A Midwestern Cultural Landscape:
Strategies to Conserve the Rural Sense of Place

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Abstract:

Common historic preservation issues in the United States differ greatly between urban and rural contexts, a difference not always acknowledged in prevailing scholarship. While recent discourse recognizes that the focus of preservation has evolved—moving away from exclusively architectural and urban subjects—most scholarship still relates to these themes. This paper looks at how physical evidence of land use shapes a rural Midwestern landscape, and proposes means to identify and conserve the elements that are most important to that rural community heritage, as expressed in the landscape.

This project examines Springdale Township, a 30 sq. mi. section in Cedar County, Iowa, and interprets elements of land use visible in aerial photography and historic maps, with the intent of understanding the historic evolution of the landscape. The chronological scope of this study begins with a map from 1863, and moving forward, the project reveals how, despite significant changes in transportation and agricultural practice through time, the fundamental patterns of the landscape remain the same.

Following this analysis, the paper considers one case study, and then proposes strategies to identify and conserve elements of these landscapes using the power of local planning authority. In addition to the application of traditional means such as conservation easements, the paper describes rural-form based codes as an opportunity to allow growth, yet maintain the open agricultural spaces. In this way, by preserving the heritage value of the landscape, rural preservation can protect the traditional sense of place.

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The aerial photographs used in this paper were accessed from the Iowa State University GIS Database and I also relied on the State of Iowa Historical Society for permission to replicate the "Spicer Map." I sincerely appreciate all the help I from folks in Iowa who helped me access these resources from afar, especially mom and dad.

Above all, for the completion of this project and many others I owe sincere gratitude for the patience, support, and encouragement of Ashley, the love of my life.

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> *"Those of us who undertake to study landscapes in a serious way soon come up against a sobering truth: even the simplest, least interesting landscape often contains elements which we are unable to explain, mysteries that fit into no known pattern. Be we also eventually learn that every landscape, no matter how exotic, also contains elements which we at once recognize and understand."*[1]
>
> - *J.B. Jackson*

Chapter 1. The Lay of the Land

Current issues facing historic preservation in the United States vary widely when applied to urban or rural contexts, a difference not always acknowledged in prevailing scholarship. While some recent discourse recognizes that the focus of preservation has evolved, moving away from exclusively architectural and urban subjects, most scholarship still relates to these themes. When looking at rural places, preservation studies often focus on colonial remnants, vernacular architecture, or the commercial renewal of downtowns. This project expands current rural preservation studies by analyzing how physical evidence of land use shapes a vernacular agricultural landscape.

Careful reading of landscapes enables rural preservation efforts to focus on protecting and managing the most important elements of rural community heritage,

[1] Jackson, J.B. *Discovering the Vernacular Landscape*. (1984) pp 11.

as expressed in the cultural landscape. Relying on spatial-historical analysis of the landscape, this project explores various methods to preserve the relationship between roads, towns, neighbors, and fields. Further incentives and efforts to preserve historic barns or to bring new business into turn of the century opera blocks are important to rural places. While these efforts are important, this project further emphasizes that strategies to conserve the agricultural open spaces and human relationships with the landscape as essential for sustainable, long-term conservation of rural heritage.

This project considers the landscape of rural Springdale Township, a 36-square mile locale in the southwest corner of Cedar County, Iowa. The historic elements of this landscape are "read" through analysis and interpretation of the history and evolution of land use and settlement in Springdale, specifically looking at elements of the landscape like roads, towns, and farmsteads that are visible in aerial photography and historic maps. The intent of this reading of the landscape is to identify the critical elements of the landscape to be incorporated into rural preservation strategies.

After a brief discussion of the term "landscape," the survey of the Springdale Township focuses on changes in the landscape over time, from about 1863 to 2009, specifically noting the changes in boundaries, transportation, and land use. After determining significant elements from this birds-eye landscape survey, a discussion of relevant preservation and planning tools for preserving and interpreting these elements is presented. This project looks at tools used elsewhere to protect agricultural lands and recommends form-based land use regulation to maintain the character and stories of rural places.

In many rural places local heritage and human influence on the environment are embedded as deeply in the landscape as in buildings or architecture. The importance of these landscapes to community heritage is often missed in interpretation and preservation efforts of rural places, particularly those not immediately threatened by development pressure. Protection of these landscapes is further neglected because rural jurisdictions often lack the technical and financial support for historic preservation and planning, further burdened by the likelihood that the planning jurisdiction may cover large geographical areas. The study of rural, agricultural landscape forms and a robust community involved planning process will help rural places to retain their sense of place with minimal limits on the potential for future development.

Methodology

The following study combines observations of maps and aerial photographs, with interpretation of historic data, a consideration of the recorded historic narratives of both Springdale Township, the Town of West Branch, and similar work on rural landscapes in other parts of the region. The results of the analysis were considered within the context of previous scholarship on the concept of landscape. Existing scholarship and case studies of rural landscape preservation were evaluated to help indentify and recommend tools to preserve the historic value of this landscape.

The examination of historic aerial photographs for studies of land use, historic preservation, or natural resource management include: historical land use; transportation modes; development changes; agricultural practices; soil and stream bank erosion patterns; conservation improvements; and changes to ecological vegetation and habitat. Two specific examples have focused on: 1) A study of the Chesapeake Bay analyzing the

effects of climate change on the ecology of the estuary, and 2) the use of aerial photo archives to improve analysis of sites in Iowa that are potential brownfields.[2] In each of these cases, the ability an understanding of the decision making process for land-use development, ecological change, and agricultural management is elicited from historic aerial photography. As explained in greater detail below, the program responsible for maintaining the extensive archive of aerial photography used in the present project was developed to guide agricultural management decisions.

To begin the landscape survey, it was necessary to elucidate the most significant elements of the landscape and to choose the intellectual lens through which the landscape would be analyzed. The first step was to look at the area from an aerial and historic perspective to understand the effects of land use and to identify the historic elements that represent these uses. Specific details noted during this analysis were elements of boundaries, roads (including railroads), and changes in use (including the growth or loss of towns). These elements are used in the discussion below because of their clear role in both defining the contemporary landscape and role in providing evidence for interpreting historic human land use patterns.

