THE PAST, PRESENT, AND FUTURE OF GRAIN ELEVATORS
IN DELAWARE COUNTY, INDIANA:
A STUDY OF THE HISTORY, PRESENT CONDITIONS AND POTENTIAL
REHABILITATION USES OF COUNTRY GRAIN ELEVATORS
A CREATIVE PROJECT
SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE
MASTER OF SCIENCE IN HISTORIC PRESERVATION
BY
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BALL STATE UNIVERSITY
MUNCIE, IN
APRIL 2009
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I would like to thank all of my committee members who made it possible for me to complete this thesis. First of all, Mr. Michel Mounayar, for keeping me on track, providing guidance on the direction of the project, and having faith in my ability to finish on time even when I did not. I would also like to thank Ms. Susan Lankford, whose input and help in proofreading was essential to the completion of this project. And the final committee member I would like to thank is Dr. Francis Parker, for his support and insight into the relationship of grain elevators and the railroad.

I would also like to thank all of my family and friends who have supported me, not only while writing this thesis, but in everything I do. My parents, Matthew and Eva Hayes, who have always been there for me and supported me one hundred percent, through not only graduate school, but also four long years of undergraduate study in architecture. I could never have come as far as I am today without their faith in me and their constant support. I would like to thank my wonderful husband, Kyle Thomas, who has been there to support me throughout the ups and downs of graduate school and the completion of this project. And finally I would like to thank all of my fellow classmates, and soon to be graduates, of the Historic Preservation program, who have made the past two years a blast and have helped me with my thesis, even when it involved spending a whole day driving around the county looking for grain elevators, which we never found. Thank you all so much, without your help I would not be where I am today.
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INTRODUCTION

Grain elevators have played an important role in America’s agricultural past. They have been a part of Delaware County, Indiana’s economy since as early as 1870. This thesis provides a general history of grain elevators and the reasons behind the decline of country elevators; followed by a more detailed history of Delaware County elevators, including a survey of the remaining elevators in the county. Delaware County was chosen for this study because no previous comprehensive documentation of grain elevators existed for this county. The final chapter focuses on the rehabilitation concepts through the evaluation of ten case studies. The idea of grain elevator rehabilitation is a relatively new concept in the field of historic preservation; however, it is an important factor that is integral to validating the feasibility of saving historic grain elevators that are no longer in use. The overall goal of this thesis is to provide information necessary to understand the historic importance of grain elevators in general, and to begin considering alternative and specific uses for grain elevators in Delaware County. While the focus of the study is in Delaware County the information and solutions may also be applied throughout the country.

A search of the literature on the history of grain elevators reveals several books that include information on types, construction materials, and the influence on town
planning. These include: *Grain Elevators* by Lisa Mahar-Keplinger, *Grain Elevators in the American Landscape* by Frank Gohlke, *The Design of Walls, Bins, and Grain Elevators* by Milo S. Ketchum and *Plains Country Towns* by John C. Hudson.

Compiling the history of grain elevators in Delaware County involved the use of local resources such as city directories, Sanborn Fire Insurance Company maps, *The Muncie Press*, *The Muncie Star*, and *The Star Press* newspapers, as well as historic Delaware County atlases. These resources were located at the Local History and Genealogy Center of the Muncie Public Library and Bracken Library at Ball State University.

This thesis consists of five chapters. Chapter One is the history of grain elevators, starting with the first elevator in Buffalo, New York built in 1842 spanning through the invention of slip-form concrete construction introduced in grain elevators in Minneapolis, Minnesota in 1900. This study will reveal information on the components of grain elevators, the different types, and the materials used in their construction. It also includes information on the different town plans associated with the railroad and grain elevators. The latter part of Chapter One examines the economic changes that have impacted grain elevators.

Chapter Two is dedicated to the decline of country grain elevators. This is an important and necessary discussion to understand why these structures are disappearing from the American landscape. The different factors leading to this decline include: the increased number of subterminal elevators, the growth in ethanol production, the decrease in railroad usage, accidental fires, grain dust explosions and neglect.
Chapter Three is the history of grain elevators in Delaware County. This chapter includes information on the past and present grain elevators in the county along with historic photographs found during research.

Chapter Four is a survey of remaining grain elevators in Delaware County. The survey was conducted from May 2008 to January 2009. The chapter includes information on the location of the existing elevators, along with a description of the current condition and use, as well as current photographs.

Chapter Five is about the rehabilitation of grain elevators. It begins with an explanation of rehabilitation according to *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*, followed by a discussion of ten case studies of grain elevator rehabilitation. The case studies are analyzed and evaluated based on the above mentioned standards. Finally in the Conclusion of this thesis, the concept of the rehabilitating grain elevators is summarized and evaluated based on its economic viability and potential in Delaware County.
CHAPTER 1
A BRIEF HISTORY OF GRAIN ELEVATORS

Grain elevators are icons of America’s agricultural past and present. This American invention has evolved from wooden structures to the modern concrete and steel structures used today. Not only have they affected American culture and architecture, but they have also influenced architects and architectural styles worldwide.

“A grain elevator is a specialized facility where grain is delivered and stored, bought and sold – and sent off by train or truck elsewhere. Its name is derived from the fact that it has a mechanical elevator designed to lift (elevate) grain up and dump it into a silo, bin, or other storage receptacle.”¹

The First Grain Elevator

The first grain elevator was built in Buffalo, New York in 1842. After the Erie Canal opened in 1825, Buffalo became a stop for grain shipments being transported between Lake Erie and the Hudson River. This growth as a transportation hub was the reason for the invention of the grain elevator. Joseph Dart, a businessman, hired Robert Dunbar, an engineer, to build a “steam-powered lift mechanism for unloading grain from ships in bulk.”² After it was unloaded from the ships the grain was “lifted to the tops of tall bins for storage then funneled into canal

¹ John Bower, After the Harvest: Indiana’s historic grain elevators and feed mills (Bloomington, IN: Studio Indiana, 2007), 28.
² Lawrence Biemiller, “History on a Towering Scale,” Chronicle of Higher Education 51, no. 14 (26 November 2004): A48. Although Dart was the first person to use a vertical system for moving grain during shipping, he was not the first person to develop a method of vertically moving grain. In 1785, Oliver Evans introduced a system of vertically handling and processing grain in mills. Robert B. Riley, “Grain Elevators: Symbols of Time, Place and Honest Building,” ALA Journal (November 1977): 50.
size ship may have to wait seven days for all of its grain to be unloaded, while it only took a morning with the assistance of the steam-powered invention.³

**Classifications of Grain Elevators**

Since the invention of the grain elevator, three different classifications have evolved: country, terminal or urban, and most recently, subterminal. The country or rural elevators are located along railroad sidetracks in or between towns and receive most of their grain from local farmers.⁴ They are usually between seven and eleven stories tall, making them tower above the average rural town buildings at one or two stories.⁵ Rural elevators are designed to a standard plan, so many of them look similar; where there are variations, it is usually because of regional differences in local building practices and include “slight proportional variations and differences in roof configurations.”⁶ Often country grain elevators have annexes or additional silos to increase their storage capacity.⁷

Terminal or urban elevators are larger and more complex than rural elevators. They receive their grain from country elevators by rail or truck then “sell the product to manufacturers or store the grain for shipment to distant domestic and foreign markets.”⁸ According to Lisa Mahar-Keplinger in her 1993 book *Grain Elevators*, a single bin of an urban elevator can be large enough to hold the “annual produce of a hundred farmers.”⁹ Many of these elevators do not just store the grain, but they also sort and clean the grain. They are usually located near railroads or waterways, but they are not necessarily a primary part of the urban landscape. Often terminal elevators are located on the edge of the city and have little effect on its layout. If the elevator is

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³ Riley, 50.
⁶ Ibid., 12.
⁷ Bower, 29.
⁹ Mahar-Keplinger, 13.
located along side a waterway, then it will have additional bins called “marine legs” that “support the elevating machinery that lifts the grain from the barges into the building.” Urban elevators usually have unique plans because they are designed by engineers for the specific needs of the community in which they are located.

Sub-terminal elevators are a more contemporary invention becoming popular in the 1970s and 1980s. They receive shipments from the smaller country elevators “for the purpose of assembling large volume shipments to terminal elevators.” Most sub-terminal elevators are located close to both railroads and highways, frequently in the country away from a town or “tucked in a remote corner of a railyard next to a freeway overpass.” Most of the grain arrives at sub-terminal elevators by truck or grain wagons and leaves on railroad grain cars.

Components of Grain Elevators

Grain elevators are made of four distinct parts: the headhouse, the distributing floor, the bins, and the work floor (see fig. 1.1). The headhouse is the isolated structure on top of the building where the grain is weighed and sorted. The distributing floor is located above the main bin structure and is easy to locate on the exterior by the large windows; it is where the grain is organized and sorted into bins. The bins make up the storage area of the elevator. Where circular bins are used, the spaces between them are also designed to be used as bins. The odd-shaped bins within the block of circular bins are called interstitial bins and the ones along the exterior are called outerstitial bins. The bottoms of the bins can be either flat, which are difficult to empty completely, or hoppered, which are sloped to aid in the movement of the grain. The work floor is

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10 Mahar-Keplinger, 13.
12 Ibid., 90.
13 Ibid., 100-101.
14 Ibid., 100.
located below the bins, has windows similar to the distributing floor, and connects the elevator to the loading areas.\footnote{Mahar-Keplinger, 70 - 71.}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Diagram showing the components of a grain elevator: the headhouse in blue, the distributing floor in green, the bins in yellow, and the work floor in orange. (color added) \textit{Source:} Tommy Kleckner, “Early Concrete Grain Elevators of Indianapolis,” (master’s thesis, Ball State University, 2002), 28.}
\end{figure}
Construction Materials and Methods

Grain elevators have been built using a variety of materials since their invention in 1842. Originally, they were constructed of wood with either a cribbed or studded structure. In the late-19th century and early-20th century, there were brief experiments in the use of clay tile, brick, and steel construction. In 1900, the first concrete grain elevator was constructed and by 1915 it had become the preferred method for elevator construction.

