Midway Barn: A Visualization Plan in Support of Reprogramming and Interpretation

Xiaoran Zhang

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Abstract
A Historic Structure Report (HSR) usually provides documentary, graphic, and physical information about a property's history and existing condition. It is recognized as an effective part of preservation planning. A heavily text-based HSR is often not processed to a level where it can serve for various kinds of uses. This research updates the detailed chronology of the development of Midway Barn from that presented in the 1994 Historic Structure Report by visualizing the evolution through analysis of primary and secondary sources such as field documentation, historic photos and drawings. The modeling software SketchUp was used to visualize the Barn and its surrounding environment. The model consists of three levels corresponding to the degrees of certainty underlying each layer. A "Level of Certainty" (LOC) concept was developed to clarify the certainty of information embedded in each layer of the model. In addition, the 2nd chapter provides a context research for agriculture tourism, both natural and cultural landscape. The Otter Creek Organic Farm (OCOF) provided a general agritourism plan for Taliesin in 2012. This thesis offers a refinement of Taliesin Preservation Inc (TPI)'s program concepts, informed to a degree by the experience learnt from other agri-tourism sites around the U.S. The last chapter clarifies and modifies the program opportunities, following the Foundation's zoning and priority of the rehabilitation of each area.

Keywords
Historic building, visualization, level of certainty, agricultural tourism, barn for the future

Disciplines
Historic Preservation and Conservation
MIDWAY BARN: A VISUALIZATION PLAN IN SUPPORT OF
REPROGRAMMING AND INTERPRETATION

Xiaoran Zhang

A THESIS

In

Historic Preservation

Presented to the Faculties of the University of Pennsylvania in
Partial Fulfillment of the Requirements of the Degree of

MASTER OF SCIENCE IN HISTORIC PRESERVATION

2021

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AKNOWLEDGEMENTS

I would like to first thank my thesis advisor, David Hollenberg, for his huge support and help in providing suggestions and guidance for this thesis. Thank you for helping me building confidence in not only the thesis but also myself.

I would also like to thank my “secondary” thesis advisor, John Hinchman, for his huge support in providing technical support in digital modelling and delivery programs. Thank you for devoting your time to help me to achieve those experimental and innovative ideas.

I would like to thank the entire historic preservation faculty and staff in the Stuart Weitzman School of Design of the University of Pennsylvania for two years of studying that strengthened my determination to be a preservationist. I wish this pandemic will come to an end and the school will soon resume the routine daily lives.

I would also like to thank the entire Frank Lloyd Wright Foundation and Taliesin Preservation Inc, Otter Creek Organic Farm fellows and staff. In particular I would like to thank Ryan Hewson, Director of Preservation, Frank Lloyd Wright Foundation, for providing this great opportunity to study from a legendary architect and help in sharing information and patiently answering my many and varied questions. Although this pandemic period has caused many challenges for tourism, I wish this thesis and its deliverables can help visitors to know the site virtually, that the Foundation could recover from these critical challenges as soon as possible.

I would like to specially thank all my friends in the historic preservation program, and my roomies and my old friends back in my hometown for both academic and emotional support. Without their help, I could not have gotten through the pandemic period. Although due to the challenging situation of COVID-19, we have not had many opportunities to meet in person, I sincerely wish you all the happiness and bright future.

Last but not least, I would like to thank my beloved parents who are far way from me but still sent their love every day and always believe in me.
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INTRODUCTION

This research proposes to document the broad outlines of the physical evolution of the Midway Barns complex at Taliesin through digital visualization methods, as a critical component of the development of a preservation design scheme for a proposed program of preservation and reuse by the Frank Lloyd Wright Foundation. Contextual research on agricultural tourism is included, to help guide the schematic design for reuse. Based on the information that already exists in the 1994 Historic Structure Report¹, its existing drawings will be updated, augmenting its heavily text-based narrative with a graphic complement to depict the history of the Barns complex. The update of the 1994 HSR incorporates the field documentation including measurements and photogrammetry by the author and Penn colleagues at the site in July 2020.

The development of Midway Barns, as presented in the HSR, is divided into four phases, summarized in Chapter 1. Wright’s construction is generally believed to have started in 1938, with significant additions to the existing structures made between 1944 and 1948, and then in 1952. The HSR then recorded later alterations up to 1983, and afterwards.