Preservation Tools and Recommendations

Based on the analysis and of reading this landscape, specifically noting the elements of boundaries, roads, and use, this project suggests that conservation of the heritage exhibited in this type of landscape should not be concerned with small details of the land use, but rather be concerned with maintaining broader settlement patterns and

[2] The State of Iowa DNR, "Brownfield Redevelopment Program." Accessed via: http://www.iowadnr.gov/land/consites//brownfields/bfhisaerial.html

spatial relationships, including maintaining the substantial open spaces that are generally occupied by fields.

To consider the available tools to preserve these landscapes the project examined several other models of rural and agricultural preservation. Specific attention was given to the model used for *Ebey's Landing National Historical Reserve*, because of the similarities in the needs addressed. Also applied to this discussion is an overview of potential tools, such as conservation easements and form-based zoning codes, that will strengthen conservation regulation. After reviewing these and considering each in the context of its success and applicability to the landscape in the Springdale Township, this project concludes that a mixture of methods should be applied to rural landscapes like the one examined herein and that a strong community involvement in the planning process is necessary for long-term success.

Defining a "Cultural Landscape"

Much like the term "cultural resources," the concept of "cultural landscapes" is difficult to define and it can have varied meanings depending on the particular context, speaker, or writer. The National Park Service definition of a cultural landscape is "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values."[3] Building on this definition, the NPS outlines four general types of cultural landscapes, which are not mutually exclusive, to

[3]Birnbaum, Charles A. *NPS Preservation Brief #36: Protecting Cultural Landscapes,* Washington, DC: The National Park Service (1994).

consider when documenting or conserving landscapes, these are: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.[4]

While these overarching definitions of "landscape" are helpful, they are so broad as to include almost everything. To frame the study and analysis of the current project a more refined concept is needed. The specifics of the definition should be defined relative to the rural Midwestern landscape that is being analyzed and to the ultimate goals of the analysis. In the case of this project, the goal is to determine elements that define the heritage and experience of the residents of this landscape; to determine what landscape elements define the character and history of those who live in this place today and also reflect proceeding generations.

Landscape writer J.B. Jackson begins his book, "Discovering the Vernacular Landscape," with a chapter titled "The Word Itself." In this chapter, he discusses the definition and etymology of the word, in particular looking at who has used it and how. From this discussion, he explores the definition of "landscape" by considering the physical landscape elements that "define a landscape." Elements, such as boundaries, Jackson argues are essential for understanding the robust complexity of a landscape. The difficulty in defining the concept of landscape comes from the multiple identities that are expressed in the juxtaposition of building shapes and land form, the mix of houses, barns, fields, and roads. "It follows," writes Jackson, "that no landscape can be exclusively devoted to the fostering of only one identity."[5]

Rather than choosing a singular identity for interpreting landscapes, this project considers several related elements to examine the study area and allows for multiple landscape identities to emerge. The elements discussed throughout this work are

[4] Birnbaum (1994).
[5] Jackson, J.B. *Discovering the Vernacular Landscape.* (1984) pp 14.

boundaries, roads, and land use, with particular attention to spatial relationships. While the general "boundary" element for the study area is Springdale Township, other landscape boundaries range from the large to the small. Therefore, this examination includes looking at the boundaries of individual farms as the sizes of fields change, and also looks at the changing boundaries of the towns and social relationships to small, concentrated settlements.

The term "roads" is used to describe actual roads as well as other types of transportation (such as railroads). The element of "use" encompasses both the traditional concept of land use (agricultural, industrial, residential) and also important social uses, including schools, churches, post offices, and other organizing points in the historic rural community.

The overarching themes in this project are based on an intellectual interest in understanding preservation planning tools that can effectively create sustainable rural areas that respect the heritage and the economic needs of the land. However, before embarking on analysis and discussion of the landscape and heritage of this small square in Iowa, it is appropriate to address why this 36-square mile study area was chosen from the millions of acres that comprise the patchwork of the rural upper Midwest. Springdale was chosen because the study area encompasses my mother's garden, gravel roads where my brothers and I rode bikes, and fields where I watched seasons pass and crops planted and harvested. The following discussion is largely written from the perspective of a window seat in an airplane, cruising at an altitude of 30,000 feet, but the ground level landscape experience is something I know and value. The analysis and recommendations for conservation of this landscape strive for objectivity in hopes of reaching reasonable and replicable conclusions.

Chapter 2. Overview of the Springdale Township

Figure 2.1 Aerial photo of Springdale Township, 2009. Photo accessed and permitted for educational use by the Iowa Geographic Map Server.[6]

The Study Area

Springdale Township is located in the southwest corner of Cedar County, Iowa (Figure 2.1). The predominant land use in the gently rolling hills of this former prairie is overwhelmingly agricultural, with corn and soybeans (rotated annually) representing the largest commodities produced. There are also livestock operations including both hogs

[6] Iowa State University Geographic Information Systems Support and Research Facility. (2010). 2009 Orthophotos - USDA (natural color) of Springdale, Iowa. Retrieved October 12, 2010, from Iowa State University Geographic Map Server via: http://ortho.gis.iastate.edu/

and cattle; most hog operations in 2010 are fully automated Concentrated Animal Feeding Operations (CAFOs).

There are also several industrial uses just south of West Branch, organized near a major exit of Interstate I-80, which cuts through the study area and represents a major east-west transportation corridor. In Figure 2.1, the largest white buildings visible in the industrial sector are distribution centers for Proctor & Gamble. The black square to the right of these buildings is an open lagoon that is a part of the West Branch municipal water and sewage treatment. The only railroad that still passes through the township is also the first line that ever reached this area, running through Downey in the lower right corner of the photo. All that remains of the railroad line that aided the growth of West Branch from 1871 to 1960 is a faint diagonal scar running from West Branch moving to the lower right corner of Figure 2.1. Outside of West Branch, the houses are spaced along, and oriented toward the gravel roads with divided fields comprising the center of each square mile.