Wood Elevators (1842 – 1900)

Cribbed construction is “the most common technique and the most structurally stable.”16 This method is similar to log cabin construction, with interlocking timber. Walls are made up of 2x4’s, 2x6’s, and 2x8’s laid flat and stacked on top of each other then spiked together.17 The larger boards are located at the bottom and they decrease in size towards the top.18 All wooden urban elevators were constructed using this method. The main variations in cribbed construction forms are the roof configurations. Three different configurations are common: triangular cupola, rectangular cupola, and set-back triangular cupola.19

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16 Mahar-Keplinger, 18.
18 Mahar-Keplinger, 18.
19 Ibid., 21.
Studded construction is the term used for traditional balloon frame construction. It is less expensive than cribbed construction, because it uses less lumber. This construction method was possible because of the development of standardized lumber and the expansion of the railroad.\textsuperscript{20} Although the studded method was more economical it “often lacked the strength necessary to handle pressures generated by grain in deep bins.”\textsuperscript{21}

Both cribbed and studded elevators were covered in metal or asbestos siding to prevent sparks from the passing trains from igniting the structure.\textsuperscript{22} Also in both cribbed and studded elevators “collapsed walls or burst bins were not rare, and swollen walls and emergency reinforcing became characteristic of wooden elevators.”\textsuperscript{23} The main exterior difference between studded and cribbed construction is that studded construction has horizontal bands of wood running around the exterior with tie rods going through them that run through the interior to support the bins (see fig. 1.4 and 1.5).\textsuperscript{24} The main variations in studded elevators are these horizontal bands and “the proportional relationship between the cupola and bin structure.”\textsuperscript{25}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figures.png}
\caption{Figures 1.4 – 1.5: \textit{Left:} Example of studded construction with the typical horizontal bands of wood on the exterior. \textit{Source:} Mahar-Keplinger, 19. \textit{Right:} Example of cribbed construction. \textit{Source:} Mahar-Keplinger, 18.}
\end{figure}

\begin{footnotesize}
\begin{itemize}
\item\textsuperscript{20} Mahar-Keplinger, 19.
\item\textsuperscript{22} Mahar-Keplinger, 12.
\item\textsuperscript{23} Roe, 176.
\item\textsuperscript{24} Mahar-Keplinger, 12.
\item\textsuperscript{25} \textit{Ibid.}, 25.
\end{itemize}
\end{footnotesize}
**Clay Tile Elevators (1900 – 1915)**

Clay tile elevators were only constructed for a short period of time between 1900 and 1915.26 They were always built with circular bins because the tiles “were manufactured in a limited number of curved shapes which predetermined bin size and dictated a cylindrical form.”27 This predetermined size was an inconvenience and limited the ability to combine the bins efficiently. Tile construction has several disadvantages: the tiles are difficult to join resulting in leaks that ruins the grain, structurally unstable, and prone to fire damage.28

**Brick Elevators (1900 – 1915)**

Brick elevators were developed in the late 1800s around the same time as clay tile elevators, but were less common. They have the “most traditional architectural detailing of all the grain elevator types.”29 Usually the bins were rectangular and constructed using ordinary brick, but sometimes circular bins were constructed requiring the use of curved bricks. One problem with brick construction presented is the low tensile strength. The solution to the low tensile strength was to construct concave exterior walls between columns with tie rods running across the walls and through the columns to properly support the structure (see figures 1.6 and 1.7). Not all brick elevators were built to this design, but they all did use steel to reinforce the low tensile strength of the brick.30

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26 Mahar-Keplinger, 62.
27 Ibid., 35.
28 Ibid.
29 Ibid., 32.
30 Ibid., 32 & 60.
Figure 1.7: Example of brick construction method. Source: Mahar-Keplinger, 32.
Steel Elevators (1859 – present)

Rural steel elevators were constructed in two different phases. Pre-1930 steel elevators were “a simple arrangement of circular bins with either a headhouse mounted on top or a separate steel-frame work-house annexed alongside the bins.”31 Later in the 1950s, additional steel bins were constructed at many elevators because, “the federal government made generous loans to farmer’s cooperatives to construct new storage facilities. It was a time when many small towns saw a doubling or tripling of local elevator capacity, a development made necessary by the increased productivity per acre that had come from mechanization and agrochemical innovations.”32

The first steel urban elevator in the United States was the Washington Avenue elevator of the Grand Point Storage Company, Philadelphia. Construction began in 1859 and was completed in 1866.33 Urban steel elevators were constructed with either circular or rectangular bins.34 They were often encased in a box made of a different material such as brick. There are two different types of steel urban elevators: “Working House Steel Elevator” and “Working House and Storage Bin” steel elevator. Source: Ketchum, 300.


31 Mahar-Keplinger, 34.
33 Ketchum, 299.
34 Mahar-Keplinger, 64.
35 Ketchum, 300-301.
elevator is one where the headhouse, or working house, is located on top of the bins and all of the bins are together to make one structure. The working house and steel storage bins is when the working house has a few bins within it, but most of the bins are separate structures filled and emptied of grain from the working house by conveyors or chutes.

**Concrete Elevators (1900 – present)**

Concrete became the favored material for grain elevators by 1915. Rural concrete elevators are typically thirty to forty feet taller than rural wood elevators, because the material makes it easier and more affordable to construct taller structures. The majority of them have circular bins, but there are some with square bins which seem to have emerged as “an imitation of the plan and general form of the wood elevator” and they are similar in size to the wooden elevators. There is no documentation of why the concrete elevators were constructed in imitation of the wooden elevators. A large variety of geometrical plans for rural concrete elevators exist but they typically have an average of nine bins regardless of the shape. Rural concrete elevators are usually either painted white or left the natural gray color.36

Concrete urban elevators have more variations in bin shapes than any other type of elevators including: circular, rectangular, hexagonal, octagonal, or a combination.37

**Important Innovation in the Midwest**

A major innovation took place in the Midwest at the beginning of the 20th century that changed not only grain elevator construction, but also had a large influence on architects and engineers worldwide. The construction of the first concrete elevator in 1900 by Horace Peavey on the outskirts of Minneapolis resulted in the development of a new construction process.38 Peavey worked with architect Charles Haglin to construct a single concrete tower beside the rail

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36 Mahar-Keplinger, 38-41.
37 Ibid., 76.
line that served his company. The process they developed is called “slip forming” and is described as follows:

Erected in phases, the team used circular wooden forms supported and braced by steel hoops. As the forms were filled with concrete, they were moved upwards and filled with more concrete. The process kept going until the desired height was ultimately reached. This simple technique, which became known as slip forming, allowed a few workers to create a strong, tall, smooth, uniform tube in a short amount of time.

When Peavey’s elevator was 68 feet tall he filled it with grain. He then let it sit for a year to prove to skeptics that the structure was stable and able to store grain sufficiently. After the year was over, he emptied the grain and found that it was in excellent condition. Because there was no evidence of structural failure he decided to increase the elevator’s height to 125 feet. Peavey’s elevator became a model for modern elevator design for decades. Because it was only an experiment the structure was never filled again; however it “ushered in the era of massive grain storage in multiple-silo, monolithic, concrete grain elevators that have come to identify the grain-producing heartland of America.” It was listed on the National Register of Historic Places in 1978 because of its “ultimate effect on industry nationwide and on modern architecture worldwide.”

The slip-form method became popular with engineers and architects for all types of structures. It inspired many architects worldwide, including Le Corbusier who called the Peavey-
Haglin elevator “the magnificent first fruits of the new age.” In 1912, Midwest Prairie architects Purcell and Elmslie observed, “the wonderhouse of new forms, American minted, the harvester, the automobile, the aeroplane, the grain elevator . . .” A year later in 1913, German architectural theorist Walter Gropius wrote that grain elevators were “worthy of comparison with the works of the ancient Egyptians.”

**Influence of Grain Elevators on Town and City Planning**

Country grain elevators played an important part in the development of towns. The rapid expansion of the railroad in the 1800s resulted in the construction of track-side towns. These towns were planned by the railroad companies to create traffic along their lines. They were spaced at regular intervals based on the amount of productive farmland in the area and were laid out in a simple grid. The following information on town plans applies mostly to towns that were constructed after the railroad had arrived. Most of the towns in Indiana were platted before the railroad, making it unlikely that they were laid out according to one of these plans; however, the grain elevator would still have been located with access to the railroad even if the town existed before the railroad arrived.

Often the same plan would be used for different towns, with the same block layout and street names. “The standard railroad block for most towns was 300 feet square with lots 140 feet deep and backed by a twenty-foot alley lined with smaller secondary structures. Blocks were divided into six residential lots or twelve business lots.” Usually, the first two structures built in the town were the grain elevator and the railroad station. Almost all rural towns have four specific elements: a primary business street, a railroad line, an elevator, and residential blocks.

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44 Bower, 41.  
45 Carney, 1.  
46 Ibid.  
47 Mahar-Keplinger, 52.  
48 Ibid., 46 & 52.  
49 Ibid., 50.
Based on the arrangement of these elements, there are five different types of town layouts: symmetrical, orthogonal, T-town, cross T-town, and center square.

The symmetrical town was the first type introduced and consisted of railroad tracks running through the center of the town acting as the axis of symmetry (see figure 1.11). “There were two business streets in the symmetric railroad town, with buildings facing each other across a 300-foot railroad right-of-way designed for elevators, lumberyards, and other enterprises needing direct rail access.” \(^{50}\) This layout was not successful because the business districts on either side of the tracks did not develop equally. Often, the distinction was economic with one side becoming the principal business street and the other having a row of saloons and cheap hotels. This plan was rarely used after the 1890s.\(^ {51}\)

The orthogonal plan has one main street with businesses on either side that runs perpendicular to the tracks and continues across them (see figure 1.12). Even with this change in planning towns were still likely to develop more on one side of the railroad than on the other. By the 1890s, most towns were not even planned to cross the tracks. This change led to the development of the T-town plan.\(^ {52}\)

The T-town plan has one main street beginning at the tracks, “creating an arrangement in which the railroad formed the bar of a T-shaped configuration” (see figure 1.13). By locating the tracks in this manner, it eliminated the need for crossings in the business district and also isolated the tracks to one side of town making them less prominent. Also, railroads would sometimes purchase land on the other side of the tracks to prevent development that would result in the need for more crossings.54

In 1905, a variation on the T-town, known as the cross T-town, was began by “platting business lots a few blocks up the cross street away from the principal intersection” (see figure 1.14).55 This variation provided better business locations and a tighter cluster near the center of town by acknowledging a main intersection. The few blocks on the cross street may have later extended to form a second main street.

After the railroad had been moved to the side of the town, the idea of a point of focus, rather than a linear focus, was reintroduced.56 The center square town has a central square that is often hard to find because the main street does not necessarily extend through the town as in the other models (see figures 1.15 and 1.16). This plan was developed independently from the railroad and has almost no structural relationship to it or the grain elevator.57

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53 Hudson, Plains Country Towns, 90
54 Ibid.
55 Ibid., 89-90.
56 Ibid.
57 Mahar-Keplinger, 50-53.
Unlike the country elevators, urban elevators had little or no impact on the cities that they were located in or near. They were usually located along the water, to allow access to ships and barges, or along the railroad, to allow easy access to the rail cars for loading and unloading grain.  

**Economic Geography through the Years**

When the first grain elevators were constructed they were located based on two factors, the farmer and the railroad. Typically farmers wanted the elevator close enough that they could make a round trip, by wagon on dirt roads, in one day. However the railroad companies wanted to space the elevators as far apart as possible because “rail transport is efficient in inverse proportion to [the] amount of acceleration and braking required.” The result of this conflict was a spacing of approximately three to eight miles between elevators. This spacing is “most uneven, and tends to be densest, in the Eastern portions of the corn belt, where the towns usually preceded the elevators and attracted them.”

