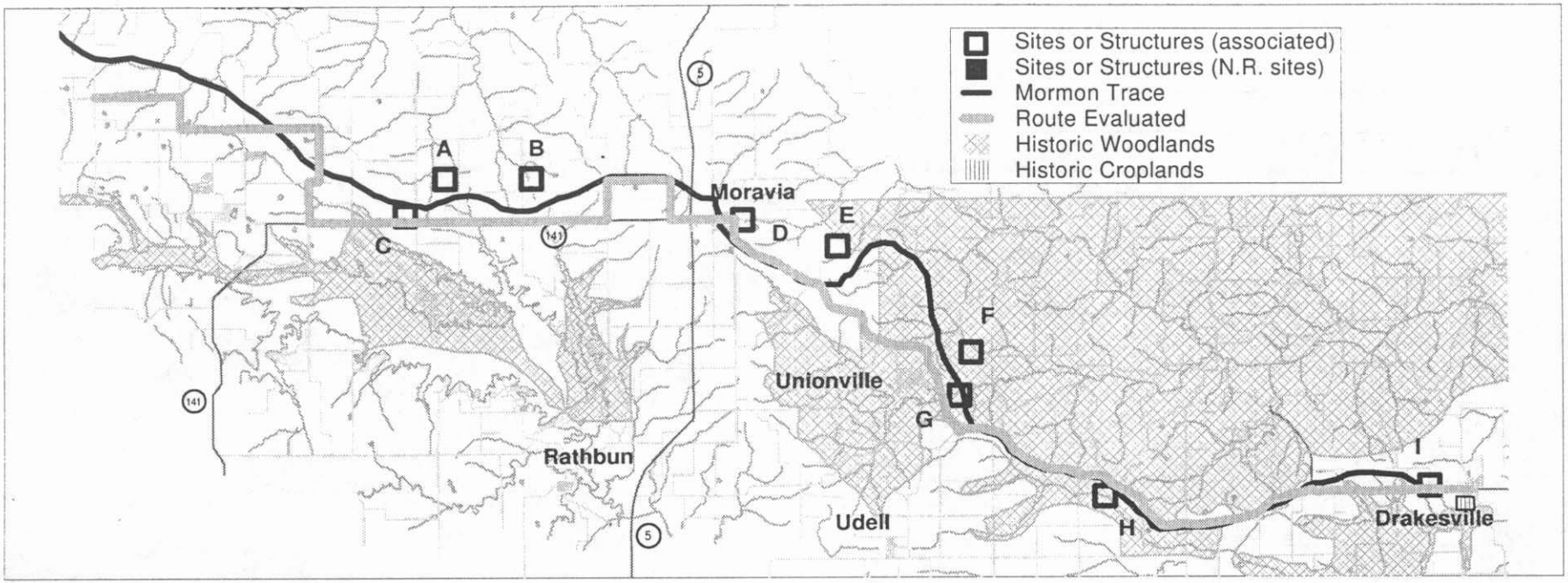

Mormon leaders conducted the migration across Iowa using established routes whenever possible. They sought alternative routes that would ease their travel. The pioneer group moved westward in early 1846 on the same trail they had used eight years earlier when they traveled eastward from Missouri to Nauvoo. This Pioneer Trial was used for a very short time. In the spring of 1846 Mormon groups began departing the Pioneer Trail at a point near Drakesville in Davis County in favor of a more westerly route. This route, which has been termed the Mormon Trace, intersected with the Pioneer Trail again in Clarke County about 9 miles southwest of Osceola. The Trace was used between 1846 and the early 1850s.

Historic Land Use Along the Mormon Trace:
The eastern segment of the Mormon Trace (Davis and Appanoose counties) was located in woodlands associated with the South Branch of Soap Creek. In north-central Appanoose County and southwest Monroe County, the Mormon Trace followed the grassland divides between watersheds.

[Monroe County]
☐ **A. Camp Northeast of Iconium:**
It is said that a number of Mormon families wintered at this location.

☐ **B. Spring and Cemetery:**
The spring was used by Mormon travelers and the nearby Welch Cemetery is said to be the burial site of a Mormon child.

[Appanoose County]
☐ **C. Dodge's Point:**
The Pardon M. Dodge farm about ½ mile west of Iconiurn was used by the Mormons for water and supplies. The Mormon Trace originally turned northwest at this point. A later variation of the trace, used after 1849, led directly west to Garden Grove.

☐ **D. Town of Moravia:**
In 1849 a cabin built by a small group of Mormons was purchased by a group of emigrants from North Carolina that founded the town of Moravia.

☐ **E. Mormon Gardens Campsite:**
This site located on the North branch of Soap Creek, was used as a camp site. It was also a long term garden site that helped feed later Mormon travelers. It is said that graves of Mormon travelers may be nearby.

☐ **F. David Caylor Farmstead:**
Ruts associated with the Mormon Trace are said to be visible on this farm.

☐ **G. Mormon Camp on Soap Creek:**
This campsite was located on the south side of Soap Creek. The location is associated with local folklore concerning settlers helping Mormon Travelers.

[Davis County]
☐ **H. Mormon Grave:**
The grave of a Mormon traveler is said to be located in this vicinity.

☐ **I. Start of the Mormon Trace:**

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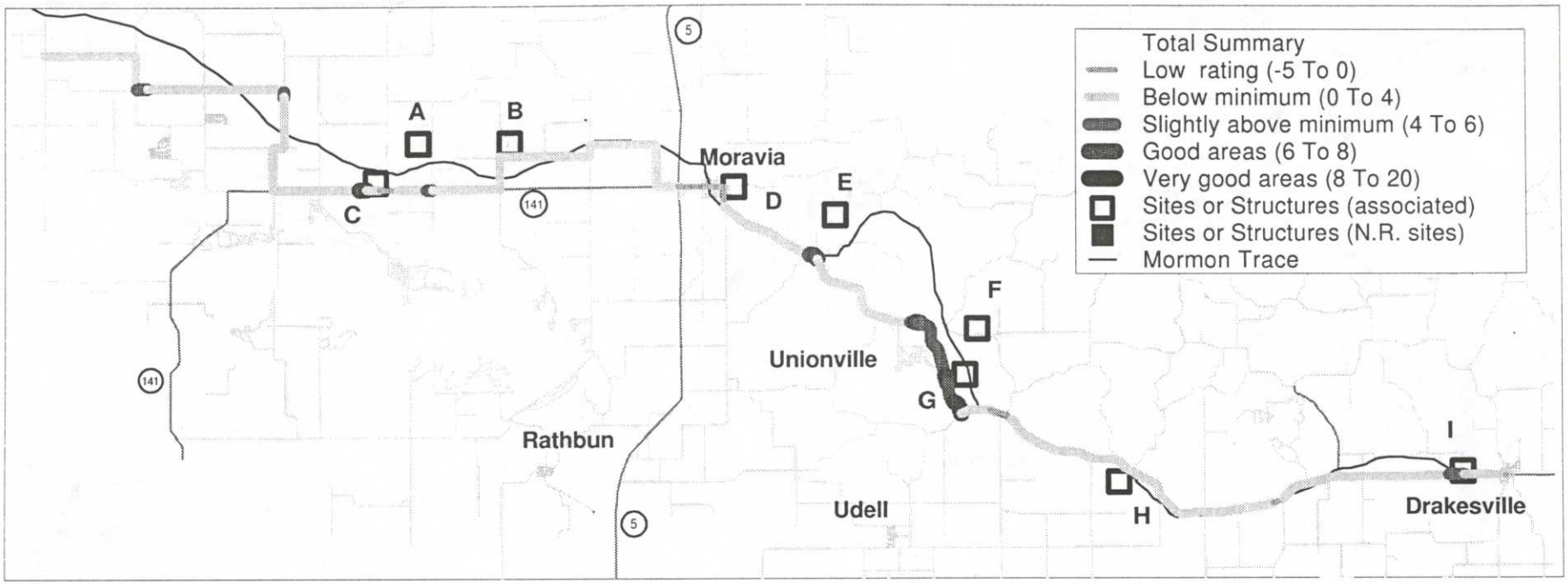

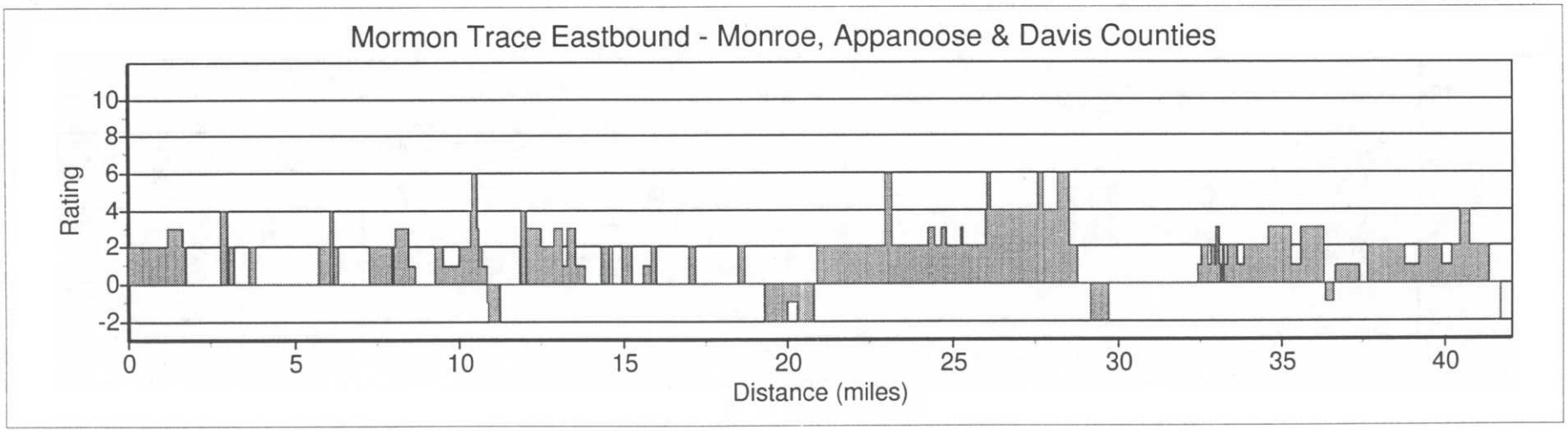

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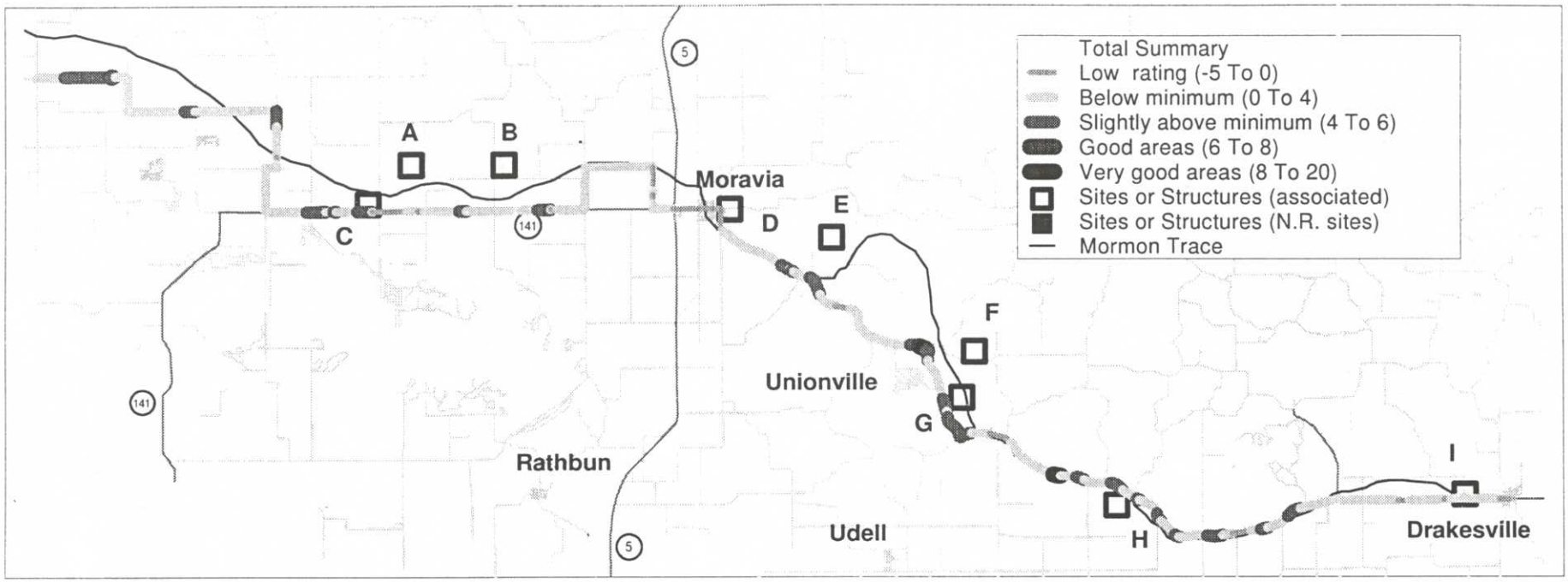