The white gridded lines in Figure 2.1 (with some exceptions to the grid) illustrate the existing roads and reflect one level of boundary that orders this landscape, the square mile grid. An element of the Public Land Survey System (PLSS), each square is divided into rectangular fields with homes spaced at roughly ½ to ¼ mile intervals, oriented to the road. The Town of West Branch, the dominant municipality with a population of 2,188,[7] is found in the top right corner of Figure 2.1.

Another landscape element important to the historic settlement and structure of this community is the spacing of the more concentrated settlements. This is understood in terms of the "time-distance" ratio, relative to period means of transportation. The

[7] U.S Census Bureau, Populations statistics from US Census 2000, U.S. Census Bureau. Accessed via: factfinder.census.gov (October 2, 2010).

"Local Road,"[8] which runs along the top of the map, was an early corridor running from Rochester on the Cedar River (and points East) to Iowa City (and points West). West Branch and Springdale are only two mid 19th-century hamlets that were spaced from 4 to 10 miles apart along this along this East-West corridor.

Initial Settlement

It is important to remember that there was history before the grid seen in the contemporary aerial photos. American Indians lived on the landscape for thousands of years before European settlement; interpretation of their societies and cultures should be considered in terms of preservation and interpretation of this landscape. However, as the focus of this paper is analysis of European-American settlement, which is visible from an aerial view, and thus American Indian land use is beyond the scope of the present project.

It is important to understand the initial period of European settlement in this region of Iowa. The earliest European-Americans to settle in the area were largely trappers and traders exploring the frontier; they generally stayed close to rivers because of their importance as a primary transportation route during this period. Permanent settlement in the area that comprises and surrounds present-day Cedar County was very sparse before 1850.[9]

The first settlers primarily lived close to woodlands, for example, wooded river basins, both for protection and for access to natural resources. The environmental setting, something that is not as apparent in later settlement, characterizes the original locations of homesteads. This is largely a reflection of the difficulty of plowing the prairie, and

[8] Today this road is designated as "Herbert Hoover Highway," "Co. HWY F44," "290th Street," and within West Branch "Main Street." Except for when it is Main Street, it is colloquially referred to as Local Road.

[9] *West Branch: The First 150 Years. (2001)* pp 9.

difficulty in reaching substantial European settlements, other than forts. As the ability to plow the prairie increased, settlers sought lands that combined timber, prairie, and water.[10] The earliest settlement near Springdale Township that grew into a hamlet was Rochester, located on the Cedar River, 12 miles west of present day Springdale. Prairie settlement at this time still pre-dates the grid that dominates the contemporary landscape.

When formal, permanent settlement and land claims began in Springdale Township, it progressed very rapidly as part of broader settlement trends. The westward expansion of the American territories and states was accelerated in part by the public land survey system and dispersal of property to white settlers through federal action. By the mid-19th-century, the federal system of land claims led to the lands in this part of Iowa being rapidly settled by homesteading families who turned the prairies into farms.

The Homestead Act of 1862 initiated the period of settlement, by fueling land claims and squatters rights. This act was intended to establish 160-acre farmsteads in the western states and territories. This land dispersal program came a decade after the Public Lands Survey Act of 1850, which established the means for platting and gridding these lands into the sections the compose the grid still seen in today's landscape.

Under the Homestead Act, homesteaders were to be able to acquire 160-acre parcels or land in exchange for a $10 filing fee and evidence of living on the land for 10 years. This 160-acre parcel is one-quarter of a section, as will be described below in the discussion of the Public Land Survey System, which had perhaps the most visible and last effect on the landscape. [11]

During the primary period of settlement in this part of Iowa, post 1850, most land was quickly acquired by land speculators or urban investors, and later resold for a profit.

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[10] Hewes, Leslie. "Some Features of Early Woodland and Prairie Settlement in a Central Iowa County," pp 43.

[11] Gates, Paul W. "The Homestead Law in Iowa." (1964), pp 67.

As evidence of this, in 1860, the discrepancy in the census and title records indicates that between twelve and fifteen million acres (1/3 of the state of Iowa) were held in deed by absentee landowners.[12] The land speculation continued during the second half of the 19th century as large landholders would acquire forfeited claims or buying struggling farmers who had little savings in the case of a poor year. By 1854, all parcels of land in the Springdale Township were claimed.[13]

Springdale Township ca. 1863

The "Spicer Map" was issued in 1863 by the offices of Platt and Spicer, attorneys that specialized in land holdings in this part of Iowa (Figure 2.2). This map provides valuable details of land holdings, homestead dispersal, roads, and uses. The map shows that Springdale and West Branch were roughly the same size during this early period. The Spicer Map also illustrates how land was divided into rectilinear sub-sections of the grid, formed by the public land survey system, in the early settlement period.

The Spicer Map also shows the Rail Depot "Downey," located only 4 miles south of West Branch. At the time that these early hamlets were being established, they were spaced to accommodate the distance that someone could travel back and forth within one day. While there is some population concentration within the hamlets, for example, Springdale appears to have 12 houses on one mile of local road, the population of the township is rather evenly dispersed with 2-3 households per linear mile of road. These rural households relied on the hamlets to access shops, to receive mail, and to access

[12] Gates (1964) pp 69.
[13] *West Branch: The First 150 Years*. (2001) pp 47.

other town services. As revealed on this map, both West Branch and Springdale have several stores and each has a Post Office in 1863.