Since the construction of many of the grain elevators, the process of farming has undergone a large number of changes affecting the production capabilities of the land and the farmers. The grain elevator itself came from the mechanization revolution of the late nineteenth

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58 Mahar-Keplerger, 80.
59 Riley, 53.
60 Ibid.
century. In the early decades of the twentieth century the internal combustion revolution led to increases in agricultural productivity. Despite the importance of these innovations, the major impact on the grain industry came after World War II with “the introduction of high-yielding varieties and the increased use of fertilizers, pesticides, and herbicides.”61 The result of these changes is that “the same amount of land, operated by one-fourth as many farmers, may be five times more productive today than it was a century ago.”62

Technological and economic changes were not the only impact on the grain market after World War II. Social changes also had a large impact on the communities that surround the elevators. Some of these changes occurred in “living standards and lifestyles, and rural populations and densities.”63 Because of these changes many small towns have been struggling for economic survival and as a result have lost their “businesses and residents to urbanization, consolidation of schools, regional merchandising, commodity price depressions, bankruptcies, and the greater mobility of townfolk and local farmers alike.”64 Often the only business that remains viable is the grain elevator, and that often depends on continued rail access. Chapter 2 discusses the decline of the country grain elevator in further detail.

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62 Ibid.
63 Roe, 183.
64 Ibid., 184.
CHAPTER 2
THE DECLINE OF COUNTRY GRAIN ELEVATORS

Grain elevators throughout the country have been disappearing for many years. While it is important to focus on saving these structures, there first must be an understanding of what is happening to cause these disappearances. There are several changes that are resulting in the decline of country grain elevators, which include: the introduction of subterminal elevators, the growing ethanol industry, the decrease in railroad usage, grain dust explosions, and neglect of the country elevators.

Subterminal Elevators

Subterminal elevators began to emerge in the late 1970s and early 1980s. As described in Chapter 1 the purpose of subterminal elevators is to assemble large volume shipments for the larger terminal, or urban, elevators. Also they are typically located away from towns, often along railways and near interstates. The emergence of this new form resulted in an increase in the capacity of the grain system as a whole.

After the introduction of the subterminal form, “some country elevators were put out of business, but many others . . . remained open to serve as satellites for the subterminals.”¹ Unfortunately this is not necessarily the case now with the increase in the ability of the farmer to easily move grain directly to the subterminal elevators by truck. This mobility makes the need for a local elevator for grain storage and shipping obsolete. As John C. Hudson explains,

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“the massive concrete silos of the modern subterminal elevator may have dealt the last blow to the viability of many small towns.”

**Ethanol Industry**

As the popularity of ethanol production grows, so does its impact on the country grain elevators. The reason for this is that most ethanol companies want the grain to be brought straight to their facilities by the farmer. This desire to eliminate the middle man also eliminates the need for a grain elevator in areas where the majority of the crops are being used for ethanol production. Unfortunately this often occurs in areas where there are small country elevators that cannot compete with the large ethanol company, resulting in the closure of the small town elevator.

Bob Zelenka, Executive Director of the Minnesota Grain and Feed Association, stated that ethanol has “been the biggest thing to hit our industry, and the hardest to adapt to.” In 2006, about a dozen Minnesota grain elevators went out of business and several others had to consolidate because of the growing ethanol industry, according to Zelenka. This impact is not isolated to Minnesota, but can be seen throughout the country.

**Decrease in Railroad Usage**

Many country elevators were built along railroad tracks and as a result relied heavily on trains to transport their grain to the larger urban elevators or markets. However, since their construction, much of the rail traffic has stopped, or the tracks have been abandoned all together. Even on rail lines that are still heavily used the “consolidation of elevator operations has left numerous small mills and storage facilities abandoned . . . since it no longer pays to stop at every small town along the way.” The development of high capacity covered hopper cars started in the 1950s; these cars held 100 or more tons each, compared to the old standard 40-ton boxcar, and favored larger volume shipments. Taking advantage of these high capacity cars, railroad

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4 Roe, 184.
companies developed multi-car shipping rates - usually for 25 or 50 car blocks, which gave an
economic advantage to high volume shippers, and exceeded the shipping capacity of the smaller
country elevators.⁵ While farmers deliver the grain to the elevator using trucks and tractors, the
elevator needs access to the railroad to be able to ship their stock to the larger elevators. With the
loss of the major shipping method, many of the country elevators have lost their ability to
compete with larger subterminal elevators.

**Fires and Grain Dust Explosions**

Fires and grain dust explosions have always been a concern with grain elevators. Wood
and brick elevators were only expected to last approximately twelve to fifteen years because of
the threats of fire or explosion.⁶

Not only was the internal construction inherently flammable . . . but atmospheres heavily
laden with grain dust could also be disastrously explosive in the presence of sparks,
which had many potential sources, from lamps and the steam engines to friction in
moving parts that were inadequately lubricated.⁷

While the threat of fire has decreased in modern concrete facilities with fire suppression systems,
there is still the threat of explosions.

Dust was first recognized as a contributing factor in explosions in Italy in 1785, but it
was another 100 years before it was discovered that ignition of the dust alone could begin and
multiply an explosion.⁸

Seventy-two dust explosions and sixty deaths occurred in U.S. agricultural industries
between 1873 and 1913, but widespread concern did not develop until 1913. In that year,
33 lives were lost and 80 injuries occurred in an explosion at a Buffalo, New York, feed
mill.

In all of the different types of industrial dust explosions, grain elevators have
always ranked first in number of occurrences, injuries and property damage. From 1925
through 1956, nearly five times as many dust explosions occurred in grain elevators as in

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⁵ Interview with Francis Parker, 6 April 2009, Professor of Urban Planning, College of
Architecture and Planning, Ball State University, Muncie, Indiana.
⁷ Ibid., 113.
flour mills. There were also nearly ten times as many deaths and seven times as much property loss.9

In most grain elevator explosions, the majority of damage is not caused by the initial explosion, but by all of the secondary explosions that follow. The National Academy of Sciences Panel on Causes and Prevention of Grain Elevator Explosions was given the task of investigating fourteen grain elevation explosions that occurred between 1979 and 1981. They discovered that twelve of the fourteen explosions had secondary explosions following the initial blast. 10

The cause of grain elevator explosions cannot be attributed to one single component. There are actually five different components that contribute to a dust explosion. These five components are often described as the “Explosion Pentagon: fuel (powdered grain), oxidizer (air), fuel-and-oxidizer containment within a closed volume (elevator), dispersion of fuel-and-oxidizer mixture within the limits of explosivity, and ignition.”11

![Figure 2.1: Explosion of country elevator in Kokomo, Indiana. Source: “One Killed in Grain Company Explosion, Fire,” Kokomo Tribune, 26 February 1976.](image)

9 Sargent, 29.
11 Ibid.
In recent years the occurrence of explosions, and the deaths associated with them, have been greatly reduced because of modern innovations in construction and equipment within the facilities. “As new facilities are constructed, modern methods of dust collection, and fire/explosion suppression and prevention are implemented, reducing the hazards posed by fire or explosion.” Although new facilities are safer, older facilities that have not been updated with modern technology still have the high risk of fire or explosions. These facilities usually rely heavily on people to perform proper housekeeping and preventative maintenance to decrease the risk of fires or explosions.

Neglect

As with any historic structure, neglect can be one of the major issues when it comes to preserving or rehabilitating a grain elevator. The fact that they are designed for a specific purpose makes it difficult for many communities to see the structures as suitable options for rehabilitation or capable of housing any alternative function. Because of this, many communities let the structures deteriorate without maintenance after they are no longer in operation until they fall down or are in such bad condition that they need to be torn down for safety reasons.

However, even in a state of neglect, many grain elevators remain an important element in the town’s identity. In order to convince communities that it is worth saving grain elevators, it is important to be able to demonstrate that the structures can still serve a purpose that the community needs. Chapter 5 discusses the potential for the rehabilitation of grain elevators

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13 Ibid.
through the evaluation of previous projects based on *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*. 
CHAPTER 3
THE HISTORY OF GRAIN ELEVATORS IN DELAWARE COUNTY

According to Frank Gohlke in Measure of Emptiness: Grain Elevators in the American Landscape, “. . . in the small towns of the Midwest, the grain elevator is a center of social and economic life and, by its constant, far-flung visibility, symbolizes to the inhabitants the coherence, vitality, and continuity of their communities.”¹

Grain elevators have played a large role in Delaware County’s history because of the large amount of farming in the area. Based on research completed using newspaper clippings, city directories, Sanborn Fire Insurance Company maps, historic atlases and county plat maps, the elevators identified in this chapter were present at one time in the county.² The dates have been narrowed down as much as possible based on the information found. Over time, the county has had at least twenty different grain elevators. Only seven grain elevators remain standing today; they are located in the towns of Cammack, Gaston, Medford, Oakville, Selma and Shideler.

² All maps used to establish a timeline for the life of the grain elevators in the county are included in the appendices.
Figure 3.1: Map of Delaware County showing the approximate locations of existing (blue) and demolished (red) grain elevators. This map was created using the information contained in this chapter to approximate the locations of demolished and exiting grain elevators in the county.
Albany

The town of Albany began as a trading point located on the Mississinewa River. It was officially platted on December 11, 1833 by William Venard. According to Mrs. James Murphey in her speech at the Centennial celebration in 1933, the Lake Erie and Western line railroad was built through Albany in 1879. By 1887 there was an elevator located on the north side of the railroad tracks just east of Plum Street. A structure at the same location in 1895 was labeled as a grain warehouse, and remained there through at least 1899. Sometime between 1899 and 1910 the structure was demolished.

By 1920, another elevator was located on the same site and had a capacity of 15,000 bushels according to the Sanborn Fire Insurance Company map. The same elevator remains unchanged in plan through October of 1943. The grain elevator

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in Albany is listed in Muncie city directories and phone books up through November 1949 when it was a part of Delaware County Farm Bureau Co-Operation Association Inc.\textsuperscript{10} In 1966, Ludwick Feed & Grain, Inc. was located in Albany, but there is no indication whether or not the company included an elevator.\textsuperscript{11}

**Anthony**

There is very little information on this small town. No documentation could be found about the platting of the town; however, research shows that the L.M. Horn Grain & Coal grain elevator was operating in Anthony around 1958.\textsuperscript{12} And according to an article in the Muncie newspaper the Anthony elevator made the small town a major shipping point in the county until it was destroyed by fire in 1970.\textsuperscript{13}

**Cammack**

Cammack was platted on April 15, 1882 by the town’s namesake David Cammack.\textsuperscript{14} The Erie and Western Railroad was constructed in the area in the early 1870s.\textsuperscript{15} David Cammack and his family eventually moved to Muncie, but he continued to be involved in the small town by operating a lumber mill and building a large grain warehouse. He also founded the Indiana Grain Dealers Association.\textsuperscript{16} According to Pete Davis, owner of Pete’s Grocery a local retail store, \textsuperscript{10} *Telephone Directory, Muncie, Ind.* (Indianapolis, IN: Indiana Bell Telephone Co., 1949), s.v. “Grain Elevators.”