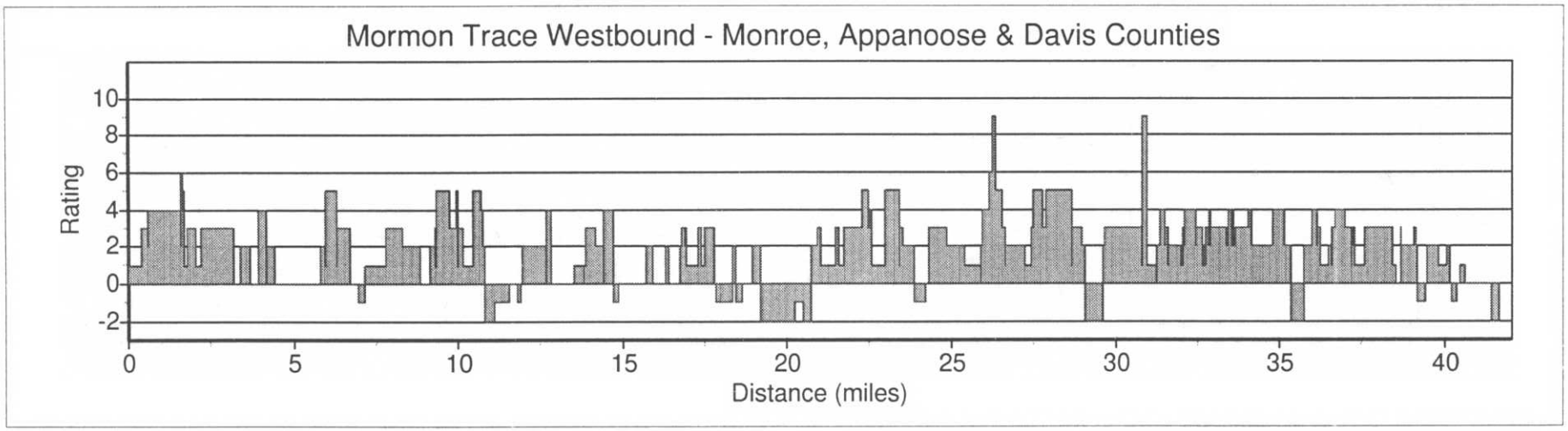

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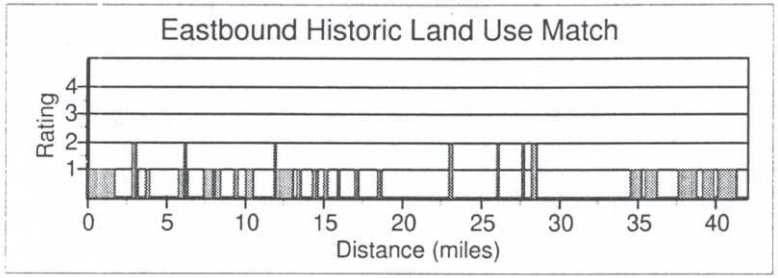

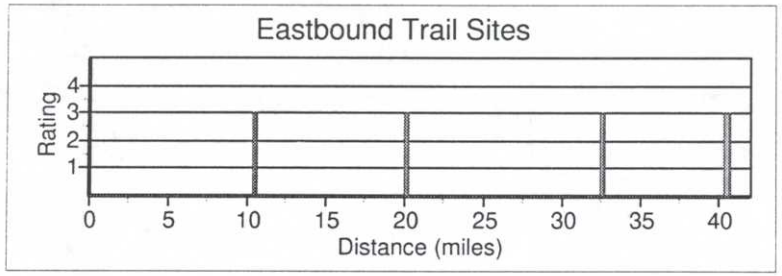

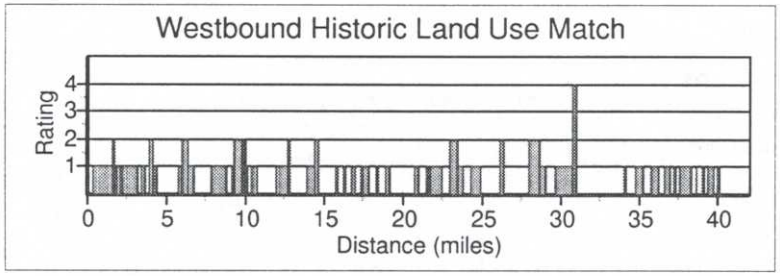

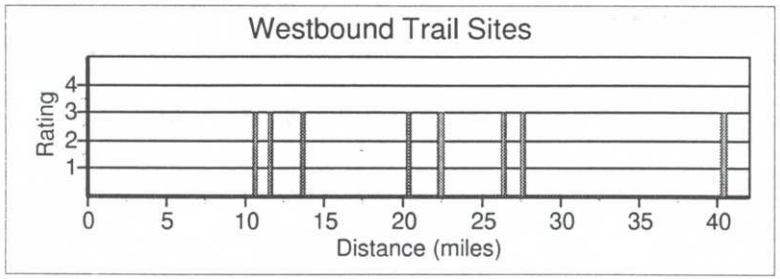

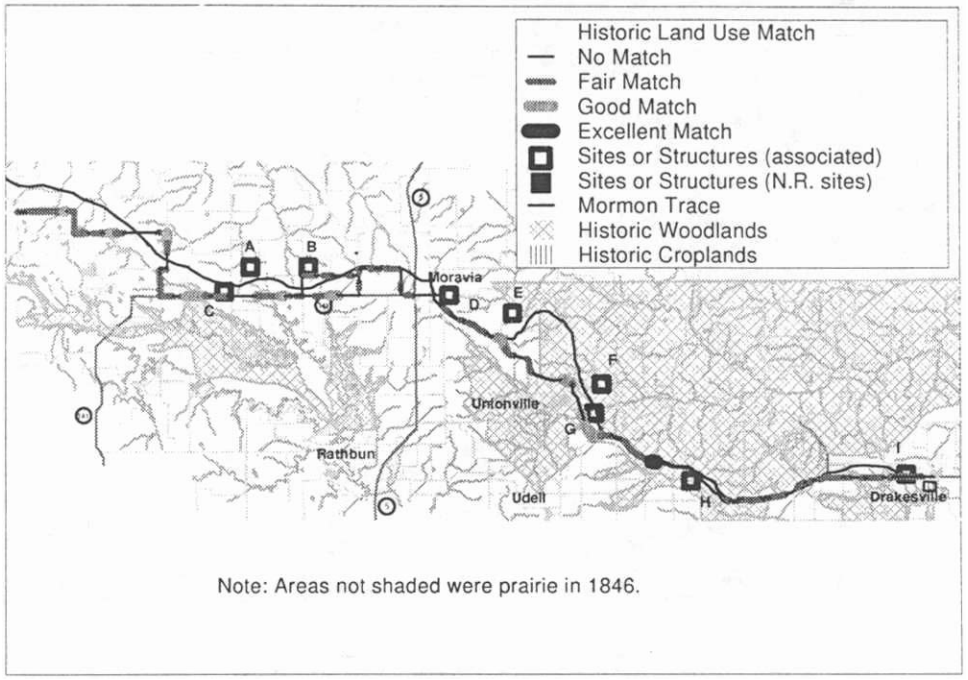

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 41.63miles

Road Surface Types:
Gravel: 12.03 miles
Hard Surface: 29.60 miles

General Area Comments:
Iowa Highway 2 in Davis and Appanoose counties is designated as the Mormon Trail tour route by the Iowa DOT. A portion of the Woodlands Scenic Byway is located near the Mormon Trace in Davis County.

Evaluation Data - Mormon Trace - Monroe, Appanoose & Davis Counties:

High Rating:
Eastbound: 6
Westbound: 9

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 1.32
Westbound: 1.78

Percent of Route Rated Above 4:
Eastbound: 8.84%
Westbound: 16.83%

Average Rating when Rating is Above 4:
Eastbound: 4.51
Westbound: 4.66

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 1.88%
Westbound: 8.83%

Grasslands:
Eastbound: 28.47%
Westbound: 33.20%

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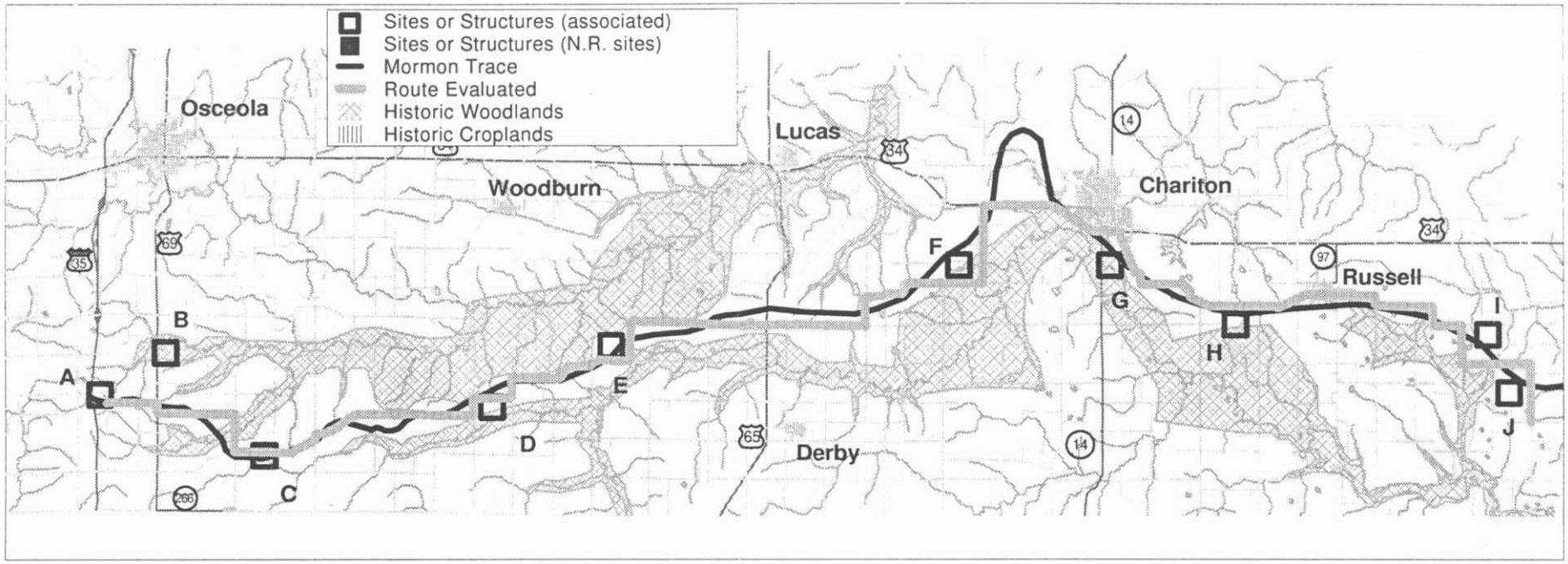

The portion of the Mormon Trace in these counties was used between 1846 and the early 1850s, though some Mormon travelers followed a southern variation of the "Trace" are early as 1849. The Mormon Trace joined again with the Pioneer trail in eastern Clarke County. Several trails in western Lucas County leading to Garden Grove were used throughout this time period. Travelers following these trails joined the Pioneer Trail in Garden Grove.

Historic Land Use Along the Mormon Trace:
Travelers encountered woodlands only along the Chariton River in eastern Lucas County. Western Lucas County and eastern Clarke County found the Mormons traveling through prairie grasslands.

[Clarke County]
☐ **A. Leslie Townsite:**
This site is located at the junction of the southern route (Pioneer Trail) and the northern route (Mormon Trace). Both routes in this area were used between 1846 and 1852. The Pioneer Trail was traveled by Mormon groups that had visited the way station at Garden Grove.

☐ **B. Lost Camp:**
This campsite was used by a few families in the late fall of 1846. These travelers had strayed off the northern route and spent the winter at this site. Some of them remained in the Osceloa area until 1854.

☐ **C. Cemetery:**
A cemetery that " . . . began during the early days of this route west". (IMTA).

■ **D. Smyrna Townsite:**
This site is described as " . . . the town created by the turnoff from the north route to Garden Grove" (IMTA). A church and cemetery remain at this site.

[Lucas County]
☐ **E. Last Chance Cemetery:**
This cemetery is said to contain Mormon graves.

☐ **F. Grave Hallow:**
This site was both a campsite and burial site. It was also a local landmark.

☐ **G. Chariton Point:**
Several Mormon families settled at this location for a short period. The site is marked with a stone and plaque.

☐ **H. Salem Cemetery:**
The Salem Cemetery is said to be the burial site of several Mormons.

☐ **I. Camp Site:**
An unnamed campsite at this location was identified by some Mormon diarists.

☐ **J. Greenville Cemetery:**
The cemetery was founded in 1847 and is said to be the burial site of several Mormon children.

☐ **K. Trail to Marion County (Attica):**
Mormons settled in this area until the early 1850s. (The location is not shown on the map).