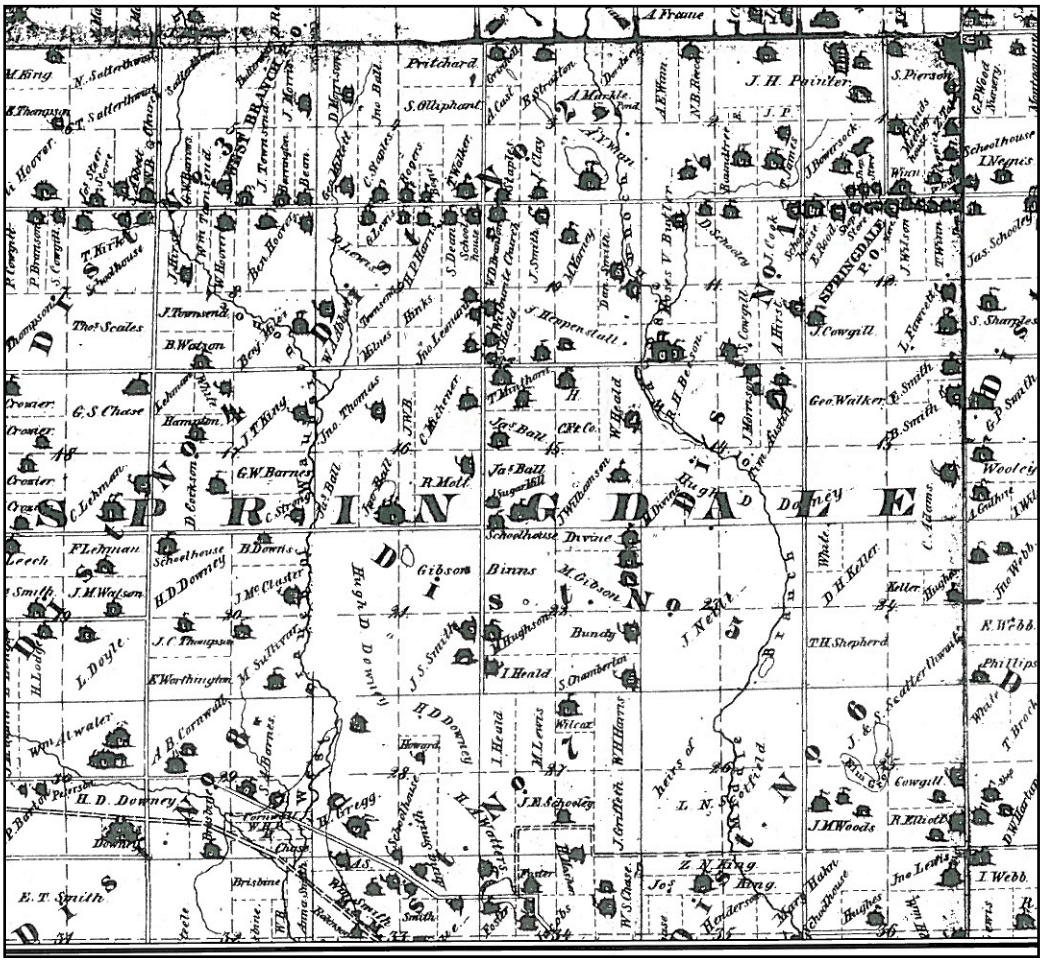

Figure 2.2 The Spicer Map. This figure is a cropped corner of a map made by the law offices Platt & Spicer and provides a wealth of information on settlement patterns in the 19th century.[14]

The relationship between Springdale and West Branch is important for two reasons: 1) in 1863 the two hamlets seem to be roughly the same size in terms of land and houses, and 2) Springdale actually has more non-residential or non-agricultural uses (stores, church, school) than West Branch. The term "hamlet" is used to distinguish places like Springdale from dispersed farmsteads, such as those that comprise much of the rest of the township, and has been defined as an unincorporated settlement having

[14] "*The Complete Book of the Abstract of Land Titles, showing at a glance the true condition of the title of every Tract of Land and Town Lot in Cedar County, at the office of Platt & Spicer, Tipton, Iowa*." The original is archived at: The State Historical Society of Iowa, Iowa City, Iowa.

fewer than 250 inhabitants.[15] While one can also see that this pattern of clustered houses exists along much of Local Road, Springdale and West Branch each had a post office and store, which distinguishes them from other intersections and clusters of homes.

One can see that early schools were dispersed at approximately 2-mile intervals, as were churches. Most of these schools were one-room schoolhouses; spacing was important so that school children could walk in a reasonable time. These schools are not specifically spaced every 2 miles, but rather they correlate with the dispersal of houses. The lower right section of the Spicer Map contains many fewer rural homesteads and correspondingly does not have as many schools as elsewhere on the map. The Spicer Map clearly reflects the Public Land Survey System and shows how transportation and land division began to shape the early rural landscape. Understanding the elements of early settlement, including the reasons for spatial dispersal of homesteads and hamlets is important for later discussion of rural, form-based code.

The Public Land Survey System

In both the aerial photos and the historic maps of Springdale Township, one clear element of this landscape is the grid. In the contemporary aerial photo, the largest grid lines, which appear white, are gravel roads that carve the landscape into one mile squares or "township sections." Within each square mile block, there are smaller rectangular blocks, illustrating the division of fields and properties. All of this is evidence of the effects of the ordinal survey and distribution of this land, through a federal process known as the Public Land Survey System (PLSS). Non-rectilinear lines in this bird's eye

[15] "The Unincorporated Hamlet," Glenn T. Trewartha. Pg 36.

view of the landscape as well, which are just as important as they represent alterations or exceptions to the original survey or natural features.

The PLSS is a method of land survey that was developed for the survey, identification, and eventual distribution of land parcels. The basic units used in the PLSS are the township and the section. It is sometimes referred to as the rectangular survey system, because of the rectangular grids it produces and the basis of central lines. When implemented in the United States, beginning in 1850, the PLSS became the first mathematically designed survey system that was applied nationally. The detailed survey methods to be applied for the PLSS are described in a series of Instructions and Manuals issued by the General Land Office beginning in 1851.[16]

Following colonization and continuing into the early expansion period of the United States, land survey had utilized the system of metes and bounds, which had been established and used in Great Britain. The metes and bounds system describes property lines based on local markers and bounds drawn by humans, often based on topography. Particularly in New England, this system was supplemented by the establishment of town plats. The metes-and-bounds system was used to describe a town of a generally rectangular shape, 4 to 6 miles on a side. Within this boundary, a map or plat was maintained that showed all the individual lots or properties.