\textsuperscript{11} *Delaware County Indiana Official Farm Plat Book and Directory* (LaPorte, IN: County Plat and Directory Co., Inc., 1966), 3.

\textsuperscript{12} *Delaware County Indiana Official Farm Plat Book and Directory* (Madison, WI: County Plat and Directory Co., Inc., [1958?]), 3.


\textsuperscript{14} Haimbaugh, 407.


\textsuperscript{16} Ibid.
Cammack once had two grain elevators, but no information was found on a second elevator during the research.  

John Q. Howell was born on July 12, 1855 near Cammack and stayed in the area his whole life. He was a successful business man and owned and operated the Cammack Grain Elevator. Mike and Robert Reed later took over Howell’s elevator, renaming it Reed Brother’s Feed and Coal. The Reed brother’s sold the elevator in 1970; the new owner used the structure for a while in the 1970s as a place to build chairs, according to Mike Reed. In 1993, the building was being used as a workshop to make fishing lures. The structure is now vacant, but remains standing in the small town today.

Cowan

Cowan is located approximately four or five miles south of Muncie and was platted around the railway survey line on November 5, 1869 by Charles McCowen, Noah Harrold, Milo Harrold, and John Rinker. Samuel C. Herman had established a grain elevator in Cowan by 1928. The elevator remained in operation through 1931, but had closed by 1938.

Daleville

Daleville was platted on November 10, 1838 by Campbell Dale with the expectation that a projected canal would be completed through the town. The Central Canal was planned to run

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20 Ibid.
21 The elevator may have been in operation before 1928 but there is no information to establish a date prior to that. Polk’s Indiana State Gazetteer and Business Directory 1928-1929 (Indianapolis, IN: R.L. Polk & Co., Publishers, 1928), s.v. “Grain Elevators.”
23 The business is not listed in the 1938 city directory. Polk’s Muncie (Delaware County, Ind.) City Directory 1938 (Cincinnati, OH: R.L. Polk & Co., 1938), s.v. “Cowan.”
“from the Wabash River between Fort Wayne and Logansport, via Muncietown and Indianapolis, then down White River to Evansville” as part of the internal improvements taking place in Indiana at the time; this route would have possibly passed through Daleville. However, the canal was never finished and the town was dormant until 1852 when the railroad was constructed. John P. Shoemaker founded the grain market for Daleville in 1866, and later built a grain elevator in 1871. Shoemaker continued to own the elevator up through 1914. The elevator was bought and sold several times after Shoemaker owned it until the early 1980s when it was closed. The grain elevator has since been demolished.

Desoto

The town of Desoto or DeSoto was originally platted under the name of Woodlawn on January 8, 1881 by Luther L. Perdieu at the location of a railroad stop approximately midway between Albany and Muncie. The town name was changed from Woodlawn to Desoto when a post office came to town and post office authorities declined the name of Woodlawn because it was likely to be confused with Woodburn in Allen County. In 1887, a grain elevator was located in the small town north of the tracks just west of Market Street. In 1931, Lewis E. Leavell is listed as owner of the grain elevator in town (see figure 3.3); however, it is not known if it was the same elevator present in 1887. By around 1958, the grain elevator had been renamed DeSoto Elevator, Inc. and had been enlarged with an addition over the original loading

24 Paul Fatout, Indiana Canals (1972; repr. West Lafayette, IN: Purdue University Press, 1985), 72.
25 Haimbaugh, 403.
27 Ibid.
28 Haimbaugh, 404-405.
29 Griffing, Gordan and Co., inside front cover.
area (see figure 3.4). By 1966 the elevator included at least two external steel bins and new processing equipment (see figure 3.5).

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31 Delaware County Indiana Official Farm Plat Book and Directory (Madison, WI: County Plat and Directory Co., Inc., [1958?]), 3.
32 Delaware County Indiana Official Farm Plat Book and Directory (LaPorte, IN: County Plat and Directory Co., Inc., 1966), 3.
Eaton

Eaton was platted on June 19, 1854 by George H. Babb and Joel W. Long along the Lake Erie and Western – Ft. Wayne Division railway tracks. Since its founding Eaton has had several different grain elevators. The first was Carter C. & Sons, which was in operation from approximately 1870 to 1900. According to an 1887 atlas Carter & Sons was located east of the railroad just north of Greenville Gravel Road. In 1900 it was listed as the A.M. Foorman Grain Elevator and Greenville Gravel Road had been renamed Indiana Ave. In 1910 the elevator had been renamed J.L. Simmons Grain Elevator and Feed Mill and the structure had been expanded to a 15,000 bushel capacity. By 1920 the elevator’s name had been changed to Stiefel and Levy Grain Elevator and had once again been expanded to hold a total of 30,000 bushels. The Stiefel and Levy Grain Elevator remained in operation at least through 1928 but no exact date of closure could be found. The building stood unused for many years until 1936 when the new owner, George Cruea, dismantled the building and made it into a barn in the country.

By 1931, the Goodrich Brothers Company elevator had opened. The founders of the Goodrich Brothers Company were Percy and John Goodrich from Winchester, Indiana. The company originally opened under the name of Goodrich Brothers Hay and Grain in 1896. The name was changed to Goodrich Brothers Company in 1917 and “eventually owned twenty-three

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33 Haimbaugh, 405.
34 It is described as a mill in the history but labeled as an elevator on the map from 1887. Eaton chapters of Delta Theta Tau and Psi Iota Xi national sororities, “Gaslight Memories: A History of Eaton’s First Hundred Years,” (1954), 14, Local History and Genealogy Center, Muncie Public Library, Muncie, Indiana.
35 Griffing, Gordon and Co., back cover.
39 Polk’s Indiana State Gazetteer and Business Directory 1928-1929.
40 “Gaslight Memories: A History of Eaton’s First Hundred Years,” 14.
elevators in Indiana.”\textsuperscript{42} It was located on the site previously occupied by the O.L. Bartlett factory.\textsuperscript{43} The elevator remained in operation at least through 1941.\textsuperscript{44} As of 1954 the elevator was still standing; however, it has since been torn down.\textsuperscript{45}

\textbf{Gaston}

Gaston was platted as the Town of New Corner on February 27, 1855 by David L. Jones. The name was changed to Gaston in the late 1880s when the gas “boom” struck the town.\textsuperscript{46} The first elevator on record in Gaston was owned by the Goodrich Brothers Company. The first time the company appears in the city directory was in 1928;\textsuperscript{47} however, there is a photograph of the elevator in \textit{History of Gaston} that is labeled as circa 1915 (see figure 3.6).\textsuperscript{48} The company retained the Goodrich name up through at least 1941.\textsuperscript{49} According to \textit{History of Gaston} the Goodrich Elevator was later either merged or sold to General Grain. In the 1980’s the previous manager, Clyde Poe, purchased the elevator then later sold it to Jerry and Barton Clock.\textsuperscript{50}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{figure3.6.png}
\caption{Goodrich Brother’s Co. grain elevator in Gaston. \textit{Source: History of Gaston, est. 1855, 279.}}
\end{figure}

\begin{footnotesize}
\textsuperscript{43} “Gaslight Memories: A History of Eaton’s First Hundred Years,” 24.
\textsuperscript{44} \textit{Polk’s Muncie (Delaware County, Ind.) City Directory 1941} (Detroit, MI: R.L. Polk & Co., Publishers, 1941), s.v. “Eaton.”
\textsuperscript{45} “Gaslight Memories: A History of Eaton’s First Hundred Years,” 24.
\textsuperscript{46} Haimbaugh, 406.
\textsuperscript{47} \textit{Polk’s Indiana State Gazetteer and Business Directory 1928-1929}.
\textsuperscript{48} Vickie Oliver, ed., \textit{History of Gaston, est. 1855} (Gaston, IN: Sesquicentennial Committee, 2005), 279.
\textsuperscript{49} \textit{Polk’s Muncie (Delaware County, Ind.) City Directory 1941}, s.v. “Gaston.”
\textsuperscript{50} Vickie Oliver, ed., 279.
\end{footnotesize}
Another elevator in the town was owned by the Gaston Grain Company. The only record of this elevator consists of two photographs. One photograph was from the *Muncie Star* (see figure 3.7) with an explanation in the caption that the photo was probably taken in the mid-1950s or later.\footnote{Muncie Star, 26 July 1987, “Indiana-Muncie-Railroads” folder, vertical files, Local History and Genealogy Center, Muncie Public Library, Muncie, Indiana.} The other photograph is located in *History of Gaston* (see figure 3.8) and shows the elevator being demolished.\footnote{Vickie Oliver, ed., 261.}

The third elevator in the town is the Gaston Grain Elevator, built around 1941 by Bill and Mary Campbell (see figure 3.9). It is located at 307 South Main Street. Using money received through government loans steel grain bins were added to the complex, during the early 1950s, to increase the capacity of the elevator. In 1972 the Campbells sold the grain business to Charles and Norma Jean Kirtley. Later Joe Melvin purchased the property in 1986 but did not continue to operate the elevator; instead he used the Quonset hut adjacent to the elevator as storage and workshop facilities. In 2002 Turnkey Network Solutions purchased the

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\footnote{Vickie Oliver, ed., 261.}
property.\textsuperscript{53} Today the structure is vacant and unused; out of the three elevators, it is the only remaining grain elevator in town.

\textbf{Medford}

Medford was platted along the C. & O. railroad on September 18, 1901 by Clarissa Phillips.\textsuperscript{54} The concrete grain elevator located in Medford was constructed prior to 1949.\textsuperscript{55} As of 1949 it was part of the Delaware County Farm Bureau Co-Operative Association Inc. It was later closed and the property was used by a construction company.\textsuperscript{56} As of September 2008 the structure was vacant and listed for sale by the current owner.