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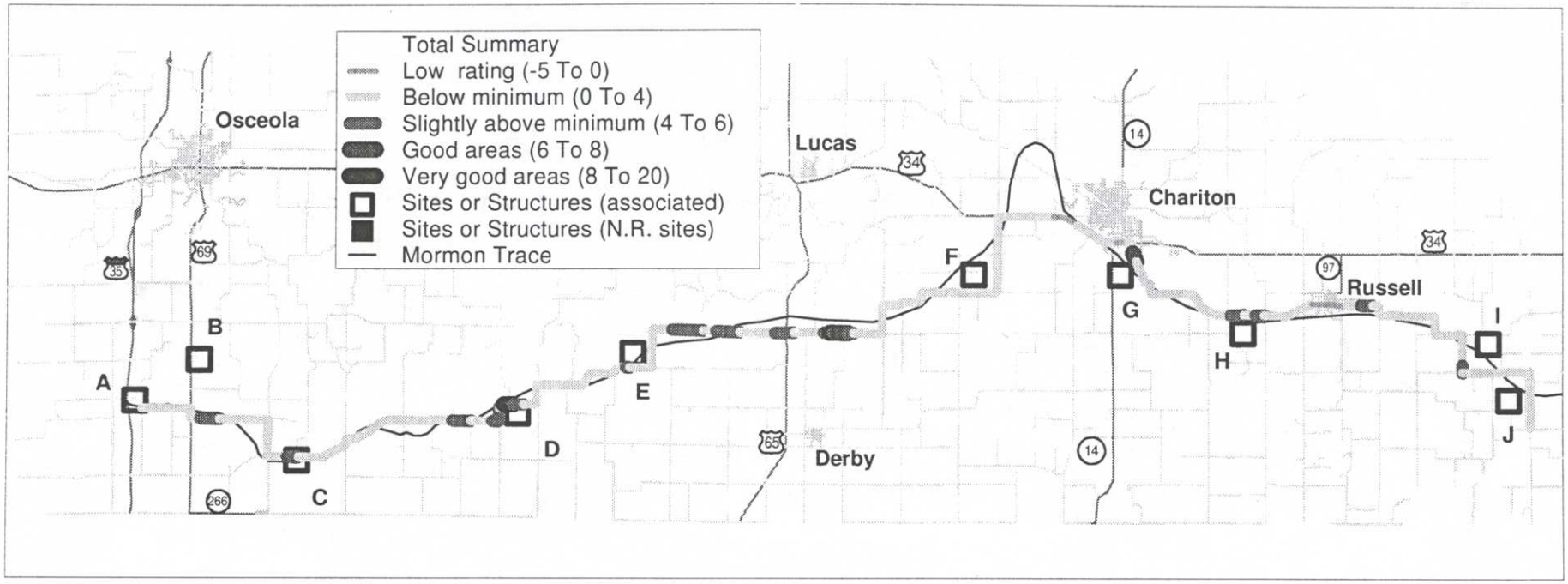

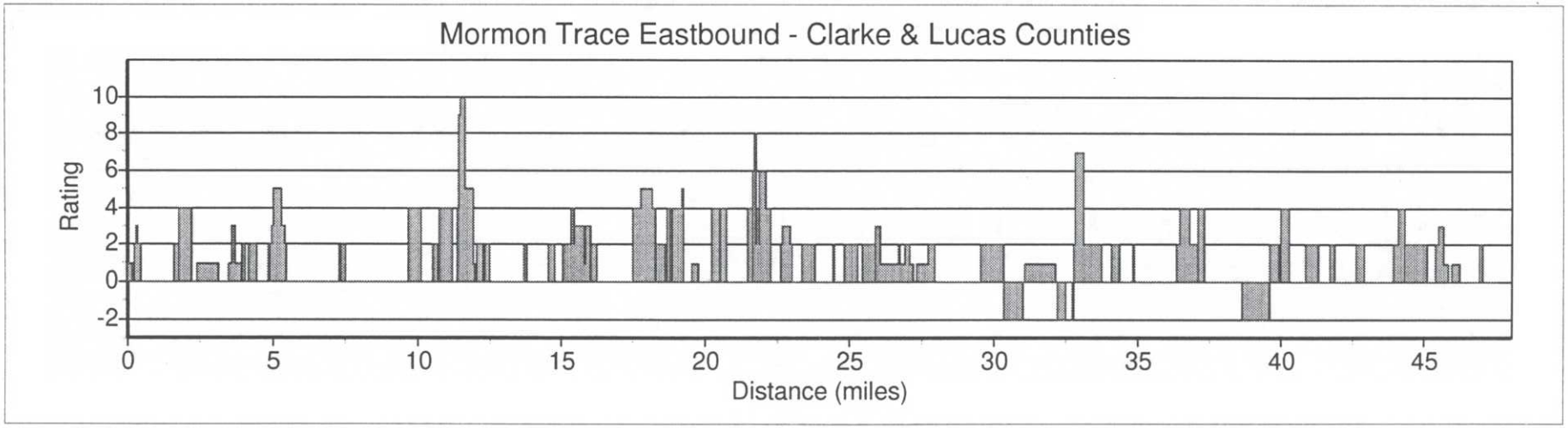

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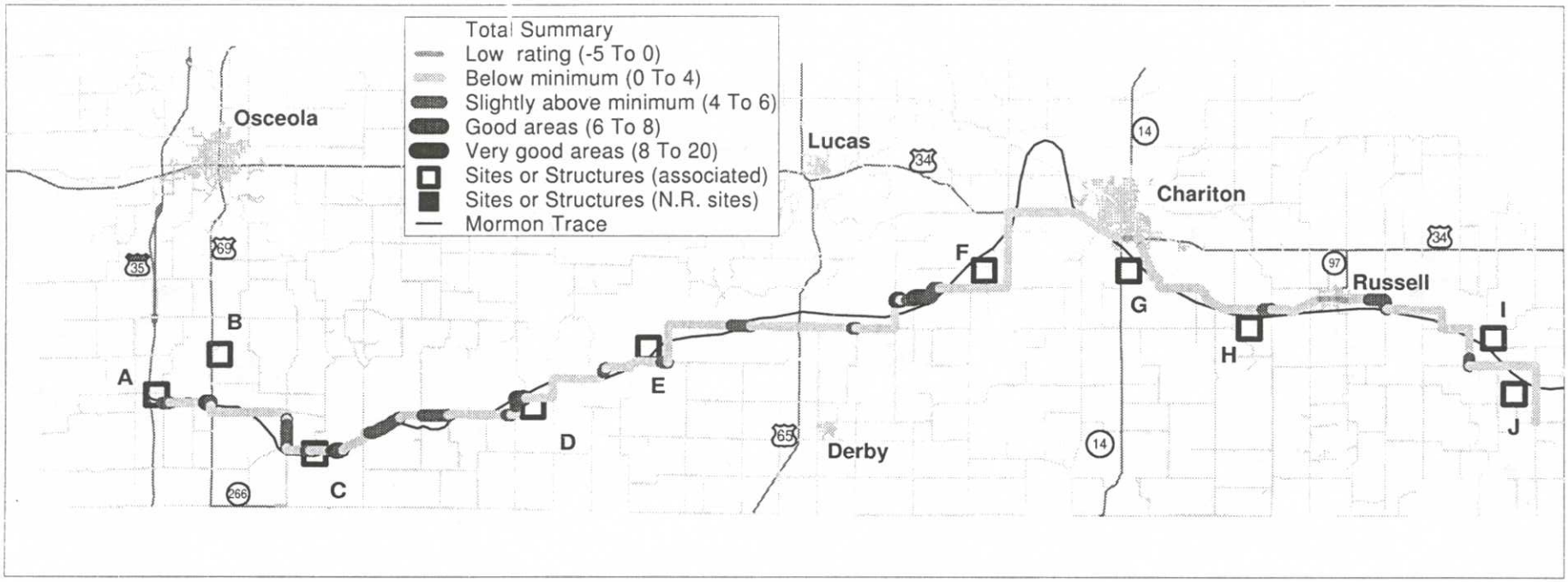

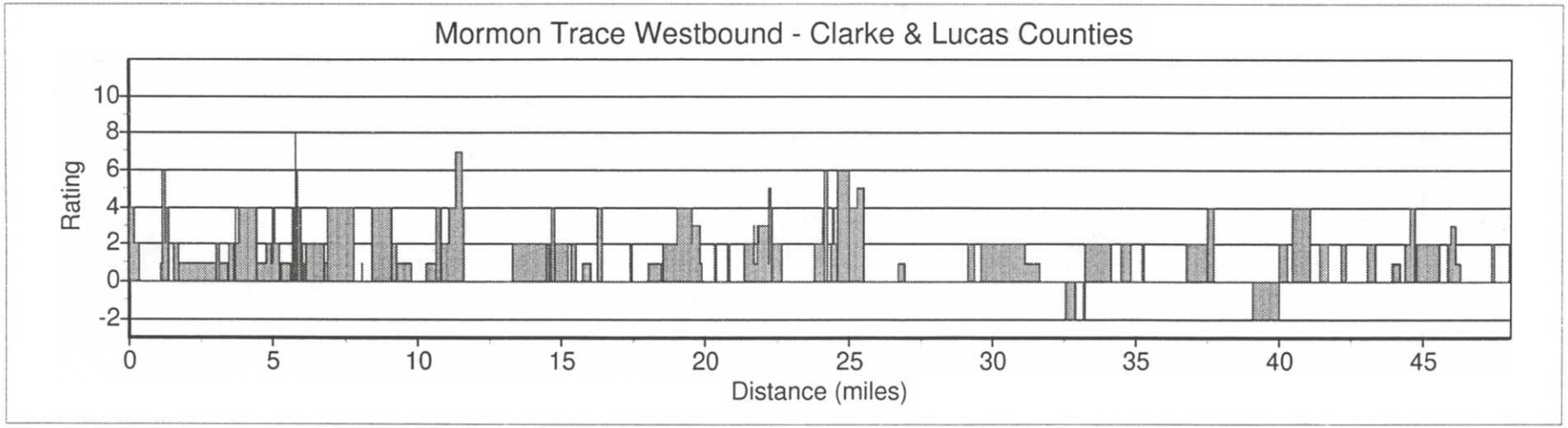

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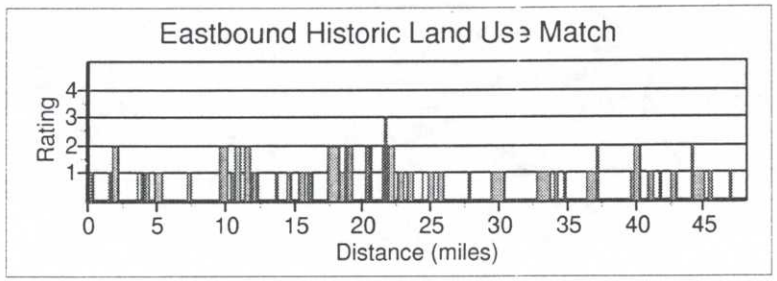

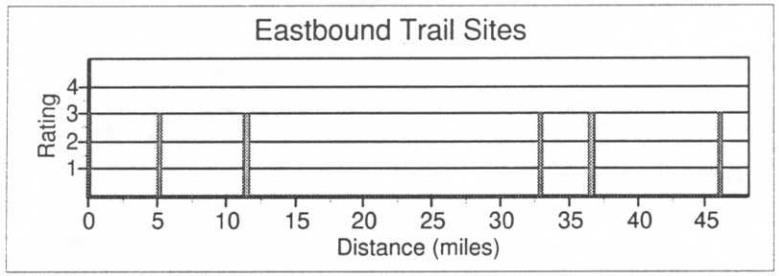

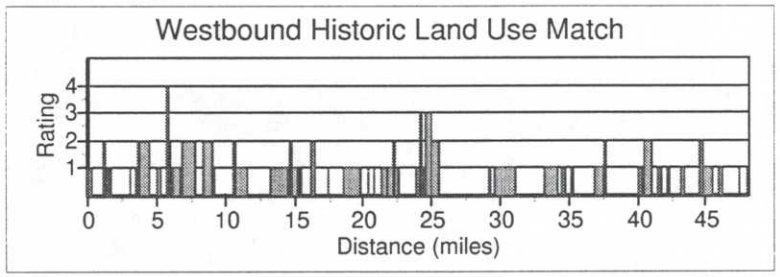

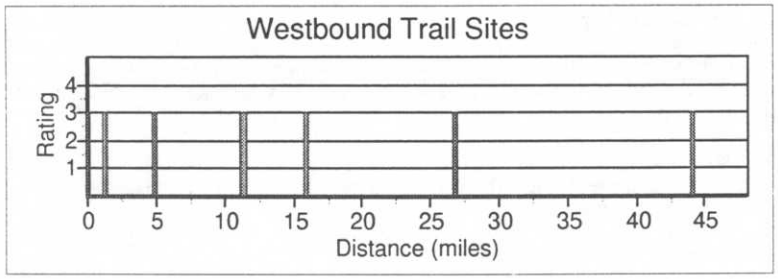

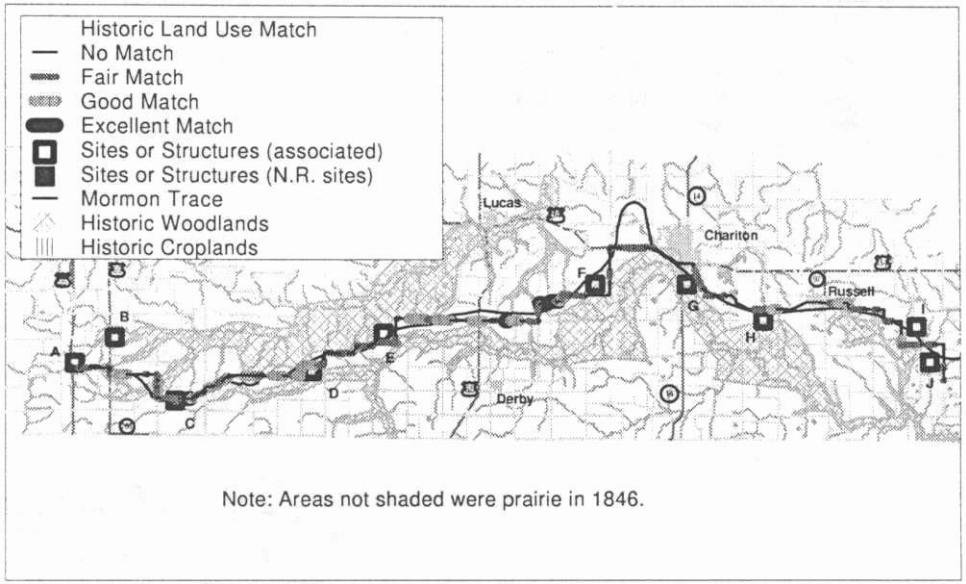

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 47.57miles

Road Surface Types:
Gravel: 44.11 miles
Hard Surface: 3.46 miles

General Area Comments:
US Highway 34 and US 69 in Clarke County are designated as the Mormon Trail tour route by the Iowa DOT.