The Continental Congress passed the Land Ordinance of 1785 then the Northwest Ordinance in 1787 to control the survey, sale, and settling of the new lands. The original 13 colonies donated their western lands to the new Union, for the purpose of giving land for new states.[17] Homesteading, a staple of American western culture was also dependent

[16] "The National Atlas." Produced by the US Geological Survey. Accessed via: http://www.nationalatlas.gov/articles/boundaries/a_plss.html

[17] Linklater, Andro. *Measuring America: How an Untamed Wilderness Shaped the United States and Fulfilled the Promise of Democracy*, (2002) pp 53.

on the Public Land Survey System. In the Homestead Act of 1862 each settler was allocated 160 acres of land; in other words, a quarter-section. Later amendments to the Homestead Act allocated more land, as much as 640 acres, or one entire square mile township section. This was a revision to apply to lands that were drier and more remote than lands found in Iowa; much of the land that was distributed in full sections was more suited to ranching rather than to farming.[18] On the contrary, the more fertile agricultural lands, like those in the Springdale Township, were most likely to be sold and broken into smaller pieces (or rented to a farmer that could not afford to purchase the land).

The term "township," as in Springdale Township, is a designation that is a direct result of the PLSS. The township unit varied in different parts of the surveyed territories, however, Springdale Township is a common size, in that it is a 36-square mile geographic area, divided into sections. Unlike the platted township that was used within the metes and bounds system, the PLSS township was often a reality only on paper. Although there are small hamlets shown emerging on the Spicer Map, Springdale and West Branch are largely a collection of closely spaced farms along a road. This is far from the platted towns, like West Branch, that emerged later.

The Spicer Map illustrates two essential elements, boundaries and roads, and has symbols to indicate as schools, stores, and post offices. The PLSS grid is clearly illustrated, dividing the landscape into mile squares; depending on the number of homes within a square, the properties are generally divided into quarter sections and other rectilinear shapes. While the map is not as clear regarding land use, historic records indicate that, as today, much of the land is agricultural.

The Spicer Map also fails to indicate (as in later aerial photography) the setbacks or number of structures or boundaries (such as windbreaks and outbuildings) on

[18] White, C. Albert. *A History of the Rectangular Survey System,* pp 115-116.

particular properties. However, it is clear that the homesteads are located relatively close to the road and dispersed among the field holdings.

The clustering of two distinct hamlets, West Branch and Springdale, is displayed on the either end of the east-west axis of the road near the top of the township. As illustrated on the map, the impact of transportation on the landscape is evident even in 1863. The spacing of the West Branch, Springdale, schools, churches, and stores is all evidence of the transportation of the period. The hamlets and services are close enough that they can be easily reached from the homesteads.

Roads & Railroads (1870-1890)

The importance of transportation, both as a landscape element and as a social force that shapes the landscape is seen as the period of European-American settlement solidifies in the area. The expansion of railroads throughout the region led to the expansion of hamlets. This growth continued to affect the farms communities throughout the regions surrounding the study area through the end of the 19th century.

The corresponding growth led to not only the expansion of business in a growing town such as West Branch, but also led to many small towns, that were essentially the collection of 5 or 6 houses and one store, that existed along the rail lines. These small hamlets were usually 2-4 miles apart and provided an easy place for farm families to send and receive mail and to sell farm commodities. In 1899, the importance of these hamlets began to wane, as the federal government introduced the Rural Free Delivery program. The access of rural population to printed materials, including catalogs, magazines, and letters, led to the phasing out of the smaller post offices. In turn, the smallest hamlets, such as Centerdale and Pee Dee, began to decline, and became only a collection of

houses. As residents left, some of these houses would be destroyed to increase productive land.

Conversely, the increased business that came to West Branch, as a result of having a train depot, led to official platting and incorporation of the town. For the landscape and land use, this signified a formal shift from agricultural lots and uses to smaller streets and lots suitable for a town. Meanwhile, neighboring Springdale did not have a rail line and thus the size and nature of the hamlet stayed much the same as it had since the 1860s. Springdale did maintain a school and post office into the mid-20th century, however it never incorporated or platted any streets.

Chapter 3. Growth & Prosperity (1890 – 1920)

Figure 3.1 Springdale Township ca. 1930. Photo accessed and permitted for educational use by the Iowa Geographic Map Server. [19]

The beginning of the 20th century was generally a period of prosperity for southeast Iowa. Agriculture was profitable and improving and expanding transportation networks and the industrialization of the food industry allowed Iowa producers to send their commodities to large and growing cities like Chicago. In the 1930s, the analysis of the Springdale Township landscape will begin to rely on aerial photography. The images used for this study were accessed via the Iowa Geographic Map Server compiled in the Iowa State University Geographic System Support and Research Facility. These images were gathered from the work of the Aerial Photography Field Office (APFO), which is

[19] Iowa State University Geographic Information Systems Support and Research Facility. (2010). 1930s Aerial Photos - USDA (black and white) of Springdale, Iowa. Retrieved October 12, 2010, from Iowa State University Geographic Map Server via: http://ortho.gis.iastate.edu/

now housed within the US Department of Agriculture. As mentioned above, while aerial photography has application to studying land use today, historically the APFO was created to assist in measurement and assessment of rural land use.

In the early 20th century, prior to aerial photography, “precise" survey measurements for agriculture were made by carrying chains around the farmer's field, and then maps of the field were drawn by hand. With the new federal farm programs that emerged in and following the Great Depression, the federal government needed to develop a more accurate and efficient method to measure the millions of acres of farmland across the United States.

With the onset of the Great Depression, the Agricultural Adjustment Act of 1933, the first farm bill, established farm programs designed to balance production and stabilize farm commodity prices. Farmers who participated in the farm programs needed to have accurate measurements made of their fields to receive a subsidy. In 1933, Congress established the Agricultural Adjustment Administration, which conducted aerial photo fly-overs in many rural states to assess crop compliance for entitlement payments to farmers.[20]

With corresponding advances in flight and photography, the use of aerial photography to calculate acreage quickly replaced the physical measurement method. The APFO gathered field measurements using enlargements of the aerial photos that served as the basic record of producer land use information for each county office to administer programs. The first statewide fly-over for Iowa was conducted through this program in 1938. Although there have been many technological advances, the APFO

[20] William Gabler, *Death of the Dream*, (1997) 34.

continues to provide aerial imagery and corresponding data are still provided to reflect changes to agricultural participation in farm programs.[21]

Looking at the 1930's photograph, it is easy to see that primary borders and roads had stayed the same. The two most apparent changes by 1930 are the addition of a railroad bed, cutting a diagonal line across the township from the West Branch in the upper left corner, connecting to West Liberty, and eventually ports on the Mississippi River or lines heading to Chicago. The other major change is the emergence of West Branch as a dominant settlement, with Downey growing, and Springdale looking much as it had on the Spicer Map. Meanwhile, "hamlets" or small collections of houses and a few businesses continue to exist along the rail lines.