\textbf{Muncie}

One of the first elevators documented in Muncie was the Wysor Kline & Company’s Elevator and Warehouse in 1883. It was located at the north end of Walnut on the west side of the street and north of the railroad.\textsuperscript{57} In 1885 it was owned by Wysor & Hibbits and had been renamed Muncie Roller Mills and Elevator.\textsuperscript{58} By 1887, the elevator had a capacity of 20,000 bushels.\textsuperscript{59} As of 1889, the elevator had been given the name of Wysor & Hibbit Grain Elevator.\textsuperscript{60} By 1892, the mill race north of the elevator was no longer in use and had been filled back in so that it was no longer visible.\textsuperscript{61} Up until 1902, the form of the elevator had undergone

\textsuperscript{53} Oliver, 278.
\textsuperscript{54} Haimbaugh, 407-408.
\textsuperscript{55} Telephone Directory, Muncie, Ind. (Indianapolis, IN: Indiana Bell Telephone Co., 1949), s.v. “Grain Elevators.”
\textsuperscript{56} A sign on the property contains the name “Dependable Concrete Construction” along with the address of the elevator.
\textsuperscript{58} Robert H. Vinton’s City Directory of Muncie, Indiana (Lafayette, IN: Spring, Emerson & Co., 1885-1886), s.v. “Wysor & Hibbits.”
minor changes but no major additions or alterations had been made to the structure.\textsuperscript{62} The structure was demolished sometime after 1902.

The L. Wilcoxon, Walnut Street Mill and Elevator was also in operation in 1883. It was located between Walnut Street and Mulberry Street, south of the railroad tracks and north of First Street. It had a capacity of 15,000 bushels.\textsuperscript{63} By 1887, the elevator had been sold and renamed The Higgins Muchner Company Grain Elevator. Some alterations were made to the structure making the original 3-story section into a u-shaped thirty-two foot high portion around a taller, forty-five foot portion (see Appendix D for plans).\textsuperscript{64} As of 1892 the elevator had been sold and converted to a hominy company.\textsuperscript{65} By 1902, the structure had been demolished.\textsuperscript{66}

E.P. Smith Grain Elevator & Hub & Spoke Factory was located on the southeast corner of the intersection of South Jefferson and Wall Street in 1892. It was on the

\begin{figure}[h]
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\includegraphics[width=\textwidth]{Figure_3.10}
\caption{Map of Muncie with approximate locations of demolished elevators based on information included in this chapter.}
\end{figure}

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\end{flushright}
north side of the railroad tracks. By 1896, it had been converted to the F.B. Miller Corn Warehouse and Feed Mill and no longer operated as an elevator.

The High Street Mills and Elevator complex was located between South High and South Walnut streets and south of West Victor and north of the Big Four railroad tracks. The company was in operation by 1891 and by 1896 the elevator portion of the complex had a capacity of 30,000 bushels. In 1902, the elevator had been expanded to hold a total of 40,000 bushels. The structure was demolished sometime after 1902.

An elevator known as Stafford & Murray was listed in the 1928-1929 Indiana State Gazetteer and Business Directory, but no other documentation mentions an elevator by this name. The next grain elevator did not appear until 1948 when the Delaware County Farm Bureau Co-Operative Association Inc. owned one at 210 East Centennial Avenue. In 1949 the location of this business had been changed to 901 Granville Avenue. The company remained in operation until 1991.

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69 According to the city directory it was in operation in 1891, but it is not on the 1892 Sanborn map. Emerson’s Muncie Directory, 1891-92, Business Directory, Street Directory, A Gazetteer of Delaware County (Richmond, IN: M. Cullaton & Co., Printers, 1891), s.v. “Grain Elevators.”
72 Polk’s Indiana State Gazetteer and Business Directory 1928-1929.
74 Telephone Directory, Muncie, Ind. (Indianapolis, IN: Indiana Bell Telephone Co., 1949), s.v. “Grain Elevators.”
75 Delaware County Indiana, Plat Book 1991 (Oak Brook, IL: Emmons Hart Corporation, 1990), 3.
Oakville

Oakville was platted with the name of Pleasant Hill on December 30, 1873 by John Holsinger along the railroad two miles south of Cowan. The town name was changed from Pleasant Hill to Oakville when post office authorities declined the name Pleasant Hill because it was likely to be confused with Pleasant Mills in Adams County. The first grain elevator was built in 1898 but burned down in 1912. The existing Farmer’s Elevator Co. buildings were built on the same site as the previous elevator. The first building in the current complex was built around 1919. Figure 3.10 shows one of the remaining wood framed elevators around 1958. In 1966 there are additional concrete bins that could not be seen in 1958 (see figure 3.11). By 1994 the complex had expanded to a total capacity of 3.5 million bushels. The complex was purchased by the Andersons Agriculture Group in 2004 with the intention to expand the complex. Today it is one of two elevator complexes in Delaware County still in operation.


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76 Haimbaugh, 406.
78 Ibid.
Selma

The town of Selma is located approximately five miles east of Muncie along the “Big Four” railroad. The town was officially platted on February 9, 1852 by Joseph Greenwalt and Francis M. Dowler after the survey for the railroad had been completed through that section. The first documentation of a grain elevator in Selma was in an 1887 atlas which shows the structure located south of the railroad tracks just west of Liberty Street. The Farmers Co-Operative Elevator Company was in operation by 1928 but there is no evidence to suggest a location of the structure. The elevator remained open under that name through 1941 but closed sometime before 1945. In 1949 a company called Lubwicks Grain & Coal was located in town, but there is no indication if it included a grain elevator. The existing vacant grain elevator is located east of Albany Street just south of the railroad tracks.


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80 Haimbaugh, 405.
81 Griffing, Gordan and Co., inside front cover.
82 Polk’s Indiana State Gazetteer and Business Directory 1928-1929.
83 Polk’s Muncie (Delaware County, Ind.) City Directory 1941, s.v. “Selma.”
84 Polk’s Muncie (Delaware County, Ind.) City Directory 1945 (Detroit, MI: R.L. Polk & Co., Publishers, 1945), s.v. “Selma.”
85 Telephone Directory, Muncie, Ind. (Indianapolis, IN: Indiana Bell Telephone Co., 1949), s.v. “Grain Elevators.”
Shideler

The town of Shideler was platted on December 15, 1871 by David Shideler. The town was started with the coming of the old Ft. Wayne, Muncie, and Cincinnati railroad and it served as a shipping point for the railroad. The Farmer’s Co-Operative Company was in operation by 1928. In 1949 the elevator had become part of the Delaware County Farm Bureau Co-Operative Association Inc. Sometime between 1949 and 1997 the name had been changed to Shideler Grain Company Inc. The elevator is still in operation today but it now has an Eaton address, because the town of Shideler has been annexed into Eaton.

Yorktown

Yorktown was platted on November 5, 1836 by Oliver H. Smith at the mouth of Buck Creek on the White River. The John G. Donovan & Son grain elevator was in operation during 1928. By 1931 the only elevator listed in town was the Farmers Co-Operative Company Inc. managed by Homer L. Welch. In 1941 a Yorktown Grain Corporation is listed as the only grain elevator in Yorktown. The company remained open for over 20 years, closing sometime between 1966 and 1974. Another company classified as an elevator, Bothel Sales & Services Inc. was open in 1991, but there is no mention of the company before or after that.

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86 Haimbaugh, 407.
87 Polk’s Indiana State Gazetteer and Business Directory 1928-1929.
88 Telephone Directory, Muncie, Ind. (Indianapolis, IN: Indiana Bell Telephone Co., 1949), s.v. “Grain Elevators.”
90 Haimbaugh, 401.
91 Polk’s Indiana State Gazetteer and Business Directory 1928-1929.
93 Polk’s Muncie (Delaware County, Ind.) City Directory 1941, s.v. “Yorktown.”
95 Delaware County Indiana, Plat Book 1991 (Oak Brook, IL: Emmons Hart Corporation, 1990), 3.
Summary of Elevator Construction Types in Delaware County

The majority of the grain elevators in Delaware County were wood construction, although there is often no documentation to determine if they were cribbed or studded. There are three remaining wooden elevators, one in Gaston and two in Oakville. There are also several concrete grain elevators, in Medford, Selma and Shideler, and a clay tile elevator in Cammack. Chapter 4 is a survey of these remaining elevators, along with information on their condition and current photographs.
CHAPTER 4
SURVEY OF GRAIN ELEVATORS IN DELAWARE COUNTY

The following survey was completed from May 2008 to January 2009 after conducting research on Delaware County and determining the historic locations of elevators. Using the information gathered through the research and current county maps the locations of historic elevators and also locations where elevators may have been located such as along railroad tracks were visited. Upon completion of the survey a total of seven elevators were found in six towns. The map on the following page shows the location of the remaining grain elevators. The subsequent pages contain information on each grain elevator along with current photographs and a sketch plan view with the historic portion of the structure or complex shaded gray.
Figure 4.1: Map of existing grain elevators of Delaware County.
1. CAMMACK

**Date Surveyed:** October 17\textsuperscript{th}, 2008

**Location:** north of W. Jackson St. and west of N. Cammack St.; just south of the railroad tracks

**Built:** c. 1900 based on clay tile construction

**Condition:** the elevator is in fair condition overall, one of the bins on the north side of the elevator has a large concrete patch, one of the additional bins is missing a large portion of the wall, the office portion is in good condition.

**Materials/Construction Method:** reinforced clay tile, concrete foundation and concrete patches on bins

**Current Use:** vacant

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**Figure 4.2:** Sketch plan of Cammack grain elevator, shaded area designates historic portions
Figure 4.3: Cammack elevator looking north, showing main structure, office, and additional bins. 17 October 2008.

Figure 4.4: Cammack elevator looking north, showing main structure, and additional bins. 17 October 2008.

Figure 4.5: Cammack elevator looking southeast, showing concrete patch on bin. 17 October 2008.
Figure 4.6: Detail of exposed reinforcement and missing tiles on bin. 17 October 2008.

Figure 4.7: Cammack elevator looking northeast, showing missing and damaged tiles on bin. 17 October 2008.

Figure 4.8: Detail view of clay tile used in the construction of the Cammack elevator. 17 October 2008.
2. GASTON

Date Surveyed: January 3, 2009

Location: 307 South Main Street

Built: c. 1941

Condition: structure of elevator appears to be in good condition, some sections of metal siding are missing or are not completely attached to the wood frame, and office and garage addition is in good condition

Materials/Construction Method: wood frame (studded), sheet metal siding, concrete foundation, concrete block office and garage addition

Current Use: vacant

Figure 4.9: Sketch plan of Gaston grain elevator, shaded area designates historic portions

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1 Oliver, 278.
Figure 4.10: Gaston elevator looking northwest showing main structure and concrete block addition. 3 January 2009.

Figure 4.11: Gaston elevator looking southwest showing main structure and concrete block addition. 3 January 2009.
Figure 4.12: Gaston elevator facing northeast showing missing panels on upper portion and west elevation. 3 January 2009.

Figure 4.13: Gaston elevator interior looking northeast showing frame construction and concrete foundation. 3 January 2009.
3. MEDFORD

Date Surveyed: August 17, 2008

Location: north of 500 S., east of the Cardinal Greenway

Built: pre-1949

Condition: both the elevator and the addition are in good condition, the separate office structure located on the property is also in good condition

Materials/Construction Method: slip-form concrete elevator, concrete block addition and office structure

Current Use: vacant

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Figure 4.14: Sketch plan of Medford grain elevator, shaded area designates historic portions

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2 The structure had to be constructed prior to 1949 because the elevator is listed in the 1949 telephone book. Indiana Bell Telephone Company November 1949.
Figure 4.15: Medford elevator facing northeast, showing main elevator and addition. 17 August 2008.