This research updates the visualization of the detailed chronology of the development and construction of the Barn complex through analysis of primary sources such as construction drawings. The visualization consists of diagrams, drawings (section, elevation, axonometric) and a 3D model, using imaging software unavailable when the HSR was completed. This will provide the necessary visual formats to analyze and accommodate the

recommended reuse programming in Chapter 4.

For the reuse of the Barn complex, responding to the FLWF’s proposed program, the visualization will provide a foundation for a reprogramming, informed by the significance, integrity, and condition of the Barn complex. This research will clarify the program opportunities, follow the Foundation’s zoning and priority of the rehabilitation of each area.
Chapter 1 Visualization of the site evolution

1.1 Methodology

The site data collection and visualization are based on a systematic methodology resulting in a multiple-layer data system with different priorities of current material information presented in 3D models, using SketchUp software for the modelling. The methodology for the visualization model integrates complex data from various data sources into multiple historic layers drawn from historic archives and onsite documentation.

The stated methodology consists of four main steps: analysis of available data sources, data acquisition, data integration and information uses. These layers are in turn combined into SketchUp groups that illustrate the broad phases of construction. HSR and field measurements by the author are used to build the first level of model, composed of information such as landscape, history, agricultural development to form the model’s base. Then, for the second level, identified visual gaps are filled in through acquisition of data such as historic photographs, images (e.g., early maps, FLW’s hand-drawings), survey plans from prior consultant(s)). The third level of the model integrates the above information to generate the comprehensive model, anticipating its use by site managers and designers, as well as for interpreting Midway physical evolution to the public. The current terrain will be used for each phase given the lack of information for historic topography. Apart from the graphic interpretations, text description and an interactive 3D model will help serve for visitors.
SketchUp, as a 3D modeling computer program for a wide range of applications and user skills, was chosen for universal use and ease of management. The likely audiences for visualization include the site managers, design professionals and visitors partaking of the Barn’s reuse for public interpretation and education.

1.2 Evolution of Midway Barn

The 1994 HSR divides the evolution of Midway Barn into four phases from 1938 to “post 1983”, though it acknowledges that the earliest documentation of buildings on the site of Midway dates to the early 1920s. The author has refined the HSR chronology, as illustrated in the side-by-side table in Appendix A, as further explained below. The following phases are as defined by the author, based on but modifying the phases identified in the HSR. The Barn’s components as described throughout this thesis are identified in the plan and elevations in Figure 9, at the end of this chapter. (See pages 19-21)

Phase 0. 1918-1938. A Taliesin Plot plan of farm, dated November 8th, 1920, shows a pre-existing building complex on site of Midway (Figure 1). The map recorded the area of the farm as being about 182 acres. According to the Taliesin Historic Landscape Report, Wright’s grandfather Richard Lloyd Jones had acquired the land in 1863. Then John Lloyd Jones, Wright’s uncle, obtained the property, developed the mill near Lowery Creek and built a house to the southwest of it. Jane Porter, Wright’s sister, and her husband Andrew then purchased the property on May 31st in 1909, subsequently acquiring the land on which

---

2 1924-1925 Photo taken by Nobu and Kameki Tsuchiura, draftsmen of Wright
Midway Barn sits in 1918. Frank Lloyd Wright acquired it in 1918.

William Beye Fyfe, one of Wright’s students, mentioned in an *At Taliesin* article that a dairy Barn and farmer’s Cottage were built by 1934. Curtis Besinger, who was a junior apprentice of the Taliesin Fellowship, documented that Wright moved a house and a Barn, both of which had been near the highway, up onto the side of Midway Hill. By overlaying the 1938 building outline drawn by the Burley Partnership for its HSR and Wright’s drawing #3420.008 (Figure 2) prepared over a topographical survey dated May, 1934, the similar building outlines indicate the existence of the main building components of Midway Barn as Cow Barn, stable, the original Silo, Calf Pen, Cottage.

![Figure 1. Taliesin Plot Plan of farm, dated November 8th 1920, shows pre-existing building on site of Midway.](image-url)

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4 Keiran Murphy, *A Brief History of Midway Barns* 2007
6 Curtis Besinger, *Working with Mr. Wright: What It Was Like* (Cambridge University Press, 1995) 220
Figure 2. Wright’s drawing #3420.008 prepared over a topographical survey data May, 1934.