Evaluation Data - Mormon Trace Clarke & Lucas Counties:

High Rating:

Eastbound: 10
Westbound: 8

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 1.12
Westbound: 1.20

Percent of Route Rated Above 4:
Eastbound: 13.31%
Westbound: 13.54%

Average Rating when Rating is Above 4:
Eastbound: 4.64
Westbound: 4.35

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0.92%
Westbound: 5.78%

Grasslands:
Eastbound: 33.52%
Westbound: 33.27%

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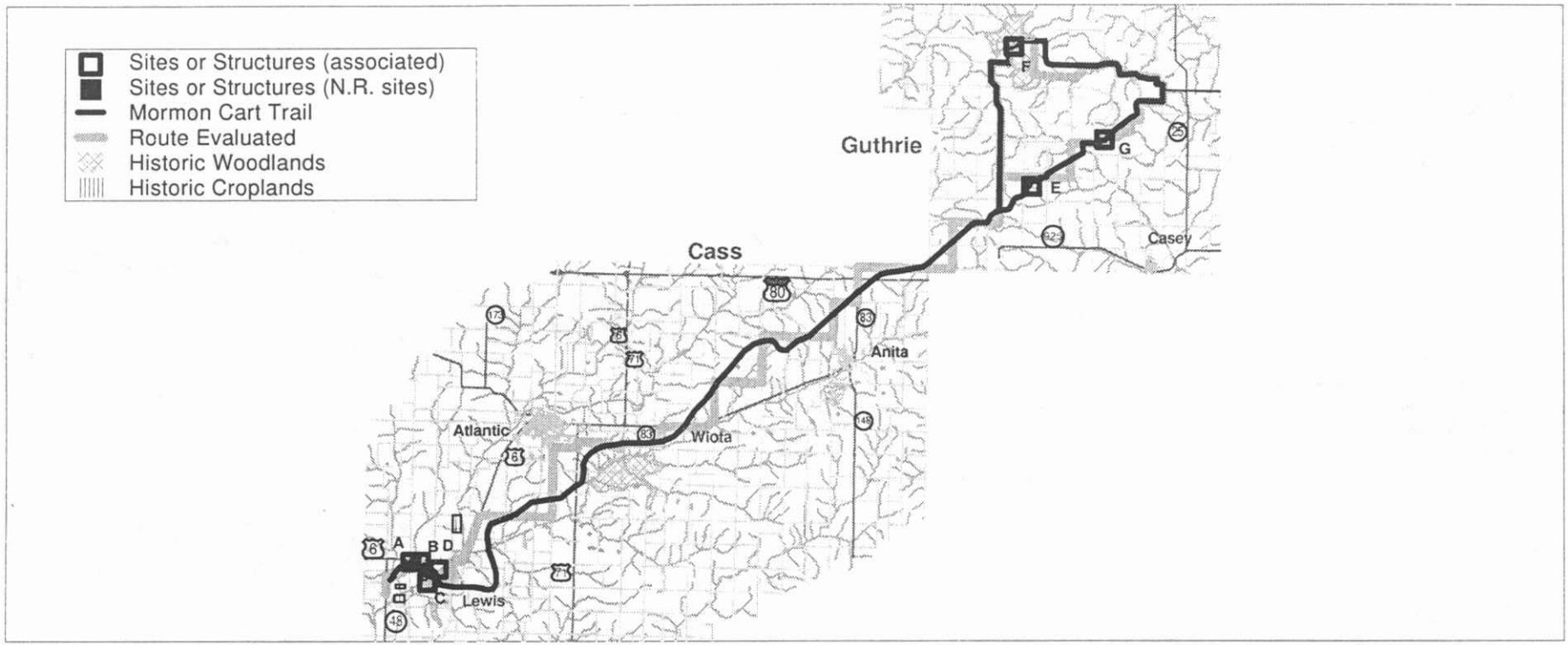

Apparently most handcarters proceeded west from Redfield, in Dallas County, to Bear Grove in the southwestern corner of the county, although one group followed a more southerly course to Dalmanutha. The routes leading out of each of these settlements followed an old trail southwest to Lewis, in Cass County.

Historic Land Use Along the Mormon Handcart Trail:
The entire Handcart Trail in Cass County followed the grassland-covered ridges between drainage areas. The majority of the cart trail in Guthrie County was located in prairie grassland.

☐ **A. Indian Creek Crossing;**
There was a large Indian encampment visible from this crossing. Nearby, 20 Mormon families established the community of Indiantown.

☐ **B. Indiantown Townsite:**
Twenty Mormon families established this settlement in 1846. It was occupied by Mormons until 1852. Permanent settlers moved in and filed a town plat in 1853. Indiantown was in existence as late as 1875. There is some disagreement as to the actual location of this townsite. The DAR marked it in the early twentieth century, but the marker was later moved to the town park in Lewis.

☐ **C. Hitchcock House:**
This house was built in 1856 near the East Nishnabotna River crossing. It is associated with the Handcart Trail period only. The house is owned by the State of Iowa (DNR) and managed by Cass County.

☐ **D. Ferry House:**
Located at the crossroads of several trails and territorial roads, this house dates from the 1850s. It is associated with the post-1850 Mormon migration period only.

☐ **E. J. E. James Farm and Blacksmith Shop:**
James was a settler who arrived in 1858, as the " . . . last of the 'handcart brigade' went through . . . " (History of Guthrie County, 1876). He is said to have sheltered Mormons at the farm and tanned the hides of oxen and cows lost by the Mormons.

☐ **F. Bear Grove Townsite:**
"Only a wide spot in the road today, then (in 1856-57) it was an important coach stop and a place where handcarters obtained needed supplies" (Kimball 1988).

☐ **G. Dalmanutha Townsite:**
Damanutha, platted in 1855, was a stage stop where handcarters obtained supplies. Only the Dalmanutha Cemetery remains of this crossroads settlement. Markers at the cemetery provide historical information about the town, the cemetery, and the handcart companies that passed through here.

☐ **H. Dale City:**
Dale City was another settlement through which the handcart travelers passed. (The site is not shown on the map.)

☐ **I. Morrisburgh Townsite:**
Established in 1855, this settlement was on the route of the handcart travelers. (The site is not shown on the map.)

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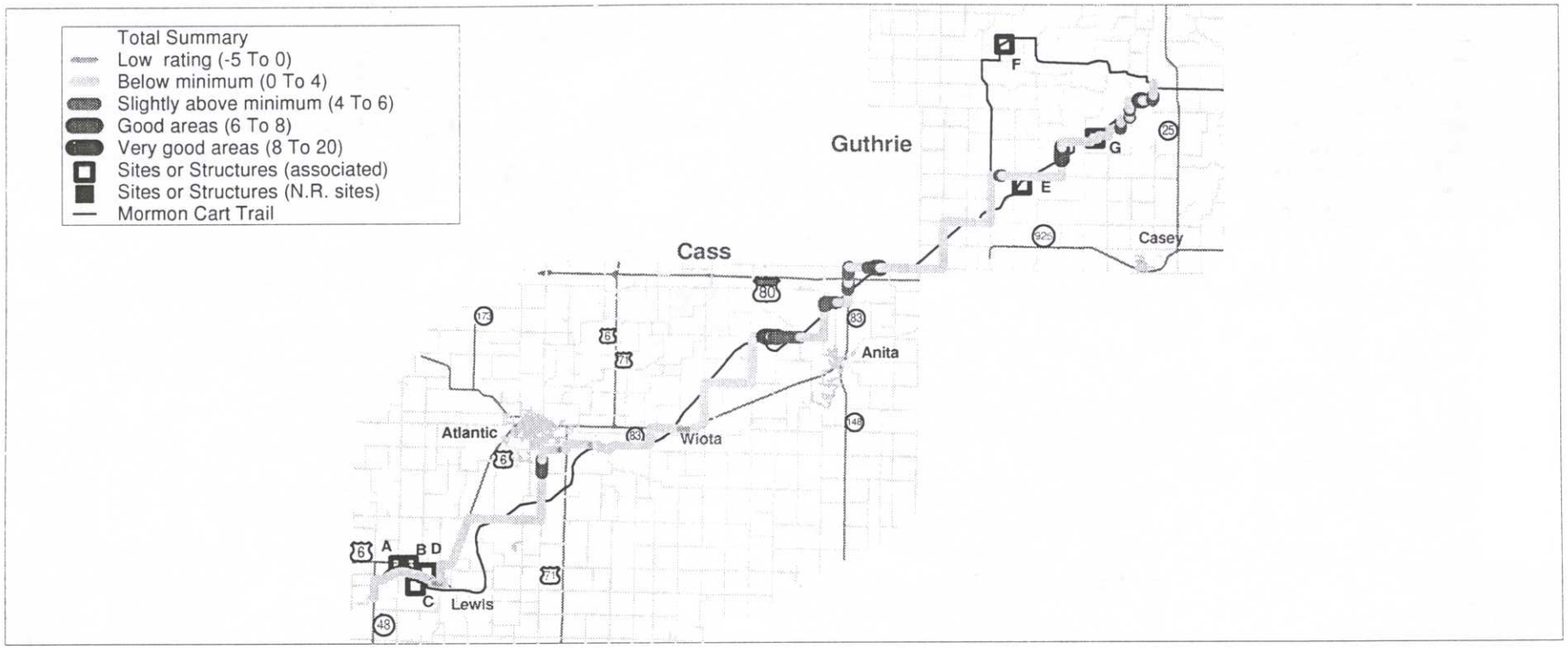