Figure 4.16: Medford elevator facing east, showing main elevator. 17 August 2008.

Figure 4.17: Medford elevator facing north, showing main structure, addition, and separate office building (in foreground). 17 August 2008.
Figure 4.18: Medford elevator facing southeast, showing main structure and addition. 17 August 2008.
4. OAKVILLE

Date Surveyed: January 3, 2009

Location: north of Walnut St./W. Oakville Rd., east of Trailsend Dr. and west of the railroad tracks

Built: c.1919

Condition: the elevator is in good condition overall, the windows on the upper portion have been boarded up and the glass panes on the garage door on the west elevation are broken

Materials/Construction Method: wood frame (studded), sheet metal siding

Current Use: vacant or possibly storage, located on the same site as a currently operating elevator

Figure 4.19: Sketch plan of Oakville grain elevator, shaded area designates historic portions

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3 Penticuff, “Oakville life centers on elevator.”
Figure 4.20: Oakville elevator facing southeast, showing boarded up windows on elevator. 3 January 2009.

Figure 4.21: Oakville elevator facing northwest. 3 January 2009.

Figure 4.22: Oakville elevator facing northeast, showing garage door. 3 January 2009.
Figure 4.23: Oakville elevator facing southeast, detail of broken windows of west elevation garage door. 3 January 2009.
5. OAKVILLE

**Date Surveyed:** January 3, 2009

**Location:** north of Walnut St./W. Oakville Rd., east of Trailsend Dr. and west of the railroad tracks

**Built:** post-1919

**Condition:** the elevator is in good condition overall, upper windows are boarded up

**Materials/Construction Method:** wood frame (studded), sheet metal siding

**Current Use:** elevator portion does not appear to be in use but the structure may still be used for bins, located on the same site as a currently operating elevator

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Figure 4.24: Sketch plan of Oakville grain elevator, shaded area designates historic portions

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4 Penticuff, “Oakville life centers on elevator.”
Figure 4.25: Oakville elevator facing northwest. 3 January 2009.

Figure 4.26: Oakville elevator facing northeast. 3 January 2009.
Figure 4.27: Oakville elevator facing southeast. 3 January 2009.

Figure 4.28: Oakville elevator facing northwest. 3 January 2009.
6. SELMA

**Date Surveyed:** October 17, 2008

**Location:** east of Albany St. just south of the railroad tracks

**Built:** c. 1928

**Condition:** the elevator and the additions are in good condition

**Materials/Construction Method:** slip-form concrete elevator, concrete block additions

**Current Use:** vacant

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![Figure 4.29](image)

**Figure 4.29:** Sketch plan of Selma grain elevator, shaded area designates historic portions

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5 *Polk’s Indiana State Gazetteer and Business Directory 1928-1929.*
Figure 4.30: Selma elevator facing southeast showing elevator and additions. 17 October 2008.

Figure 4.31: Selma elevator facing northeast showing elevator and additions. 17 October 2008.
Figure 4.32: Selma elevator facing west showing elevator and door for drive-through loading area. 17 October 2008.

Figure 4.33: Selma elevator facing east, showing remaining scale just west of the drive-through doors. 17 October 2008.
7. SHIDELER

**Date Surveyed:** October 17, 2008

**Location:** 2330 E. Ashcroft St., Eaton, IN

**Built:** pre-1928\(^6\)

**Condition:** the elevator and additional bins are in excellent condition

**Materials/Construction Method:** slip-form concrete, additional bins are concrete and steel

**Current Use:** still in use and is just one portion of a much larger grain elevator complex

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\(^6\) *Polk’s Indiana State Gazetteer and Business Directory 1928-1929.*
Figure 4.35: Shideler elevator facing northeast showing elevator, office, and additional bins. 17 October 2008.

Figure 4.36: Shideler elevator facing northwest. 17 October 2008.

Figure 4.37: Shideler elevator facing southeast, showing connection to additional bins. 17 October 2008.
Figure 4.38: Shideler elevator facing southwest. 17 October 2008.
Rehabilitation, as defined by the National Park Service, is “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.”¹

The utilitarian form of grain elevators results in issues with rehabilitating the structures for other uses. However, the unique shape can create interesting solutions and interior spaces that you cannot find anywhere else. In the past ten to fifteen years, the public has began to understand the potential of reusing grain elevators throughout the United States.

When considering the rehabilitation of historic structures, it is important to keep as much of the structure intact as possible. In order to accomplish this, *The Secretary of the Interior’s Standards for the Treatment of Historic Properties* published by the National Park Service should be consulted.

**The Secretary of the Interior’s Standards for the Treatment of Historic Properties**

This document is published to “establish professional standards and provide advice on the preservation and protection of all cultural resources listed in or eligible for

listing in the National Register of Historic Places.”

The standards are “only regulatory for projects receiving federal grant-in-aid funds; otherwise, the Standards and Guidelines are intended only as general guidance for work on any historic building.” According to the National Park Service, there are ten basic standards for the rehabilitation of a historic property:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of the property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of the deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential

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2 Weeks, inside front cover.
3 Ibid.
form and integrity of the historic property and its environment would be unimpaired.  

In addition to these standards, there are also specific guidelines included in *The Secretary of the Interior’s Standards*. These guidelines are divided into different categories including: site, exterior, interior and new additions. Each category is then divided into “recommended” and “not recommended” methods for rehabilitating a historic property. While most of the basic standards above are important to consider and follow, some exceptions need to be made to the specific guidelines when applied to grain elevator rehabilitation.

The following examples of rehabilitations will be described and then evaluated based on the standards listed above. The examples include not only grain elevators, but also historic mills because they pose similar rehabilitation problems and the functions could possibly be adapted for use in grain elevators. The ten examples consist of seven concrete structures, one wooden cribbed structure, one brick structure and one steel and brick structure. This suggests that concrete grain elevators may lend themselves better to rehabilitation than other construction type. Not all of the standards will be relevant to each property, but the ones that are will be discussed; also, specific guidelines will be addressed when appropriate.

**Bozeman, Montana – Private Home**

Mr. Mannisto and Ms. Baumler purchased their grain elevator in 1993 for ten thousand dollars. In the course of seven years, they have turned the building from an abandoned elevator into their dream home. The 1914 elevator is a 70-foot-tall cribbed

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4 Weeks, 62.
structure with a headhouse and 13 bins and had a capacity of 28,000 bushels of grain. The completed house has six floors with bins set aside for an elevator, the plumbing and other infrastructure. Where it was possible, they left the stacked lumber walls exposed; in some areas the grain had left a beautiful effect on the wood from bouncing off it “as when a sandstone wall is carved into unusual swirled shapes by wind and water.”\(^5\) The first and second floors have not been remodeled yet, but the first floor will eventually be turned into a Victorian game room. The third floor contains the kitchen and dining room, while the fourth floor has a master bedroom and guest room. The next floor is a library and the top floor, which is located in the old headhouse, contains a small reading room.\(^6\)

The alterations that Mr. Mannisto and Ms. Baumler made to their elevator were appropriate according to *The Secretary of the Interior’s Standards*. They maintained the historic character of the property while making the necessary changes to the interior to accommodate the living spaces. Based on an image of the structure it appears that they added windows to at least one, maybe two, elevations of the structure (see figure 5.1). This does not follow the standards, but was a necessary alteration to make the structure

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\(^6\) *Ibid.*
into a home. They also preserved the interior cribbed wood walls, maintaining the historic character, despite the alterations made to the layout of the interior space. Overall, their rehabilitation of the structure to a home is an excellent example of how to convert the unique form of a country elevator.

**Bloomington, Illinois – Rock Climbing Gym**

Chris and Pam Schmick, owners of Upper Limits climbing gym, came across the abandoned grain elevator in Bloomington, Illinois when they were looking to relocate to a larger location. They purchased the elevator in early 1995 and began the rehabilitation immediately. Before the rehabilitation, the elevator had been vacant for ten to fifteen years. Chris spent three months cleaning rotten soybeans and scraping steel out of the grain bins. After all the bins had been cleaned out, another three months were spent constructing walls and drilling thousands of holes in the concrete to install the climbing equipment. The gym held its grand opening on September 2, 1995, less than a year after the Schmicks purchased the property.⁷

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The completed gym has a total of over 20,000 square feet of climbing surfaces. The portions of the gym that have been constructed within the grain elevator include: a massive multi-level bouldering cave and training area, a 30-foot high main training area, and three round and two interstitial bins (the area between the round bins) that are 65-foot tall. Also, climbers can rappel 120 feet from the top of the structure to the ground. Other functions added during the rehabilitation were showers, a lounge, restrooms, and a world-class pro shop. Since the opening of the gym, it has been featured in numerous magazines and has been rated the number one climbing gym in the world by the Discovery Channel and the Travel Channel.

The rehabilitation of the concrete grain elevator into the Upper Limits climbing gym complies with The Secretary of the Interior’s Standards. The conversion required very few alterations to the structure and the alterations that did take place were minor and reversible. The main alterations took place in the headhouse with the addition of walls to create different climbing courses. The result is an excellent example of how to reuse the massive interior spaces within a grain elevator without completely altering the character of the structure.

Akron, Ohio – Hotel

A grain elevator located on the University of Akron campus has been converted into a hotel called Quaker Square Inn. The complex is made up of numerous grain bins, which originally held 1.5 million bushels of grain. The rehabilitated structure includes 91 guest rooms, which are all located in the grain bins, resulting in their unique circular plan.

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9 “The History of Upper Limits, Inc.”
The hotel also includes the typical amenities such as an indoor pool and banquet facilities.\textsuperscript{10}

When considering \textit{The Secretary of the Interior’s Standards} for the rehabilitation of the structure, there are a few guidelines that were not followed directly, but overall the building retains the historic character of a grain elevator. One guideline that was not followed states that “applying paint or other coatings such as stucco to masonry that has been historically unpainted or uncoated to create a new appearance” is not recommended.\textsuperscript{11} The hotel has decorative painting on the upper portions of the grain bins that would not have been present during the structure’s industrial use; while this goes against the guidelines, it is reversible and therefore complies with the main standards.

Another guideline that was not followed was the recommendation that additional windows should be designed and

\begin{figure}[h]
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\end{figure}

\textsuperscript{11} Weeks, 67.
installed on rear or other non-character-defining elevations if they are required by the new use.\textsuperscript{12} The conversion to a hotel required the windows to be installed on a major, character defining elevation. While this goes against the guidelines, it was an appropriate solution. The original grain bins are now hotel rooms that need natural light and ventilation. The windows have been placed so that they do not destroy the character of the building and in a way they actually seem to emphasize the height of the structure.