Developments in transportation had the greatest effect on this landscape and the land use. While farmsteads look similar, the changes to both West Branch and Downey are significant. Of particular interest is the break from the original agricultural platting and dispersal of land and homesteads, as seen on the Spicer Map, and the extensive platting of streets and smaller lots. This is the natural progression of the towns of West Branch and Downey as they grew around their rail lines, which connected ports on the Mississippi River to Iowa City and points east. During this period, West Branch was also developing in ways that are not visible from the air, including the addition of municipal street lights. Throughout this period more and more service became focused in West Branch and the smaller hamlets slowly turned back into farmland.

A look at the historic inventory of established businesses in the hamlets illustrates the changes related to the growth of transportation, even by 1900. From 1868-1870 a rail line was built that passed through West Branch and the town grew, building a grain

[21] The Farm Service Administration, US Department of Agriculture. Accessed via: http://www.fsa.usda.gov/FSA/apfoapp?area=about&subject=landing&topic=his

elevator, a lumberyard and many other businesses to accommodate trade. The early railroads in the Midwest required many small depots but the larger stations were predetermined by the rail company at either an existing hamlet or significant cross roads. West Branch won the geographic lottery, receiving the BCR&N line and a depot. Meanwhile, Springdale retained many shops, schools, and churches into the 20th century, however missing out on a rail link meant that it never grew beyond hamlet.

Other changes during this period of the Springdale Township's history begin to lead to modifications in the landscape. Phone service began during this period, and residents who lived in the country needed to go to local general stores to use the phone. In addition, larger towns, like Springdale and West Branch established electric service. Advances in technology and farm policy slowly began to alter the nature of farms and then number of farmers. Primarily, with technology such as tractors it was fewer farmers could cultivate much larger farms. Despite these changes to social relationships in the area, the experience of the landscape remains the same. The relationship and dispersal of farmsteads and the open space of the fields continued in a similar pattern as seen on the Spicer Map.

Chapter 4. Automobiles & Highways (1920 - 1962)

Figure 4.1 Springdale Township, ca. 1960. Photo accessed and permitted for educational use by the Iowa Geographic Map Server.[22]

The primary addition to the aerial view of Springdale Township in the 1960s is the 4-lane bright white stretch of concrete, which is the newly complete Interstate-80. After the evidence of the growth and change from the effect of being included on rail line in 1870, West Branch also became tied into a new transportation system in 1962, the interstate highway system. The effects of the new system played out on the landscape in the coming decades, seen in both the loss of the railroad line, and the continued growth of West Branch.

[22] Iowa State University Geographic Information Systems Support and Research Facility. (2010). 1960s Aerial Photos - USDA (black and white) of Springdale, Iowa. Retrieved October 12, 2010, from Iowa State University Geographic Map Server via: http://ortho.gis.iastate.edu/

The introduction of the interstate indicates further progress in the transport of goods, moving more and more on trucks, while the use of rail for transport is phased out. Loss of railroad depots is beginning to have its effect on the smaller hamlets, starting in the 1930s. Within the Springdale Township, the most relevant is Centerdale, located in the lower right of the image. The cluster of buildings still exist along the rail bed, however with the loss of the general store and post office, Centerdale is now only houses, and within the next several decades many of these houses disappeared after years of vacancy.

The increasing mobility of the population and advances in farming technology is began to have an effect that is not visible in the landscape. Fewer farmers are farming larger farms, so an increasing number of residents in the rural areas of the township are commuting to work in West Branch, Iowa City, or Cedar Rapids. If one looks closer, the changes in agriculture are visible as contour farming is beginning and some of the barnyards are shrinking as it becoming more profitable for farmers to produce commodity crops than to raise hogs or cattle.

Another significant change during this period, that is not necessarily visible in the aerial photograph is that the expansion of telephone lines, and the implementation of rural electricity and rural mail delivery are continuing to change the social relationship that residents have with towns and hamlets. In particular, the introduction of rural mail delivery rapidly dimensioned the need for many smaller post offices. Still, the school and school district is a unifying community aspect. At the time of this photo, the entire township is part of the same school district. A new high school had just been built in West Branch in 1960, but the district's junior high located is located in the old high school building in Springdale.

Chapter 5. Interstate 80 & Today (1962 – Present)

Figure 5.1 Springdale Township, 2009. Photo accessed and permitted for educational use by the Iowa Geographic Map Server.[23]

When first built, the interstate was a jarring mark on the landscape. Nearly 50 years later, it has spurred industrial growth to the south of West Branch. As the automotive culture grew, rail lines begin to fade back into fields. Analyzing the landscape, in respect to the goals of this project, it is still evident that the primary settlement patterns hold in the rural area. Particular farmsteads have disappeared after years of being vacant, and in other places, new buildings have appeared on the landscape.

[23] Iowa State University Geographic Information Systems Support and Research Facility. (2010). 2009 Orthophotos - USDA (natural color) of Springdale, Iowa. Retrieved October 12, 2010, from Iowa State University Geographic Map Server via: http://ortho.gis.iastate.edu/

Many of these are Concentrated Animal Feeding Operations (CAFOs) and others are new, steel outbuildings, large enough to house modern farming equipment. Still, the landscape maintains the same overall form, with home dispersed along the gravel roads and sections divided geometrically into fields.

The 2009 photo shows that after nearly 50 years of connection to the interstate, West Branch has become the dominant town in the study area. While the other towns have become stagnant or disappeared, West Branch has grown, one can intuit, as a direct result of the interstate. This conclusion can be made by observing the business and manufacturing development, seen in the large buildings to the south of the highway exit. These buildings are manufacturing facilities, and the largest white building is a major distribution point for Proctor & Gamble.