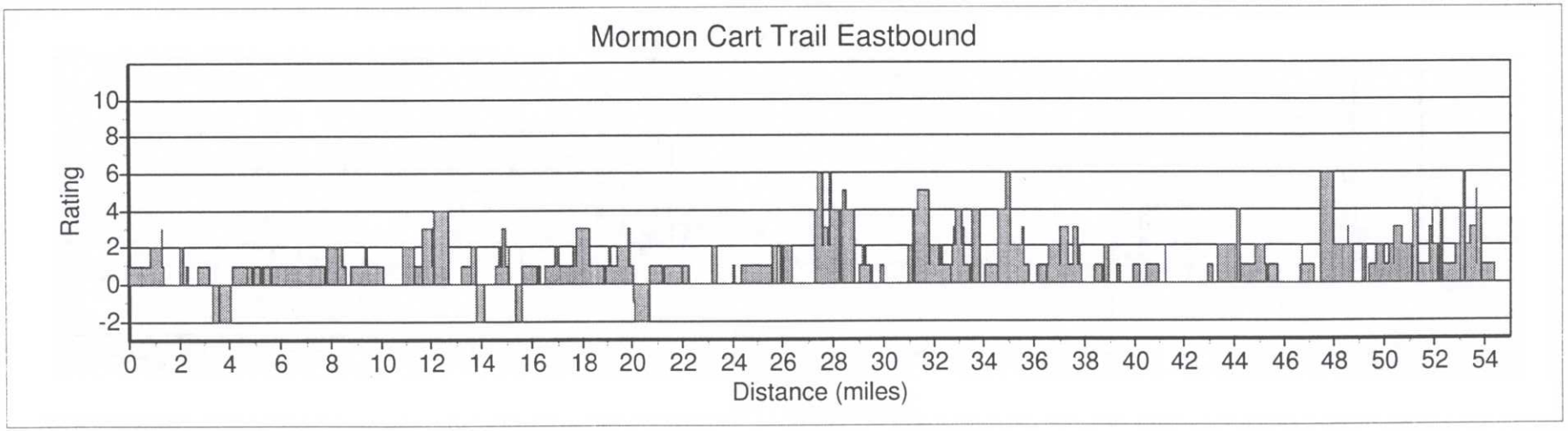

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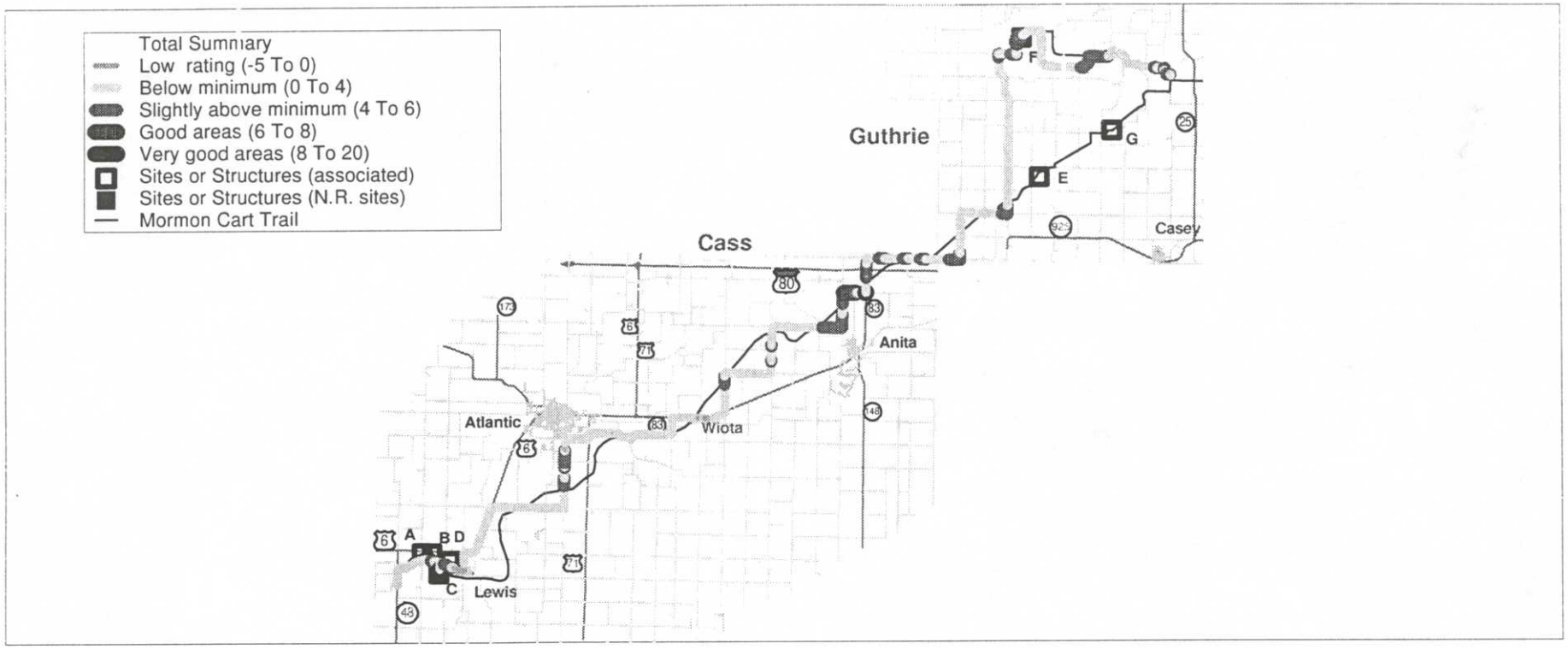

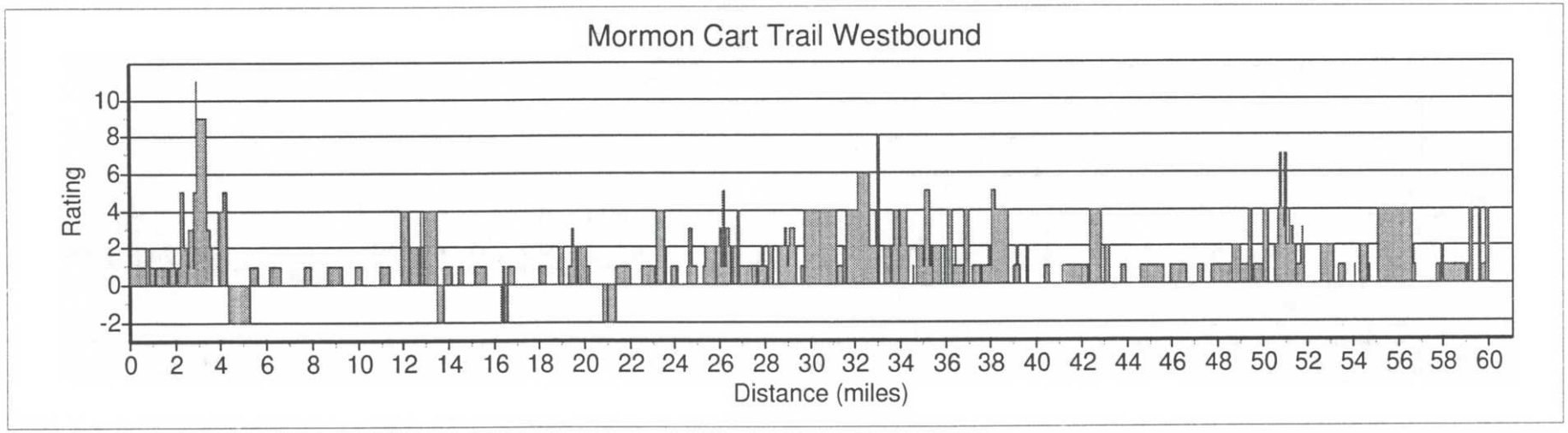

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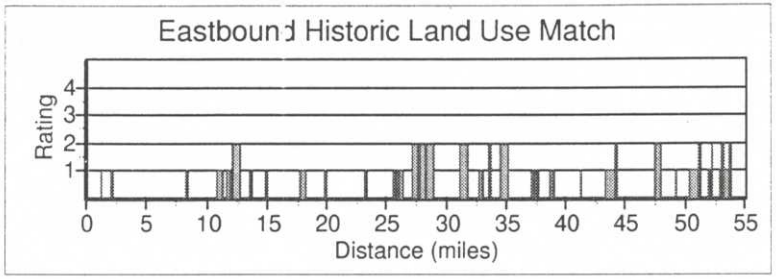

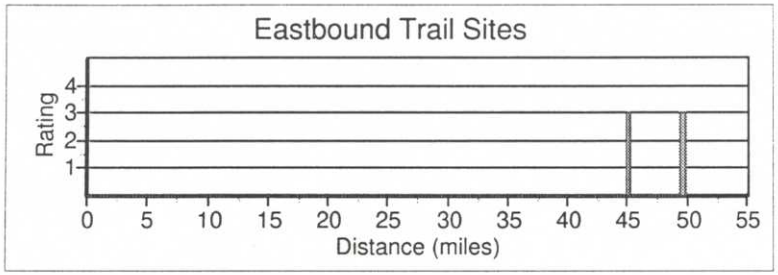

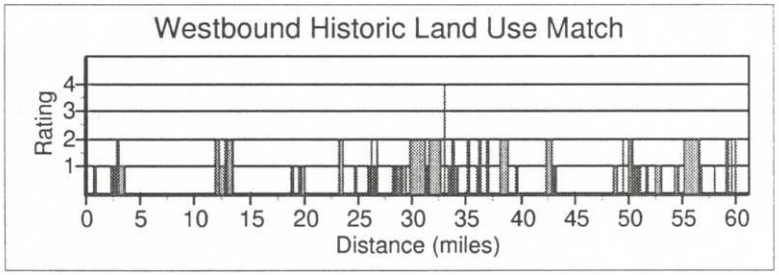

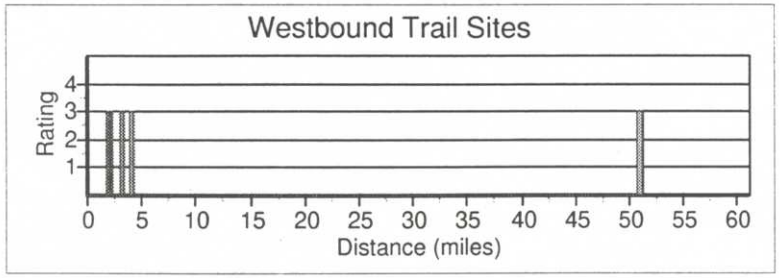

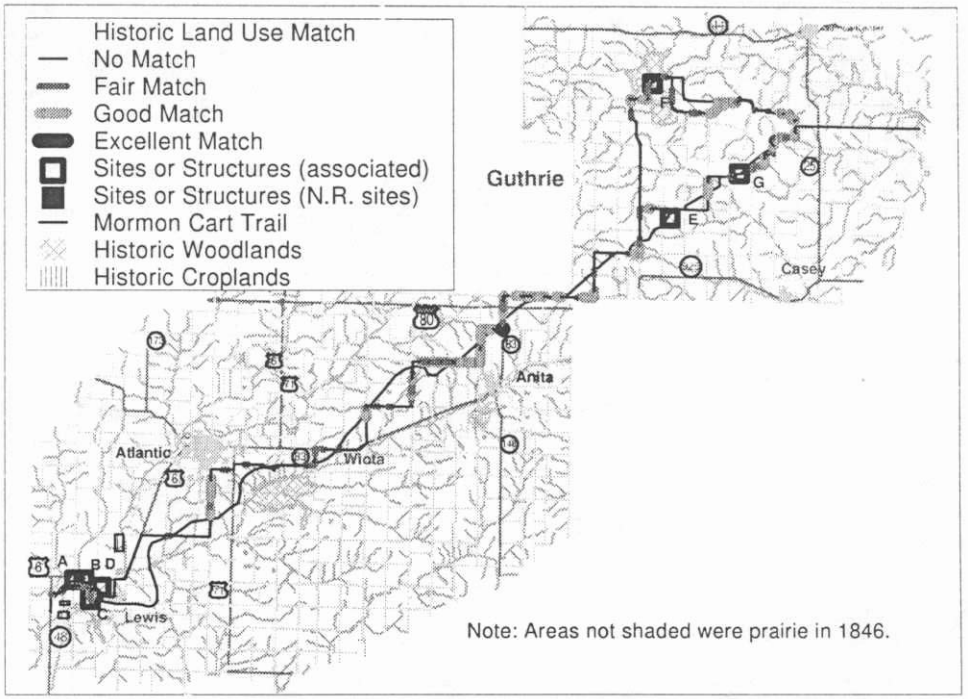

Note: The land use graphs and the map above indicate locations where there is a match between current land use and the land use identified in 1846. The rating shown is based on the data collected during the field inventory and the evaluation procedures discussed in the previous section. The site graphs only indicate the location of historic sites and points of interest.

Length: 57.19 miles

Road Surface Types:
Gravel: 37.30 miles
Hard Surface: 19.89 miles

General Area Comments:
Iowa Highway 92 in Cass County is designated as the Mormon Trail tour route by the Iowa DOT. The Western Skies Scenic Byway is located along Iowa highway 44 in Guthrie County.

Evaluation Data -Cart Trail:

High Rating:
Eastbound: 6
Westbound: 11

Low Rating:
Eastbound: -2
Westbound: -2

Average Rating:
Eastbound: 1.22
Westbound: 1.32

Percent of Route Rated Above 4:
Eastbound: 9.09%
Westbound: 16.67%

Average Rating when Rating is Above 4:
Eastbound: 4.58
Westbound: 4.48

Percent of Route That Matches Historic Land Use:

Woodlands:
Eastbound: 0%
Westbound: 0%

Grasslands:
Eastbound: 20.61%
Westbound: 26.30%

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Appendix A

APPENDIX A - Inventory & Evaluation Procedures

BACKGROUND

Iowa DOT received an ISTEA grant in 1992 to inventory and evaluate the scenic character of more than forty routes nominated as potential scenic byway pilot routes. This project initiated an effort begun through legislation passed in 1987 to establish a Scenic Route/Highway/Byway Program in Iowa. Four “pilot routes” were chosen from the forty nominees and signed as Iowa Scenic Byways in 1994.

Scenic Byway pilot routes were designated based primarily on their scenic character. The goal was to establish a scenic byway system based on objective standards for scenic quality. A scenic byway evaluation methodology developed through a research project jointly conducted by four states was used to evaluate candidate routes. (Smith & Smith)

Iowa DOT intends to expand its scenic byway program and include within the program designation of routes that have historic or cultural themes. The focus of this project was to develop an evaluation methodology to assess the character of roads nominated for designation within the historic and cultural byway category.

Work in this project assumed that the basis for designating a road or road section as a historic or cultural byway would rest in the following definition. Roads designated as historic and cultural byways should allow the touring public to travel and observe sites specifically associated with an important historic or cultural theme. While touring between sites, the road should display land uses and other features that provide the traveler a sense of the physical setting associated with this historic or cultural theme.

PROJECT ISSUES

Several issues or project criteria were addressed in establishing a methodology for evaluating historic and cultural byways based on this definition. These issues included the following items.

- Develop and establish a means to interpret the historic and cultural byway definition that allows identification, measurement and assessment of critical features.
- Establish the level of historic and cultural research needed to establish the location of cultural resources, sites, and identify the historic setting.
- Evaluation methods should provide continuous information along the corridor being evaluated. This information should address the historic or cultural character of the route.
- Assessments should produce results that allow comparison among routes.
- The historic and cultural byway assessment methodology should be compatible with the technique used by Iowa DOT to assess scenic byways.

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Two key items in the historic and cultural byway definition concern sites (cultural resources) and the physical setting of the corridor. Both factors must be established within the context of the corridor's historic or cultural theme. Research is required to establish this context and set the basic parameters for subsequent evaluation.

Initial research can begin with review of existing published material and records held by the state. Local groups can also provide information on historic and cultural resources associated with the route. Information on sites and features is necessary before field work begins. Sometimes a "drive through" before the field work may be needed to verify the existence and location of some sites. Detailed field work such as individual property research is not needed at part of this route evaluation process.

Land use next to the road plays the major role in defining the physical character and setting displayed to the tourist. The logical interpretation is that a match between current and historic land use should convey a sense of place and time reminiscent of the theme. This requires sufficient research to identify the physical setting associated with a corridor's theme.