The final guidelines that were not followed refer to alterations on the interior of structures. They state that the following are not recommended: “radically changing a floor plan or interior spaces—including individual rooms—which are important in defining the overall historic character of the building so that, as a result, the character is diminished” or “altering or destroying interior spaces by inserting floors, cutting through floors, lowering ceilings, or adding or removing walls.”\textsuperscript{13} These guidelines would be difficult to follow when rehabilitating a large grain elevator for any alternative use. Most uses would require the addition of floors within the large grain bins, and also removing portions of bins to create interior passages. The design of Quaker Square Inn maintains the feeling of being inside a grain elevator while effectively updating the space for a modern use. While the building owners removed some of the interior walls and added floors, they kept the rounded walls throughout the building so it maintains the presence of the historic grain bins.

\begin{footnotes}
\item[12] Weeks, 83.
\item[13] Weeks, 94.
\end{footnotes}
Minneapolis, Minnesota – Mixed-Income Housing

The Bunge grain elevator site in Minneapolis is being converted into mixed-income housing by two not-for-profit organizations that provide supportive housing and social services, People for Pride in Living (PPL) and Cabrini House. The three-acre triangular site is “known for its most visible feature: the 200-foot white Bunge Tower that sits directly west of Van Cleve Park.”14 The plans for the rehabilitation of the site include demolishing the grain bins, while the tower may be “incorporated into a mix of affordable housing and market-rate condominiums.”15

The finished complex is suppose to consist of five different buildings: two will provide 85 rental units for families, one will provide 5 townhomes for Habitat for Humanity, another will contain 7 additional townhomes for low-income housing, and the final building is planned to be the current Bunge tower rehabilitated into 139 market-rate condominiums. However, according to Chris Wilson, real estate development director for PPL, “it’s not 100 percent sure that it’s [the tower] going to stay up.”16 One main concern was the limited parking space available on site, which is being addressed by including underground parking. Work on the site began in March of 2007 and is

15 Ibid.
16 Ibid.
expected to take four to five years to complete. Wilson stated before work began, “that if all goes well, the first building may be ready for occupancy by summer 2008.”\(^{17}\)

The project does not conform to *The Secretary of the Interior’s Standards* because the organizations are tearing down all of the grain bins and possibly tearing down the headhouse. Even if they decide to rehabilitate the headhouse, the loss of all of the grain bins destroys the historic context of the remaining structure. While the reason behind saving the headhouse is valid, it seems that if the rest of the complex is destroyed, this single structure will have lost its historic context and seem like a random tower in the middle of a mid-rise residential development.

**Minneapolis, Minnesota – Possible Condominiums/office space/event facilities**

The Washburn Grain Elevator was built in 1906 and is currently owned by the Minnesota Historical Society, who also owns the adjacent Mill City Museum.\(^{18}\) They have been exploring possible reuse functions for the massive structure located along the West River Parkway. The complex is made up of the original structure, which includes 15 concrete bins that are 120 feet tall with a 95-foot-high headhouse that steps down from five stories to three with a total floor area of 1,750 square feet and a smaller elevator with 15 additional bins constructed in 1928 between the original elevator and the adjacent mill. The bins have diameters of either 13’9” or 18’0” and were built as closed containers, making it difficult to connect them for traditional reuses.\(^{19}\)

\(^{17}\) Lincoln, “Bunge Tower Redevelopment to Begin This Month.”


The historical society decided to require a high level of preservation principles when they began the reuse study. The preservation principles requires that the exterior shell be kept as original as possible including that “no window openings would be cut into the unbroken curved surfaces of the bin shafts, and no entrances providing access would penetrate public view sides facing West River Parkway and the Chicago Avenue plaza.”

The historical society hired several design firms to conduct reuse studies.

The concepts produced by the firms range from condominiums to office spaces to event facilities. One unique feature that has been considered to set the condominiums apart would be putting a car lift in a grain bin to allow residents to park outside their loft doors. While many of the options focus mainly on the reuse of the headhouse and ignores the possibility of the reusing the bins, some specific potential uses have been discussed for the cylinders. One concept was the use of the bins for storage of coolant water for possible district air conditioning in the future. Another concept is a “series of aural chambers in which avant garde music could be enhanced by empty space giving sonic reverberation to sounds induced into the shafts.”

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20 Roscoe.
21 Steller.
22 Roscoe.
complex in its current condition as an interpretive center for the adjacent Mill City Museum.

While the historical society has many different options to consider, their main focus at this time is stabilizing the exterior concrete surfaces. John Crippen, director of the Minneapolis Historical Society, said while the organization is interested in reuse, they would also “be happy to have the elevator simply hold up the Gold Medal Flour sign for another decade.”23 While the final solution for the elevator has not been determined, the reuse studies could help other organizations determine uses for their grain elevators.

Although no work has been completed on the structure, The Secretary of the Interior’s Standards can be applied to the potential rehabilitation uses that are being considered. The concept of converting the elevator into condominiums or office space would require installing windows and circulation; however, as stated above, these functions would likely be located in the headhouse, which currently has windows and would not have to be significantly altered to accommodate the functions. The other possible functions such as storage or an interpretive center for the museum would require little to no alterations and would satisfy the standards for rehabilitation.

**Minneapolis, Minnesota – Office Building**

The Ceresota grain elevator located in the historic West Side Milling District was built in 1908. The building is listed on the National Register of Historic Places as a part of the St. Anthony Falls Historic District,24 which resulted in a need to minimize the number of alterations made to the exterior of the structure during rehabilitation. The

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23 Steller.
problem that confronted the designers was the lack of windows in the large brick box that surrounded the location of the original bins.

City-Side Development of Minneapolis decided that they wanted to convert the structure into a modern office building with a total of over 100,000 square feet of rental space. They in turn hired Ellerbe Becket, Inc. to design a solution to the lack of natural light within the space. The result was an atrium space with a six-story wall of mirrors to reflect light back into the space. Before installing the mirrored wall, they first had to redesign the interior of the structure. Originally, the space was filled with steel bins and the exterior brick walls were merely a box around them. Once the bins were removed, a steel frame took their place and mimicked the bins original shape within the space. When the frame was completed, the entire north wall of the atrium was covered in mirrored panels tied together with stainless steel connectors, which not only brightens the space but also creates a focal point. The result is an atrium that accentuates the massiveness of
the interior space while respecting the historic structure. “The mirror wall makes the atrium seem twice its real size, an illusion abetted by the careful placement of a semicircular fountain at floor level. The fountain, set within a curving wall of Norwegian granite, appears circular when seen from most vantage points, providing the space with a strong focus.”

The developers decided to follow The Secretary of the Interior’s Standards closely when rehabilitating the exterior Ceresota elevator because it is part of a National Register of Historic Places district. However, the developers did not strictly follow the guidelines for the interior rehabilitation because they completely removed the original bins from the brick shell. According to the guidelines, “removing or radically changing features and finishes which are important in defining the overall historic character of the building so that, as a result, the character is diminished” is not recommended. Although they did remove all the bins, the new structural system was designed to recreate the pattern of the bins within the space and allow for the rehabilitation into a functional office building. One unique feature of this rehabilitation that does conform to the guidelines and could be applied in other grain elevator rehabilitations is the introduction of an atrium space to bring light into the space. This solution eliminates the need to cut windows into the exterior surfaces that were historically solid walls.

**Springfield, Missouri – Center for Nanotechnology**

The Jordan Valley Innovation Center of Missouri State University is located in the former 1930s Missouri Farm Association feed mill and elevator complex. The

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26 Weeks, 94.
complex is located on a main thoroughfare between the historic Mid-town and the popular downtown and consists of an eight-story building with several metal silos, eight of which are across the street from the main structure. Fred Marty, the university’s associate vice-president of administration services, said that “with all the work involved, carving a research facility out of an old mill will cost about as much as new construction would . . . still, he is glad to reuse the old structure because of its iconic value to the city.”

The city used HUD funding to purchase the complex in 2003, then sold it to the university, minus the eight silos across the street, for one dollar. The university then used money from the Department of Defense, who invested funds to create an innovative research center, to complete the rehabilitation of the structure. The completed facility houses university functions on the first four floors, with the rest of the structure designed as rental space for private firms. The aim of the Center is to “research applications of biomaterials, nanotechnology and other advanced technologies, genomics, and biomedical instrument development.”

28 Ibid., 22.
each, they are not practical for conversion into lofts or hotel rooms, so at this time the university plans to take the conveyors away and simply paint and preserve the silos.

The project follows *The Secretary of the Interior’s Standards* for the exterior requirements; however, the interior had to be changed significantly to meet the requirements for the new use. No specific details could be found regarding the changes that were made on the interior; therefore it was difficult to evaluate the rehabilitation in depth. The solution they have currently reached for the silos may not follow the guidelines depending on the color of paint applied and if they were painted historically. According to the standards, “radically changing the type of finish or its historic color or accent scheme” or “using new colors that are inappropriate to the historic building or district” are not recommended.29

**Buffalo, New York – Storage for an Ethanol Plant**

RiverWright LLC is in the process of developing a 180 million dollar ethanol plant in the Old First Ward. The idea of rehabilitating the area was driven by an overburden taking place at Midwestern storage sites due to record high production and price levels. RiverWright decided to locate the ethanol plant in Buffalo because of the potential to reuse the existing infrastructure, including the grain elevators and access to the river and railroads. Rick Smith III and Kevin Townsell, co-founders of RiverWright, “acquired four then defunct elevators of Childs Street along the Buffalo River in 2005”

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29 Weeks, 75-76.
and founded the investment group for the purpose of developing the site for ethanol production.  

The first step for the group was restoring the Lake & Rail elevator that had been closed since August of 2001. The elevator reopened for grain storage in October of 2007 and brought in one million bushels of feed corn by rail, which is now being shipped to Medina, New York to supply the new WNY Biofuels ethanol plant. RiverWright sold the Lake & Rail elevator to a Minneapolis-based investment group sometime in June of 2008.  

Although the group sold the restored elevator, they are continuing with their plans of opening an ethanol plant in the historic Ward. They planned on breaking ground on the plant section in late 2008 with the goal of beginning to produce ethanol in mid-2010. The plant will purchase “40 million bushels of corn from farmers in upstate New York, Pennsylvania, the Midwest and Canada and sell 110 million gallons of ethanol to supply regional gas blenders who want to distribute E10 gasoline.”  

As part of the complex the

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31 Ibid.

32 Ibid.
group plans on “restoring the facility’s grain storage capacity preserving the magnificent concrete silos for re-use in partnership with the grain industry.”

This rehabilitation follows *The Secretary of the Interior’s Standards* because it is essentially using the structure for its original function. Although the purpose is now to store grain for ethanol production, rather than shipping the grain across the country and to international markets, it has required little to no alterations to the structure. Most of the work was restoration rather than rehabilitation, but the concept of using a once abandoned elevator for the base of a new ethanol plant rather than building a whole new complex is a solution worth considering.