Another striking change to the landscape in the 2009 photo is that the railroad line the led to the growth of West Branch and the existence of Centerdale is now only a few house clustered on a road. Knowing the history, the mark of this railroad is still visible in the sections that land has not yet be re-cultivated or where fields are divided with an angle outside of the rectilinear pattern. The loss of the railroad line through Centerdale was one of the final blows in the existence of the hamlet. Although trees in this photograph largely obscure the remaining buildings, at the time of the photo Centerdale had 3 homes that are occupied, including the building that was once the general store.

In 1968, the school officially closed in Springdale, as the school district built a new high school on the western side of West Branch (not visible in Figure 5.1). Even with the loss of the school, the overall form of Springdale has changed very little. There are about the same number of homes and residents, with lots facing Local Road and the backs of the properties abutting farmland. While the black-top road and 10 foot corn may be surprising, a Springdale resident from 1870 would recognize this landscape today.

Chapter 6. Strategy for Preservation

Figure 6.1. Wilson's Farm. Taken about two miles south of Centerdale, this view illustrates the relationship of farmsteads to the road and open agricultural space in the center of the sections. Photo by the author.

The first step in developing a successful strategy for the conservation of a rural landscape such as the Springdale Township is preliminary survey and analysis. The defining elements in a landscape vary depending on the scope, therefore the analysis during the survey should be directed to particular understanding particular elements or patterns. In the case of the rural Iowa landscape described above, analyzing the land use and settlement patterns is recommended in conjunction with historical research explaining how the land uses and patterns developed over time.

In Springdale Township, the preliminary visual analysis determined that the most important aspect of the settlement was the relationship of farmsteads and fields to the gridded roads and sections, which are a lingering mark established from the PLSS in the

mid-19th century. While ownership of farms changed, the division of parcels and fields has been largely consistent from the time of platting. Houses have been built and houses have been torn down, but the relationship between neighbors and the relationship to the road follows a consistent pattern. Where settlement is more concentrated, sub-divided, and platted, such as West Branch, the growth has affected only the land use directly adjacent to town. Nonetheless, looking at images of growth over time, the changes in West Branch are understandable. Yet the rural sense of place continues as the town is surrounded by fields just as it was when it was only a collection of 20 houses, several churches, a school, and a post office.

As acknowledged above, Springdale Township is not immediately threatened by sprawl. The City of Iowa City (20 miles to the west) is currently expanding, however the rate of development is slow enough and far enough away, that it does not yet encroach upon Springdale. With this in mind, it is recommended that planning efforts to protect this landscape be considered before development pressures become a concern. Because so much of the rural pattern is still intact, it is important to conserve the sense of place formed by this landscape. To that end, I recommend developing planning measures that do not prevent development, but rather regulations that guide the form of any new development so that the rural sense of place is maintained. The recommendation is a combination of conservation strategies, such as conservation easements, retaining agricultural lands in the center of the township sections in use as agriculture, and the application of rural form-based codes to guide any future development along the existing grid. The rural form code is intended to address the details of the rural pattern that are important to the sense of place, but which are not accurately captured in traditional rural 5-acre zoning.

Ebey's Landing National Historical Reserve

One example of a strategy to protect the rural landscape is illustrated in the methods used by the National Park Service at Ebey's Landing Historical Reserve. Ebey's Landing is located in western Washington State, on Widbey Island in the Puget Sound. The Reserve is not a typical national park unit, rather it is an ongoing experiment in public-private land management, as nearly 85% of the land within the boundary is privately owned. The Reserve was created in 1978 to "preserve and protect a rural community which provides an unbroken historic record from… 19th century exploration and settlement in Puget Sound to the present time."[24]

Both the legislation that established the reserve and the 2006 Comprehensive Management Plan emphasizes that Ebey's Landing is a rural community that has its identity in the evolution of the place, from early exploration to the present, and residents consist of descendents of original settlers as well as new residents. Unlike other National Park Service historic sites, the Reserve is neither interpreted nor protected from the perspective of only one specific point in time. Instead, there is an emphasis on the protection and interpretation of four general eras: 1) Vancouver's exploration of the Puget Sound in 1792, 2) the first permanent settlement on Whidbey Island, 3) the Donation Land Claim Settlements, and 4) the development of the town of Coupeville.

While there are distinct geographic difference between the Pacific Northwest and the Midwest, the impetus and methods for landscape protection are analogous. Widbey Island was traditionally an agricultural place with large areas of open space, much of it gridded through PLSS since the time of the Donation Land Claim Act.

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[24] *The Parks and Recreations Act of 1978,* as amended. (Public Law 95-625 and USC Sec. 461.)

The movement to protect the rural heritage began with a citizens' initiative to protect Ebey's from inappropriate development. After gaining local support, this led to the concept of a national historical reserve, intended to preserve open space with minimum disturbance to private landowners. The reserve concept included a federal role to provide support for these goals, while maintaining local autonomy in the process. Despite the federal presence, the reserve concept permitted immediate protection of critical lands threatened by development and allowed for continued federal technical assistance, but retained management for a local entity, a "Trust Board" comprised of volunteers; seven who are local residents, one representative from the Washington State Parks, and one from the National Park Service.

Following the completion of the first Comprehensive Management Plan in 1980, Ebey's Landing manages the heritage and rural landscape through altering local zoning ordinances as appropriate to protect the historical rural setting. The plan also identified areas most appropriate for public use and development, and historic and natural preservation. As the reserve concept matures, the specifications that are built into the Island County zoning and ordinances since the establishment of the reserve have evolved. For example, the most recent additions to zoning, which are relevant to this study, are changes to the rural density designation and new provisions for incentives for long-term or perpetual conservation of agricultural lands.

In terms of the rural density requirement, the Reserve learned that traditional 5-acre rural zoning is insufficient.[25] Unlike in Springdale Township, Widbey Island is close to a major metropolitan area, Seattle, and faces ongoing development pressure. To address this, the planners focused on creating cluster developments and established

[25] 5-acre rural zoning is a density specification, which requires low density of no more than one lot per five acres.

detailed standards for the review and approval of any Planned Residential Developments (PRD).