Mapping, photographs and written descriptions are among the sources providing information about land use that existed during the theme's time. The detail of information available among alternative themes may vary. Detail can vary among alternative routes carrying the same theme. However, sufficient information should always be available to make comparisons between current and historic land use.

Routes whose theme deals directly with a historic road or highway should provide a sense of the road's design standards and other roadway characteristics. This will require research of historic road design documents and related information.

Theme research also provides the field survey crew a basic sense of the framework for identifying sites, land uses and other attributes. This information is also necessary to establish ratings for land uses and other attributes.

FIELD INVENTORY PROCEDURES & TECHNIQUES

Field inventories were conducted using a vehicle equipped with a distance measuring device (D.M.D.), global positioning system (G.P.S.) and video camera. These devices were linked to a computer that stores the vehicle's travel path and writes the vehicle's location onto the video frames.

A commentator, usually the driver, describes visible inventory attributes as the vehicle travels the route. The commentator also notes dimensions, ratings and other required information. A keyboard operator using a laptop computer enters this data from the "calls" made by the commentator. The commentator's "calls" are also recorded on video tape. Table B-1 shows the attribute set on which data was collected.

These basic field procedures are compatible with those used in scenic byway inventories. Adjacent land uses in the historic and cultural inventory are the same factors identified as background land

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uses in the scenic byway field inventory. Historic sites are also included on both survey types. Road design information collected for the historic and cultural surveys are the major difference between the two survey types.

Numerical Ratings Made in the Field

Numeric field ratings of land use quality were made to designate areas providing a sense of historic setting. These ratings were based on a scale from one to seven. Quality considerations dealt with land use type, condition and composition. The specific application of the rating system was based on research into the physical setting associated with the historic theme.

The one to seven rating scale uses a “1" rating to delineate attributes having very high quality or character. A “7" rating equates to land uses that would have been completely uncharacteristic of the time. The following is a summary of the complete rating scale.

Rating 1 = excellent - outstanding representation of setting
Rating 2 = good - reminiscent of setting but not complete
Rating 3 = fair - slight association with the setting
Rating 4 = neutral - does not add or detract from setting
Rating 5 = lacking - lessens sense of setting
Rating 6 = unsatisfactory - detracts from sense of setting
Rating 7 = very poor - completely foreign to the setting

Attributes Receiving Field Ratings

Application of these ratings is completely contingent on the setting associated with the theme being testedDuring the Mormon period (1846 - 1868) native land uses such as woodlands and grasslands were dominating. This was particularly true during the important initial migration. A grassland with mature well-conserved native grasses such as a big bluestem represents a “natural” land use offering a strong sense of the Mormon Trail setting. This grassland would be valued as high quality and would receive a “1" rating. An over-grazed pasture containing cool season grass would provide a sense of “natural” land use during the Mormon period but at a much lower quality. A rating of “2" or “3" would be given a land use of this type.

High quality woodland areas of the Mormon period would contain mature trees with a species composition appropriate with the geographic area. Hardwoods such as oaks would be anticipated in the eastern part of the state and cottonwoods and other prairie riparian species would be signature specimens in the west.

Most but not all of the current urban areas represent land uses developed well after the Mormon time. These uses detract from the Trail’s physical setting and would have been foreign to the Mormon travelers. The rating “6" or “7" was given to these land uses.

The physical setting changes with the corridor’s theme. Just more than sixty-five years after the first Mormons traveled west through Iowa, sections of roads in the state were signed as the Lincoln Highway. Land uses along the Lincoln Highway were very different from those encountered by the Mormons. The physical setting contained family farms and small towns. Only remnants remained of the native prairie and woodland land uses common to the Mormons.

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Agricultural land uses provided the primary physical setting for the Lincoln Highway. Communities with complex urban land uses dotted its entire length. Railroads, whose rights-of-way often gave the highway its alignment, were common. These land uses, not woodlands and prairie, give one a sense of the physical setting associated with the Lincoln Highway.

The land use rating's technique applied to the Mormon Trail will work for the Lincoln Highway. Current land use, providing a sense of the historic physical setting along the Lincoln Highway, is rated based on the land use type, composition, condition and quality. For the Lincoln Highway the emphasis is on more subtle features of the land use. Features such as gardens and orchards incorporated with the family farmstead signal the historic setting. Rural land uses such as cemeteries, churches and schools are also reminiscent of the setting.

Agricultural buildings and other structures can be very indicative of the setting. Farmsteads having buildings and other structures dating from the 1920's or before with vegetable gardens or orchard would be reminiscent of the period. A farmstead like this would receive a "1" rating. Lower ratings, "3" or "4", would be given a farmstead having a contemporary manufactured house and steel equipment buildings.

Many smaller communities retain residential and commercial uses that suggest or were associated with the Lincoln Highway. Urban land uses can easily receive a "1" rating. Contemporary uses such as a new shopping mail would distract a traveler from the sense of the period and would have been foreign to those using the Lincoln Highway. This land use type would receive a "6" or "7" rating.

Another attribute identified and rated during the field survey were landscapes. This attribute refers to the nature and character of the landscape through which the corridor passes. An excellent landscape provides a backdrop that fits the physical setting of the historic period. Native landscapes satisfy these criteria for the Mormon Trail. Along the Lincoln Highway backdrops fitting the historic period could include both native and agricultural landscapes. Sites directly related to the theme of the corridor where identified through research before the field survey. During the field survey these sites were located. The survey technique allowed ratings of the sites but generally ratings were not applied in the field.

Site ratings were based on the character of the features associated with the site. Sites with visible features clearly representing the history and culture associated with the theme were given a "1" rating. Sites lacking these visible features were given a "2" rating. Many Mormon Trail camp sites fell into this category.

Road design data was collected by measurement and observation. Information on these attributes was used to compare against early road design standards along the Lincoln Highway. Road data along the Mormon Trail and through the Amana Colonies was used to identify the travel surface of the inventoried routes.

Summary of Inventory Methodology

Information on a variety of factors can be gained using the described field technique. The specific field interpretation of the attributes

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identified and rated in the field can be varied among a variety of themes. Information on attributes requiring specific value or measurement data, such as road widths, can be obtained and noted in the field record for later analyses.

The field technique allows collection of field data on current land uses. Ratings can be assigned to denote the manner in which present land uses represent the physical setting associated with the corridor's theme. While the specific basis for ratings along each corridor is very different, the resulting numbers provide a foundation for evaluating factors that are common to historic or cultural themes.

Comparison with Scenic Byway Inventory Methodology

Inventory data obtained for the historic and cultural byways are very similar to that collected in the scenic byway field surveys. The similarity is such that a single set of field attributes could be identified and applied to both types.

Information on land uses along a corridor is collected in the scenic byway survey to describe "background" visual quality. Background land use categories in the scenic byway survey are nearly the same as the land use categories collected in the historic and cultural survey. The landscape attribute identified in the historic and cultural survey is similar in practice to the topographic attribute rated in the scenic byway methodology. Both field survey types also have similar historic site identification capabilities.

A major difference between the two survey types is the potential need for specific road design data in the historic and cultural survey. This data however is only needed for those corridors with a theme based on the specific road design features such as the Lincoln Highway.

EVALUATION PROCEDURES & METHODOLOGY

The project definition of a historic or cultural byway identified that a road should allow the touring public to travel between important sites. While traveling between these sites, the road's corridor should display landscapes that provide a sense of the physical setting associated with the historic and cultural theme.

These factors formed the basis for the historic and cultural byway assessment procedure. The project evaluation methodology was structured on two main assertions:

- A historic or cultural byway should provide a direct connection between sites and other features associated with the corridor's theme.
- A historic or cultural byway should give the traveler views of land uses and landscapes that are reminiscent of the physical setting associated with the route's theme.

The intent of the evaluation was to quantify the degree to which a route satisfies these assertions. Evaluation results should produce a continuous data record along the entire route and allow an overall mean route score. Sources of information for the evaluation were the historic and cultural research data and the field inventory information.

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Historic and cultural research data identified the location of sites and features associated with the corridor's theme. A description of each site and feature was established. This research also identified the land uses associated with the time. Detailed land use information was the most difficult element to find. Often many sources were used to develop a clear image of land uses identified with the corridor's theme.

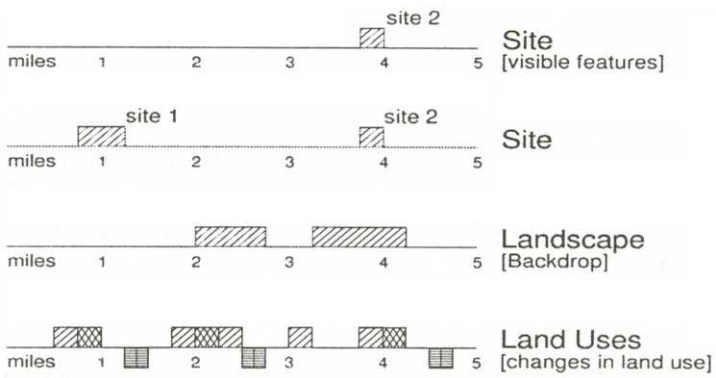
Data from the field inventory was used to identify sites, features and existing land uses. Survey data also included the distance that sites and land uses were visible along the corridor. This distance information was essential for continuous corridor evaluation. The land use and site ratings were used to adjust the character of sites and features and the quality of land use.

Five distinct steps or levels of evaluation were used. The initial level was simply to identify the existence of sites, features and current land uses along the corridor. Field inventory data was used to verify sites and related features. This data also identified land uses and landscapes (backdrops) observed along the corridor. Information from this evaluation level was imported into the RIIMS GIS system and layered with mapped data showing the historic land use.

Figure App.A-1 shows an example of the data assembled at this level of analysis. The example section represented in the figure is five miles long. Two historic or cultural sites are identified in this section. One site has no visible features (cultural resources). Important visible resources were verified at the second site. The length of the bar in the figure shows the distance that the sites were visible along the corridor. Two areas offering landscapes reminiscent of the period are shown, one area beginning near mile two the other after mile three. The graph shows that each landscape area was visible for less than one mile. Land use along the example corridor changes frequently. Length of individual land use types is shown as less than ½ mile.

The terms site, landscape and land use in this example can be applied to any theme. Along the Mormon Trail, sites may refer to camps and landscapes and land uses are based on native vegetative patterns. Applied to the Lincoln Highway, sites may be bridges rather than camps and the landscapes and land uses are based on an early agricultural theme not native vegetation. The cultural theme associated with the Amana Colonies would produce yet another set of specific definitions for these terms.

Figure App.A-1 Data From Field Survey



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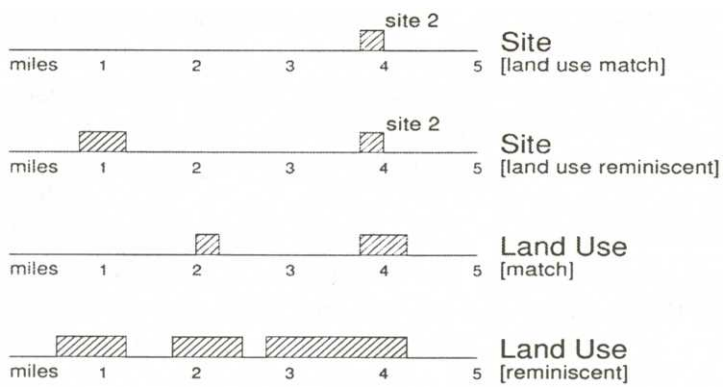
A second level of analysis involved a comparison between the period land use and the current land use. Corridor areas were noted in which the historic and current land uses matched. This procedure also provided land use match data at each site location. Corridor areas containing land uses reminiscent of the historic period are based on the current land use type. Both land use matches and those reminiscent of the theme are defined only by the characteristics of the corridor's time and setting.

Figure App.A-2 shows an example of information obtained from the correlation of field data and the historic land use information contained in the GIS software. It shows that both sites were at least partially found within land uses reminiscent of the period. The second site was within a land use that matched the historic use. The specific locations in which current land uses matched historic uses are also shown. Three separate areas were found to have current land uses that were reminiscent to historic uses.

Figure App.A-2 Data From GIS Correlation



The third level of analysis was applied to road design data. Current road design information obtained from the field survey was entered into GIS software. A comparison made between current design and standards for the historic period yields information about the road as a historic element or *site.* This step is only needed for themes that are based on the character of a roadway such as the Lincoln Highway.

The three initial analysis levels were designed to identify the attribute types existing along the corridor and define the location and distance that each attribute would be visible to the traveler. The final level of analysis involved adjustment of the resource data using the field rating information.

Numeric ratings made in the field defined land use quality and site character. The ratings were based on a scale (one to seven) that described a quality range from excellent (1) to very poor (7). The scale defines both beneficial and detrimental qualities. Normalizing this range provides rating numbers that represent the quality scale. By subtracting each rating number from four (the mid point of the rating scale) a positive to negative numeric set can be developed. The highest value in this set is +3 and the lowest value is -3.

Rating 1 = excellent	+3	[4 - 1]
Rating 2 = good	+2	[4 - 2]
Rating 3 = fair	+1	[4 - 3]
Rating 4 = neutral	0	[4 - 4]
Rating 5 = lacking	-1	[4 - 5]
Rating 6 = distractive	-2	[4 - 6]
Rating 7 = very poor	-3	[4 - 7]

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Associating the normalized field ratings with the attributes provide a basic quantitative measurement of the individual attributes. The results for the example corridor are shown in Figures App.A-3 and 4. Figure App.A-3 shows the ratings for sites, land use and landscape. Land use ratings vary from excellent (+3) to distractive (-2). Landscape ratings show the same range. Site ratings are good (+2 for site 1) and excellent (+3 for site 2).