**Sacramento, California – Loft Apartments**

The c.1914 Globe Mills complex is located in an industrial neighborhood of downtown Sacramento. The property was abandoned from 1970 to 1990 when the city took over the property due to back taxes. The city saw the property as “historically significant and a potential anchor that could spur investment on surrounding blocks.” Because of this, they completed an environmental clean-up of the site and worked with both community and preservation groups to prepare a rehabilitation plan. Once the city had established a plan they, began to look for developer interest. In 2004, they selected GMA Investors to rehabilitate the property.

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33 West Coast Perspective, “Everything Old is New Again.”
According to Michael F. Malinowski, the project architect, an important aspect of the rehabilitation was the public/private partnership; the different goals of each group were important in the overall result of the project. The public goals included:

- revitalization of a blighted property,
- providing a jump-start to the economic transition of an industrial part of the city near the downtown to uses more appropriate given the central location,
- spurring additional development in the neighborhood, and
- creat[ing] attractive, safe and comfortable housing for a mix of people from different age and economic backgrounds.36

The private goals included creating a project “that would be financially viable, would be attractive and manageable, and that would make a positive contribution to the community in saving important historic resources.”37

A main source of financing was federal affordable housing tax credits. Other sources included a Housing and Urban Development (HUD) grant for brownfield redevelopment, local tax increment and housing funds, and private equity including bank loans. The completed project includes 114 senior housing units in a new five-story building on the property, 31 loft apartments in the historic mill buildings, and 5,000

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37 Ibid.
square feet of retail space. The silos are a signature component of the design. The complex held its grand opening on October 1\textsuperscript{st}, 2008 and by October 22\textsuperscript{nd} it was already seventy-five percent occupied.\footnote{West Coast Perspective, “Update – Grain Elevator Reuse in Sacramento.”}

*The Secretary of the Interior’s Standards* were followed appropriately for the development of this project. Because federal HUD funds were used on the project, and the mill buildings were eligible for the National Register of Historic Places, the development was required to follow the standards for rehabilitation. The historic character of the complex was maintained on the exterior of the structures while successfully rehabilitating the interior. Overall, this project is an excellent example of how to rehabilitate historic industrial buildings.

**Portland, Oregon – Mixed-use: retail, restaurants, entertainment**

Centennial Mill is a complex of twelve buildings, built between 1910 and 1940, that were once used as a flour mill. The buildings are located on a five-acre site on the northern edge of the Pearl District along the Willamette River. The Pearl District is “Portland’s most dynamic neighborhood experiencing a boom in residential, office and retail construction.”\footnote{West Coast Perspective, “Grain Elevator Reuse – Portland Style,” Buffalo Rising, 24 May 2008, http://www.buffalorising.com/entries/print_article/grain_elevator_reuse_portland.html (accessed July 24, 2009).} The city took possession of the property in 2000 and originally intended to demolish a large portion of the complex. A study commissioned by the city recommended demolition of most of the structures “due to their condition, the high costs of rehabilitation, and a longstanding goal to create a park on the riverfront.”\footnote{Ibid.}
Despite the original push towards demolition, the city has since decided to rehabilitate the site. The city set up five key principles to guide the redevelopment of the site: “provide open space, capture history, define a community focal point, strengthen connections, and embrace sustainability.”\textsuperscript{41} The city selected Lab Holding, LLC from Costa Mesa, California to redevelop the site. The group’s proposal has a working title of SEED and is focused around food:

SEED is envisioned as a regional recreation and social amenity that combines culinary elements from urban public markets with elements that encourage and enable healthy and sustainable living. The historic industrial buildings of Centennial Mills will be turned into a mix of restaurants, market stalls, retail and office space, a culinary school, and galleries.\textsuperscript{42}

The use of public spaces is intended to encourage the community to take personal ownership of the riverfront. The project also seeks to “educate residents in sustainability, organic living and the culinary arts.”\textsuperscript{43} To incorporate sustainability into the physical environment, the project will include bio-filtration systems, green roofs, and native plants.

\textsuperscript{41} West Coast Perspective, “Grain Elevator Reuse – Portland Style.”

\textsuperscript{42} Ibid.

\textsuperscript{43} Ibid.
The project is still under construction, so it is difficult to apply *The Secretary of the Interior’s Standards*. However, based on the current plans for the project, it seems that the focus is on preserving the historic character of the exterior. The interiors of the buildings will have to be altered extensively to accommodate the proposed uses. Also, the construction of green roofs will probably require additional structural support within the buildings, which may or may not follow the standards depending on how the additional support is added to the structure.
The previous chapters not only provide information necessary to establish the significance of grain elevators, but also possibilities for the rehabilitation of the ones that are no longer in operation. The impact that grain elevators have had on the small towns of Delaware County and the role that they have played in the history of the area makes it important to save the structures. Two of the seven grain elevators that remain in the county are still in use and function more like subterminal elevators today than the small country elevators they once were. The other five elevators are either vacant or used for storage. These structures include two concrete, two wooden, and one clay tile elevator.

The case studies discussed in Chapter Five demonstrate that it is possible to use grain elevators for functions other than storage. Based on the case studies it seems that concrete elevators may be the most suitable for rehabilitation. However, there are also case studies of successful examples of wooden and brick elevator rehabilitations. While the majority of the case studies are of larger, urban elevators, many of the techniques used to create functional spaces within the structures could be applied to the smaller country elevators. One of the most important concepts is the creation of an atrium that limits the need to cut windows into the typically solid walls. The design of the atrium in the Ceresota office building could be easily be adapted to a smaller, country elevator. If it is necessary to cut windows into the elevator, then the Quaker Square Inn is a good
example of how to install windows while maintaining the verticality and overall character of the structure.

Several of the Delaware County elevators that are no longer in use have the potential to be rehabilitated and once again serve the communities in which they are located. Based on the case studies, it would seem that the concrete elevators would be the most likely choice for rehabilitation. The concrete elevator located in Selma consists of four main circular bins with an attached drive-through loading area and warehouse space. Because of the size and layout of this structure, it is likely that it could be rehabilitated to accommodate a variety of possible functions including a private home, several apartments, a small office building, a small retail store, or even a local restaurant.

The Medford elevator, which consists of two round concrete bins with a concrete block addition that includes a drive-through loading area, would be a good location for a rest stop for the nearby Cardinal Greenway. The Cardinal Greenway is part of the rails to trails movement in Indiana and has a trailhead with a parking area adjacent to the vacant grain elevator. Currently there are no permanent facilities, such as restrooms or drinking fountains, at the greenway site. The elevator complex could be rehabilitated to provide restrooms, possibly even including showers, and a small café or even just vending machines or water fountains for the patrons of the greenway. Also the bins and elevator might be able to be converted into an overlook tower for the surrounding rural landscape, which would also provide a view of the nearby Prairie Creek Reservoir.

The two remaining wooden elevators in the county also have a lot of potential for rehabilitation. The Gaston Grain Elevator has a large open interior that would make it appropriate for a variety of rehabilitation uses. A few options for this elevator might be a
restaurant, a private home, several small apartments, or a small business. Because of the orientation of this elevator, with only two sides facing minor streets and the others facing a small wooded area, it would be possible to add windows to the structure on the non-street facades and still maintain the appearance of an elevator on the street facades.

The wooden elevator in Oakville that appears to be either vacant or used for storage could be rehabilitated into offices for the workers of the current elevator that is located on the same site. There is an existing drive-through garage near the south end of the structure that might be able to be rehabilitated into a maintenance garage for vehicles owned by the company. The remaining portion of the facility could be adapted as restrooms, offices, and a break room for the workers.

The Cammack elevator is the only clay tile elevator in Delaware County. Clay tile construction is often structurally unstable; any rehabilitation use would probably require substantial reinforcement, so the best solution for this elevator may be preservation rather than rehabilitation. Preservation would mean that the structure would be maintained to keep it stable and in its current condition. A portion of the structure has been used as a workshop in the past, so it might be possible to rehabilitate only the office portion of the structure and preserve the bins.

Overall the five non-operational grain elevators that remain in Delaware County have great potential to be rehabilitated and serve their communities for many more years to come. The main issue when considering rehabilitation is often the economic feasibility of the project. While rehabilitating grain elevators might cost more than traditional buildings because of the number of alterations needed, it provides an option to save the elevator and make it functional at the same time. When the research was being
completed on the case studies there was very little information on overall costs of the rehabilitation projects. Because of the lack of information it is difficult to determine if it would be feasible to rehabilitate the Delaware County elevators, but it is important to acknowledge rehabilitation as an option. The elevators would need to be evaluated on a case by case basis with the plans for rehabilitation to truly determine if it would be feasible.

Even if it is not possible to rehabilitate the grain elevators in Delaware County, it is still important to save them. Since the first elevator was built in the county there have been over twenty different elevator structures and only seven remain. The grain elevators have played such an important role in the history of the county that it is essential that something is done to save the remaining elevators before they also disappear. Hopefully this thesis has provided the necessary information to save these endangered structures that are so important to the county’s history.
BIBLIOGRAPHY

Books


Periodicals


Other Sources


*Delaware County Indiana Official Farm Plat Book and Directory*. Madison, WI: County Plat and Directory Co., Inc., [1958?].


Eaton chapters of Delta Theta Tau and Psi Iota Xi national sororities. “Gaslight Memories: A History of Eaton’s First Hundred Years.” 1954. Local History and Genealogy Center, Muncie Public Library, Muncie, Indiana.


Figure A.1: Map of Albany showing an elevator north of the railroad tracks and just east of Plum Street. Source: Griffing, Gordan and Co., An Atlas of Delaware County Indiana (1887; repr., Knightstown, IN: Mayhill Publication, 1971), inside back cover.
Figure A.2: Map of DeSoto showing an elevator north of the railroad tracks and just west of Market Street. Source: Griffing, Gordan and Co., An Atlas of Delaware County Indiana (1887; repr., Knightstown, IN: Mayhill Publication, 1971), inside front cover.
Figure A.3: Map of Eaton showing an elevator east of the railroad tracks and just north of Greenville Gravel Road. Source: Griffing, Gordan and Co., *An Atlas of Delaware County Indiana* (1887; repr., Knightstown, IN: Mayhill Publication, 1971), back cover.
Figure A.4: Map of Selma showing an elevator south of the railroad tracks and just west of Liberty Street. Source: Griffing, Gordan and Co., An Atlas of Delaware County Indiana (1887; repr., Knightstown, IN: Mayhill Publication, 1971), inside front cover.
Figure C.1: 1900 map of Eaton showing an elevator east of the railroad tracks and just north of Indiana Avenue.

Figure D.9: 1889 map showing The Higgins Muchner Co. Grain Elevator. 
Figure D.14: 1896 map showing the F.B. Miller Corn Warehouse & Feed Mill  