Finally, in order to protect the agricultural lands, the county instituted Earned Development Units (EDUs). The EDUs are structured to create incentives for land conservation, by giving potential developers more earned development units for a longer commitment of at least 75% of the land to a conservation easement. The Island County government cannot guarantee that all lands subject to conservation easement will continue to be farmed, but if they are not farmed, the conservation easement it is ensures that open space and preservation of critical areas is maintained. EDUs also provide farmers economic flexibility, allowing them to exercise development value on the lands if they feel that agriculture is no longer economically viable. However, because of the stipulation that "no development will be permitted on prime soils,"[26] future development must demonstrate that it does not adversely affect continued agricultural operations.

Drawing on this example, the present project recommends zoning or ordinance changes to preserve the Springdale Township to protect the landscape. This does not need to be led by the National Park Service, however as per review of the Ebey's Landing model, the establishment of a multi-organizational board, including citizens and representatives of local government, is important to guide this process. Also, to more specifically address the landscape elements elucidated in this paper it is recommended that ordinance changes not only consider densities for future rural land use, but also stipulate form.

The development and implementation of form based code is becoming more common in planning jurisdictions. Traditionally, form based codes are used to stipulate height, massing, setbacks, and materials of new development so that new construction

[26] "Resource Lands," Island County Ordinance No. C-84-05 PLG-017-04. Adopted July 2005.

blends with existing fabric. The specificity of the characteristics and the availability of variances in these codes differ between jurisdictions. One recent example, which is largely viewed as an ally to historic preservation efforts, is the code developed in the city of Denver. In the 2002 "Blueprint Denver" plan, planners created detailed descriptions of neighborhood typologies to guide development throughout the metro area.

While form based codes are becoming more popular in planning, it still largely remains a concept that is applied to urban contexts. Rural form codes have been developed in some jurisdictions, but generally are concerned only with densities and the protection of open spaces and agriculture; few define form with particular attention to heritage and sense of place. Some of these codes are successful in limiting unwanted suburban sprawl, however with appropriate expertise and community involvement a well-developed rural form based code will protect sense of place without significantly hindering future development.

Specific details for a rural form code appropriate for southeastern Iowa will require more in-depth research and an extensive public involvement process within the affected jurisdiction. However, based on the analysis in this paper, I suggest that a form based code applied to Springdale Township stipulate the spatial relationship to the road, maintain single driveways, guide the spatial relationship to outbuildings, and encourage the establishment and maintenance of windbreaks. As discovered in Ebey's Landing, it is understood that sometimes a denser clustering of new homes will be better for maintaining open space. To do this and to maintain the historic settlement patterns, it is further recommended that a form based code be written for any Planned Residential Development that encourages development to mimic the historic "hamlets" rather than using the modern cul-de-sac or development to move into the center of the sections, the space that is consistently agricultural.

Finally, although it seems unlikely that the development pressure will make agriculture an economically unviable land-use in Iowa, it is important to consider this landscape before it is threatened. In addition to changes made to local ordinances the inclusion of incentives to maintain agriculture, open space, and vernacular structures are important for continuing the heritage of the Springdale Township. Other incentives that would contribute to conservation of rural heritage that merit further work include implementable strategies to protect or reuse historic barns and outbuildings, programs to encourage the interpretation of the landscape and history of farms, and consideration for archeological resources related to the farmhouses and churches that have been lost over time. All together, rural preservation work can maintain the sense of place, even as agricultural practices have evolved and from the ground level, the landscape has been altered, and corn grows taller these days, maintaining agriculture continues a landscape that is evocative of the same landscape from 100 years ago.

Chapter 7. The Rural Sense of Place

The study of the Springdale Township from the aerial perspective, combined with historic research elucidates some of the patterns and elements that have defined this landscape over the last century and half. The study of a landscape continues to unravel further elements and patterns to examine. This project has raised as many questions as answers, but rather than be comprehensive, this work is intended to be a starting place for further discussion of rural heritage conservation issues. Thus, while the recommendations on how to address the conservation of rural landscape elements are not definitive, it presents a starting point for new thinking about planning tools that can be tailored to conserve the rural sense of place.

This project analyzed a landscape from above and choose the Springdale Township, a landscape that the author knew from the ground. To think in terms of how analysis such as this can be applied to other rural landscapes, future projects must begin by consider the following characteristics. First, analysis must consider how the landscape is shaped, such as by use and changes in transportation. Then to consider how the landscape is experienced, analysis should consider the patterns that create the feeling of "sense of place." This phase should also consider what resource may have been lost, such as hamlets or homesteads. With further detail, a more comprehensive study could also look at elements within particular farmsteads, such as the relationships between buildings.

After this analysis of the landscape, conservation strategies for the landscape require choosing and applying appropriate tools to protect the critical patterns and elements. As discussed above, these tools include conservation easements, zoning and other land use regulations that ensures continuity of historic patterns, and other

preservation incentives. Further research, building on the work in present paper, will aid in describing a strong framework and process for developing a rural conservation strategy. However, to truly account for the heritage and values of a particular community and the unique patterns of a landscape, no strategy will fit all rural places. Combining a management structure similar to that in Ebey's Landing with flexible tools such as rural form-based code is recommended. Any implementation of conservation strategies will require a planning process that involves community residents and implementation and management that is locally led.

Examining the landscape where I grew up from the perspective of 30,000 feet and 150 years, both revealed new things to me and clarified elements that I already recognized. Studying the place I'm from does raise the possibility of missing elements, but it seems that this evidence that significant patterns have stayed consistent despite significant social and technological changes illustrates how the rural sense of place is related to these patterns.

While there are many ways to describe this sense of place, I feel it is captured most succinctly when I imagine that I was placed into this landscape in 1863, several miles from home, and that I would recognize this place. It is unlikely that any structures would be recognizable, but the roads and hills and locations of the homes would be the similar to feel familiar. Historic buildings matter, but the sense of place here is rooted in the landscape and land use pattern. If rural preservation efforts continue to focus on protecting historic structures, it will miss the larger scope of rural heritage. Reflecting back to the J.B. Jackson quote that led this project: "we eventually learn that every

landscape, no matter how exotic, also contains elements which we at once recognize and understand."[27]

[27] Jackson, J.B. *Discovering the Vernacular Landscape.* (1984) pp 11.

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