Figure App.A-4 displays the normalized ratings assigned to attributes defined by their association with the historic land uses. The graph shows areas with land uses matching the historic. Both historic sites in this example were set in current land uses reminiscent of the historic. Current land uses surrounding site 2 also matched the historic land use.

Figure App.A-3 Field Ratings

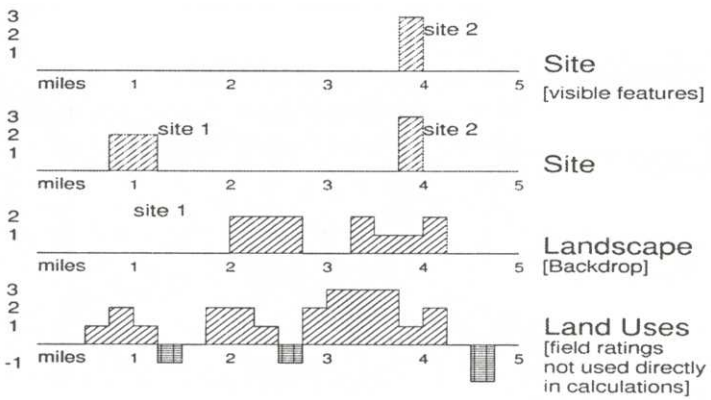

Figure App.A-4 Ratings Applied To GIS Correlation

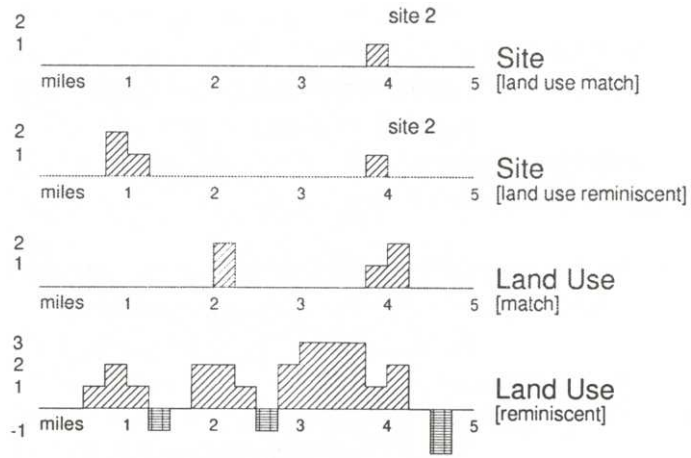

Figure App.A-5 displays the summation of individual attributes. This summation is the final step in the basic evaluation process. It is calculated by adding the individual evaluations along the route. Results range from 11 to -2. Three peaks are shown. Two peaks result from historic sites. The third peak results from current land uses and a landscape that is reminiscent of the historic period.

Many statistical analyses can be made on this summary data. Mean value is a key statistic. The mean rating along the five-mile example section is 2.64The mean between the two historic sites value is 4.0. The average value when the rating is above four is 5.5. This shows high peaking characteristics.

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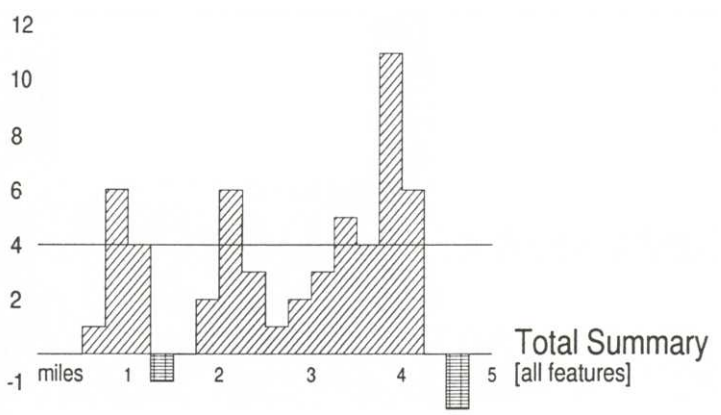
A mean value of 4.0, like that identified in the example section requires either uniform quality, closely spaced historic sites or a combination of both attributes. Any of these conditions would meet the definition of a historic or cultural byway. An average rating of four or more would therefore describe a corridor eligible for designation as a historic or cultural byway.

Figure App.A-5 Route Summary



The fifth evaluation level is used only along corridors with a historic or cultural theme directly related to roads or highways. The degree to which current and historic design characteristics deviate is expressed numerically. Design characteristics associated with the road's cross section rather than surface types were the primary concern. Comparisons showing a deviation above four were found to represent a strong correlation between current and historic design. The result of this analysis level is reported separately

Compatibility with Scenic Byway Evaluation Methodology

The evaluation methods employed in this project are nearly the same as those used in the Iowa DOT Scenic Byway Program. Field ratings, rating adjustments and their application are the same for both evaluations. Mean ratings that suggest qualification as a byway can be placed at 4.0 for both byway types.

The main difference between the two evaluation systems is that some historic and cultural attributes are not identified during the field inventory. Areas matching historic land uses can only be identified after the field survey is completed. Basic similarity in techniques and the manner in which the results are expressed suggest that the two procedures are compatible.

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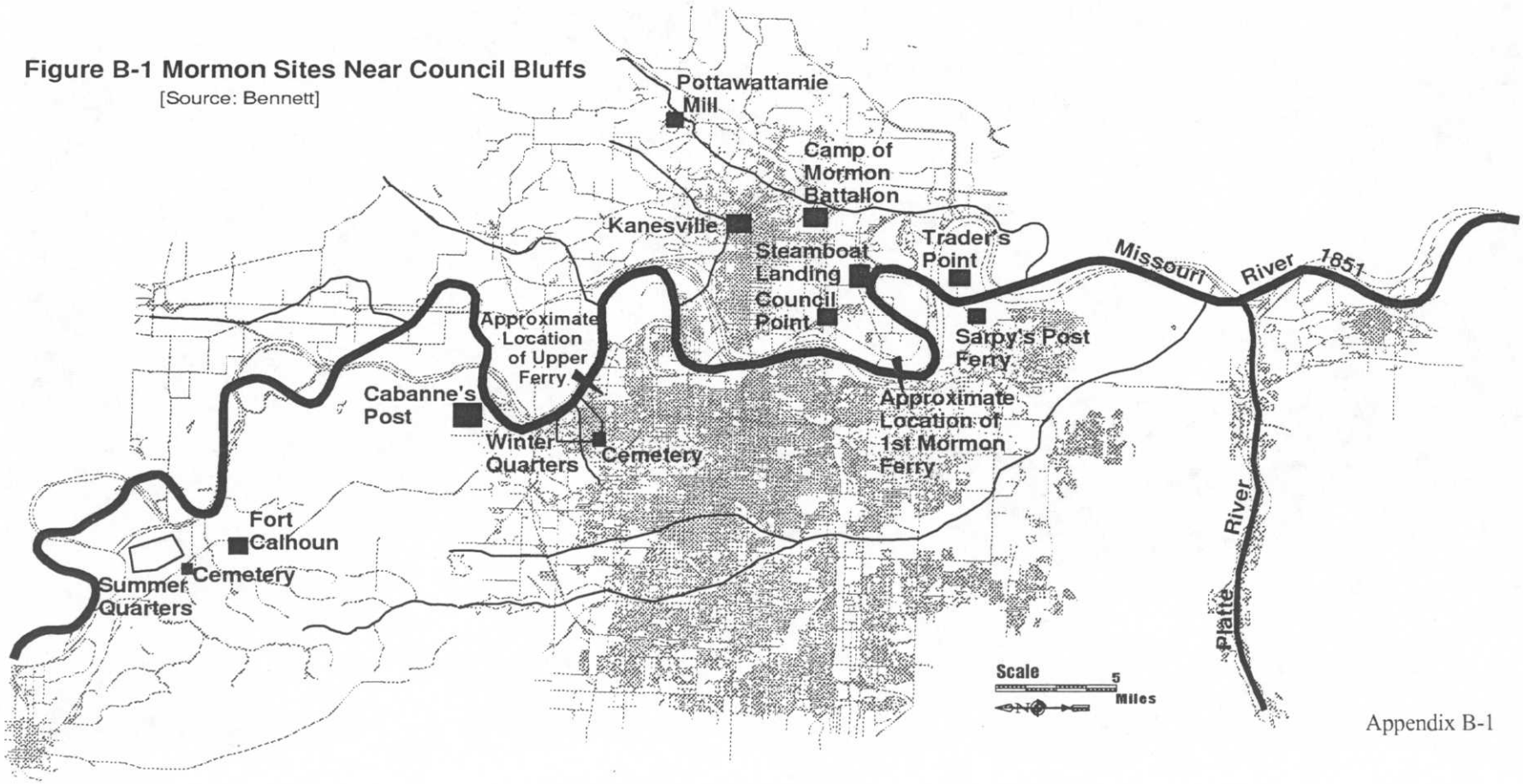
Appendix B

APPENDIX B - Mormon Sites on The Missouri River

The Missouri River was an important staging point for the Mormon migration. Brigham Young's Pioneer group established winter camp here in 1846 before moving west in the spring of 1847. Kanesville remained an important site for nearly a decade.

Figure B-1 shows Mormon sites and major physical features in 1851 in the Omaha and Council Bluffs area. These features are superimposed on a current metropolitan area map. Extensive development has eliminated all evidence of the Mormon's passage.



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Appendix C

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APPENDIX C - Selected Bibliography

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Pottawattamie, 1851-1852
Union, 1848-1849
Van Buren, 1837-1854
Wayne, 1845-1852.

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APPENDIX A - Inventory & Evaluation Procedures

BACKGROUND

Iowa DOT received an ISTEA grant in 1992 to inventory and evaluate the scenic character of more than forty routes nominated as potential scenic byway pilot routes. This project initiated an effort begun through legislation passed in 1987 to establish a Scenic Route/Highway/Byway Program in Iowa. Four “pilot routes” were chosen from the forty nominees and signed as Iowa Scenic Byways in 1994.

Scenic Byway pilot routes were designation based primarily on their scenic character. The goal was to establish a scenic byway system based on objective standards for scenic quality. A scenic byway evaluation methodology developed through a research project jointly conducted by four states was used to evaluate candidate routes. (Smith & Smith)

Iowa DOT intends to expand its scenic byway program and include within the program designation of routes that have historic or cultural themes. The focus of this project was to develop an evaluation methodology to assess the character of roads nominated for designation within the historic and cultural byway category.

Work in this project assumed that the basis for designating a road or road section as a historic or cultural byway would rest in the following definition. Roads designated as historic and cultural byways should allow the touring public to travel and observe sites specifically associated with an important historic or cultural theme. While touring between sites, the road should display land uses and other features that provide the traveler a sense of the physical setting associated with this historic or cultural theme.

PROJECT ISSUES

Several issues or project criteria were addressed in establishing a methodology for evaluating historic and cultural byways based on this definition. These issues included the following items.

- Develop and establish a means to interpret the historic and cultural byway definition that allows identification, measurement and assessment of critical features.
- Establish the level of historic and cultural research needed to establish the location of cultural resources, sites, and identify the historic setting.
- Evaluation methods should provide continuous information along the corridor being evaluated. This information should address the historic or cultural character of the route.
- Assessments should produce results that allow comparison among routes.
- The historic and cultural byway assessment methodology should be compatible with the technique used by Iowa DOT to assess scenic byways.

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Two key items in the historic and cultural byway definition concern sites (cultural resources) and the physical setting of the corridor. Both factors must be established within the context of the corridor's historic or cultural theme. Research is required to establish this context and set the basic parameters for subsequent evaluation.

Initial research can begin with review of existing published material and records held by the state. Local groups can also provide information on historic and cultural resources associated with the route. Information on sites and features is necessary before field work begins. Sometimes a “drive through” before the field work may be needed to verify the existence and location of some sites. Detailed field work such as individual property research is not needed at part of this route evaluation process.

Land use next to the road plays the major role in defining the physical character and setting displayed to the tourist. The logical interpretation is that a match between current and historic land use should convey a sense of place and time reminiscent of the theme. This requires sufficient research to identify the physical setting associated with a corridor's theme

Mapping, photographs and written descriptions are among the sources providing information about land use that existed during the theme's time. The detail of information available among alternative themes may vary. Detail can vary among alternative routes carrying the same theme. However, sufficient information should always be available to make comparisons between current and historic land use.

Routes whose theme deals directly with a historic road or highway should provide a sense of the road’s design standards and other roadway characteristics. This will require research of historic road design documents and related information.

Theme research also provides the field survey crew a basic sense of the framework for identifying sites, land uses and other attributes. This information is also necessary to establish ratings for land uses and other attributes.

FIELD INVENTORY PROCEDURES & TECHNIQUES

Field inventories were conducted using a vehicle equipped with a distance measuring device (D.M.D.), global positioning system (G.P.S.) and video camera. These devices were linked to a computer that stores the vehicle’s travel path and writes the vehicle’s location onto the video frames.

A commentator, usually the driver, describes visible inventory attributes as the vehicle travels the route. The commentator also notes dimensions, ratings and other required information. A keyboard operator using a laptop computer enters this data from the “calls” made by the commentator. The commentator's “calls” are also recorded on video tape. Table B-1 shows the attribute set on which data was collected.

These basic field procedures are compatible with those used in scenic byway inventories. Adjacent land uses in the historic and cultural inventory are the same factors identified as background land

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uses in the scenic byway field inventory. Historic sites are also included on both survey types. Road design information collected for the historic and cultural surveys is the major difference between the two survey types.

Numerical Ratings Made in the Field

Numeric field ratings of land use quality were made to designate areas providing a sense of historic setting. These ratings were based on a scale from one to seven. Quality considerations dealt with land use type, condition and composition. The specific application of the rating system was based on research into the physical setting associated with the historic theme.

The one to seven rating scale uses a “1" rating to delineate attributes having very high quality or character. A “7" rating equates to land uses that would have been completely uncharacteristic of the time. The following is a summary of the complete rating scale.

Rating 1 = excellent - outstanding representation of setting
Rating 2 = good - reminiscent of setting but not complete
Rating 3 = fair - slight association with the setting
Rating 4 = neutral - does not add or detract from setting
Rating 5 = lacking - lessens sense of setting
Rating 6 = unsatisfactory - detracts from sense of setting
Rating 7 = very poor - completely foreign to the setting

Attributes Receiving Field Ratings

Application of these ratings is completely contingent on the setting associated with the theme being tested. During the Mormon period (1846 - 1868) native land uses such as woodlands and grasslands were dominate. This was particularly true during the important initial migration. A grassland with mature well-conserved native grasses such as a big bluestem represents a “natural” land use offering a strong sense of the Mormon Trail setting. This grassland would be valued as high quality and would receive a “1" rating. An over-grazed pasture containing cool season grass would provide a sense of “natural” land use during the Mormon period but at a much lower quality. A rating of “2" or “3" would be given a land use of this type.

High quality woodland areas of the Mormon period would contain mature trees with a species composition appropriate with the geographic area. Hardwoods such as oaks would be anticipated in the eastern part of the state and cottonwoods and other prairie riparian species would be signature specimens in the west.

Most but not all of the current urban areas represent land uses developed well after the Mormon time. These uses detract from the Trail’s physical setting and would have been foreign to the Mormon travelers. The rating “6" or “'7" was given to these land uses.

The physical setting changes with the corridor’s theme. Just more than sixty-five years after the first Mormons traveled west through Iowa, sections of roads in the state were signed as the Lincoln Highway. Land uses along the Lincoln Highway were very different from those encountered by the Mormons. The physical setting contained family farms and small towns. Only remnants remained of the native prairie and woodland land uses common to the Mormons.

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Agricultural land uses provided the primary physical setting for the Lincoln Highway. Communities with complex urban land uses dotted its entire length. Railroads, whose rights-of-way often gave the highway its alignment, were common. These land uses, not woodlands and prairie, give one a sense of the physical setting associated with the Lincoln Highway.

The land use rating's technique applied to the Mormon Trail will work for the Lincoln Highway. Current land use, providing a sense of the historic physical setting along the Lincoln Highway, is rated based on the land use type, composition, condition and quality. For the Lincoln Highway the emphasis is on more subtle features of the land use. Features such as gardens and orchards incorporated with the family farmstead signal the historic setting. Rural land uses such as cemeteries, churches and schools are also reminiscent of the setting.

Agricultural buildings and other structures can be very indicative of the setting. Farmsteads having buildings and other structures dating from 1920's or before with vegetable gardens or orchard would be reminiscent of the period. A farmstead like this would receive a "1" rating. Lower ratings, "3" or "4", would be given a farmstead having a contemporary manufactured house and steel equipment buildings.

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- A historic or cultural byway should provide a direct connection between sites and other features associated with the corridor's theme.

- A historic or cultural byway should give the traveler views of land uses and landscapes that are reminiscent of the physical setting associated with the route's theme.

The intent of the evaluation was to quantify the degree to which a route satisfies these assertions. Evaluation results should produce a continuous data record along the entire route and allow an overall mean route score. Sources of information for the evaluation were the historic and cultural research data and the field inventory information.

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Historic and cultural research data identified the location of sites, and features associated with the corridor's theme. A description of each site and feature was established. This research also identified the land uses associated with the time. Detailed land use information was the most difficult element to find. Often many sources were used to develop a clear image of land uses identified with the corridor's theme.

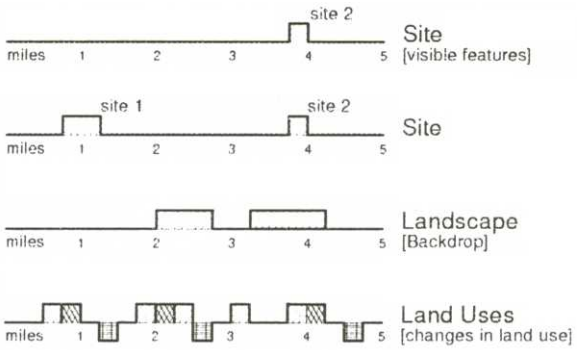
Data from the field inventory was used to identify sites, features and existing land uses. Survey data also included the distances that site, features and land uses were visible along the corridor. This distance information was essential for continuous corridor evaluation. The land use and site ratings were used to adjust the character of sites and features and the quality of land use.

Five distinct steps or levels of evaluation were used. The initial level was simply to identify the existence of sites, features and current land uses along the corridor. Field inventory data was used to varify sites and related features. This data also identified land uses and landscapes (backdrops) observed along the corridor. Information from this evaluation level was imported into the RIIMS GIS system and layered with mapped data showing the historic land use.

Figure A-1 shows an example of the data assembled at this level of analysis. The example section represented in the figure is five miles long. Two historic or cultural sites are identified in this section. One site has no visible features (cultural resources). Important visible resources were verified at the second site. The length of the bar in the figure shows the distance that the sites were visible along the corridor. Two areas offering landscapes reminiscent of the period are shown, one area beginning near mile two the other after mile three. The graph shows that each landscape area was visible for less than one mile. The land use along the corridor changes frequently. The general length of individual land use types is shown as less than ½ mile.

A second level of analysis involved a comparison between the period land use and the current land use. Corridor areas were noted in where the historic and current land uses matched. This procedure also provided information at each site location. Corridor segments containing land uses reminiscent of the historic period were identified. Areas whose current land use matched the historic were noted determined in this evaluation level.

Figure App.A-1 Data From Field Survey



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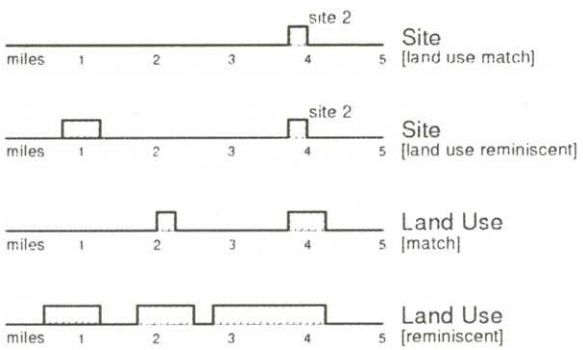
A second level of analysis involved a comparison between the period land use and the current land use. Corridor areas were noted in which the historic and current land uses matched. This procedure also provided land use match data at each site location. Corridor areas containing land uses reminiscent of historic period are based on the current land use type. Please recall that native land uses are reminiscent of the Mormon Trail.

Figure A-2 shows an example of information obtained from the correlation of field data and the historic land use information contained in the GIS software. It shows that both sites were at least partially found within land uses reminiscent of the period. The second site was within a land use that matched the historic use. The specific locations in which current land uses matched historic uses are also shown. Four separate areas were found to have current land uses that were reminiscent to historic uses.

Figure App.A-2 Data From GIS Correlation



The third level of analysis was applied to road design data. Current road design information obtained from the field survey was entered into the GIS software. A comparison is made between current design and standards appropriate for the historic period. This comparison determines the degree that the current design deviates from the historic.

Initial analysis levels were designed to identify the attribute types existing along the corridor and define the location and distance that each attribute would be visible to the traveler. The final level of analysis involved adjustment of the resource data using the field rating information.

Numeric ratings made in the field defined land use quality and site character. The ratings were based on a scale (one to seven) that described a quality range from excellent (1) too very poor (7). The scale defines both beneficial and detrimental qualities. Normalizing this range provides rating numbers that represent the quality scale. By subtracting each rating number from four (the mid point of the rating scale) a positive to negative numeric set can be developed. The highest value in this set is +3 and the lowest value is -3.

Rating 1 = excellent	+3	[4 - 1]
Rating 2 = good	+2	[4 - 2]
Rating 3 = fair	+1	[4 - 3]
Rating 4 = neutral	0	[4 - 4]
Rating 5 = lacking	-1	[4 - 5]
Rating 6 = distractive	-2	[4 - 6]
Rating 7 = very poor	-3	[4 - 7]

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Associating the normalized field ratings with the attributes provides a basic quantitative measurement of the individual attributes. The results for the example corridor are shown in Figures A-3 and A-4. Figure A-3 shows the ratings for sites, land use, landscape and sites. Land use ratings vary from excellent (+3) to distractive (-2). Landscape ratings show the same range. Site ratings are good (+2 for site 1) and excellent (+3 for site 2).

Figure A-4 displays the normalized ratings assigned to attributes defined by their association with the historic land uses. The graph shows areas with land uses matching the historic. Both historic sites in this example were set in current land uses reminiscent of the historic. Current land uses surrounding site 2 also matched the historic land use.

Figure App.A-4 Ratings Applied To GIS Correlation

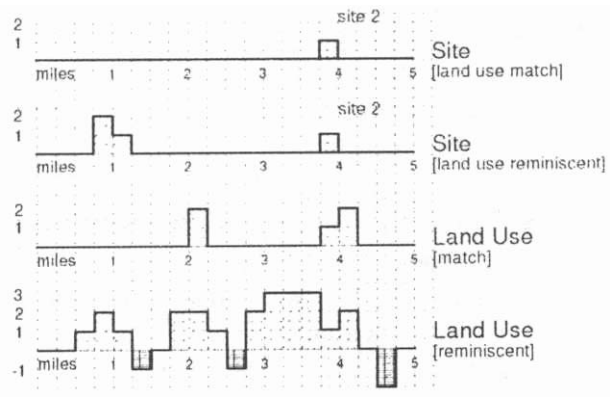

Figure App.A-3 Field Ratings

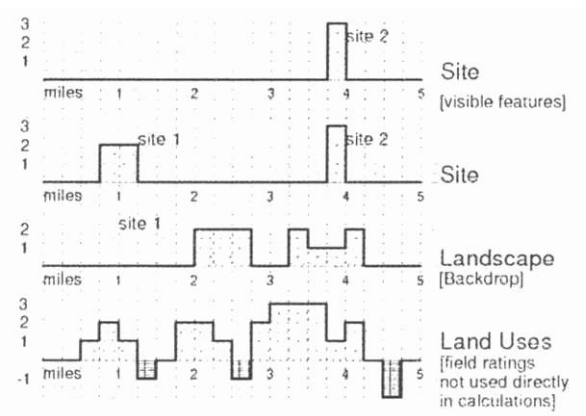

Figure A-5 displays the summation of individual attributes. This summation is the final step in the basic evaluation process. It is calculated by adding the individual evaluations along the route. Results range from 11 to -2. Three peaks are shown. Two peaks result from historic sites. The third peak results from current land uses and a landscape that is reminiscent of the historic period.

Many statistical analyses can be made on this summary data. Mean value is a key statistic. The mean rating along the five-mile example section is 2.64. The mean between the two historic sites value is 4.0. The average value when the rating is above four is 5.5. This shows high peaking characteristics.

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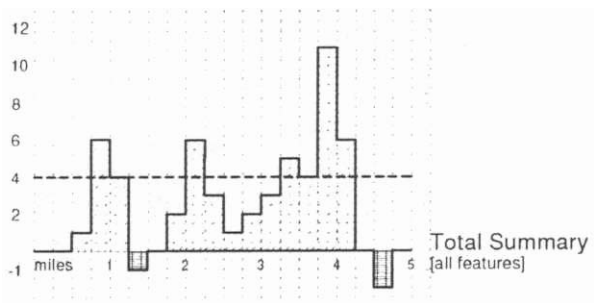
A mean value of 4.0, like that identified in the example section requires either uniform quality, closely spaced historic sites or a combination of both attributes. Any of these conditions would meet the definition of a historic or cultural byway. An average rating of four or more would therefore describe a corridor eligible for designation as a historic or cultural byway.

Figure App.A-5 Route Summary



The fifth evaluation level is used only along corridors with a historic or cultural theme directly related to roads or highways. The degree to which current and historic design characteristics deviate is expressed numerically. Design characteristics associated with the roads cross section rather than surface types were the primary concern. Comparisons showing a deviation less than four were found to represent a strong correlation between current and historic design.

Compatibility with Scenic Byway Evaluation Methodology

The evaluation methods employed in this project are nearly the same as those used in the Iowa DOT scenic byway program. Field ratings, rating adjustments and their application are the same for both evaluations. Mean ratings that suggest qualification as a byway can be place at 4.0 for both byway types.

The main difference between the two evaluation systems is that some historic and cultural attributes are not identified during the field inventory. Areas matching historic land uses can only be identified after the field survey is completed. Basic similarity in techniques and the manner in which the results are expressed suggest that the two procedures are compatible.

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