The HSR documented the building evolution in a series of phases starting in 1938. A 1938 photograph of Midway Barn (Figure 3) confirms that it was composed of the following elements: a Cow Barn which was the main block of the building, an Apartment at the north end, one Silo located at the west side of Cow Barn, a Calf Pen and Steer/Tractor Shed—both east of the Cow Barn, a Horse Stable-perpendicular to the Cow Barn, and a Cottage, which was unconnected to Midway. Except for the Steer/Tractor Shed, the other main building components were retained from 1934. However, alterations between 1934 and 1938 if any are unclear. For example, historic photos suggest that the Calf Pen and Steer Shed were extended from north to south, as well as the Cow Barn. The original roofs were all constructed of cedar shingles. An earlier road was directly below the Barn was removed. Although the Burley HSR is silent about 1938-1944, records from 1942 indicate that a
large amount of stone was obtained, presumably in preparation for the later construction.\footnote{Wright might have received the stone from Herbert Fritz, Jr, a former apprentice from Taliesin Fellowship (1938-1941) who had access to a stone quarry. Keiran Murphy, \textit{Midway: brief list of information of Midway Barns} 2007.}

![Historic Photo H1 by Pedro E. Guerrero, 1938.](image)

\begin{figure}
\centering
\includegraphics[width=\textwidth]{image}
\caption{Photo H1 from the Burley Partnership HSR, taken by Pedro E. Guerrero. Looking towards the front of the Barn 1938.}
\end{figure}

**Phase 1 1944-1948.** Changes during this period include: the construction of board fencing, the extension of the 2nd floor of the Horse Stable, prepared for the later construction of Men’s Dormitory, the connection of the Cottage to the Barn complex, the extension of the 2nd floor of the Calf Pen to create another residence\footnote{Burley Partnership, \textit{Historic Structure Report} (Taliesin Preservation Inc, 1994), 11-15.}. A board fence was installed in an arc around the southwest corner of the Barn, with a stone retaining wall to contain animals.
in the yard. Later maps show both features removed. The original Horse Stable wing spanning east-west was extended to the east side of what is now the drive under the upper level of the extension. The upper level of the extension was used for chickens and the lower level was used for storage. The extension of the 2nd floor of the Calf Pen created another residence, first used by Charles Montooth, then occupied by Bill and Sarah Logue in 1993, all Fellows of the Foundation. All of the Barn walls were clad with vertical boards during this time. The roofs were also covered by wood shingles to produce strong horizontal lines (Figure 4 Historic photo H3). Stucco on the exterior walls seems a later treatment, which had not existed in the original construction of the complex or its first phase of expansion.

Figure 4. Historic photo H3 from the Burley Partnership HSR, looking north-west to the Cow Barn.

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Phase 3 1948-1952. During this period, main alterations included the construction of the large flat roof covered Cow Barn, the extension of the Steer Shed with new stone piers that replaced the earlier wood posts, the construction of the Pump House and Wright’s signature spired Milk Tower, and the paving of the courtyard. Wright drawing #4404.004 studies a possible extension of the Steer Shed further south to terminate at the hip, aligning with the extension of the Cow Barn in front. Construction photos from 1948 by Lois Davidson Gottlieb, an apprentice, show that the ridge of the flat roof was supported along the east wall of the Steer Shed on stone piers (Figure 5).

Figure 5. Photo taken by Lois Davidson Gottlieb. Looking to the south side of Steer Shed 1948.

---

Charles Montooth, a Taliesin Fellow recalled that Wright experimented with the installation of an asbestos roofing system in which sheets of asbestos cement boards were cut for use as roofing boards\textsuperscript{11}. Some of these remain on the hayloft (also known as “the Train Section”), layered over the red roll roofing material that replaced the wood shingle roof system, as shown in Gottlieb’s photo taken in 1952(Figure 6). The design of the Milk Tower appears in the 1944 series of drawings, with details of the weathervane and spire.

Figure 6. Photo taken by Lois Davidson Gottlieb. Looking at roof of Train Section 1952.

**Phase 4  1952-1959.** Phase 4 is defined from 1952 to 1959. The Burley HSR identifies c.1952 as a phase, and unexpectedly excludes any work done up to 1959, when Wright

died. The Barn expansion continued, in support of evolving of farm operations, and included the construction of the twin Silos, and their related arched Terrace (also known as Hay Storage). Wright’s drawings\textsuperscript{12} illustrate the construction of the semi-circular Machine Shed at the south end of the main complex, the center of which aligned with the center of the Milk Tower. Drawing #4730.008 shows the construction of the Pig Huts - plywood, tent-like structures arranged along the south side of the road. Drawing # 4730.014 depicted the construction of the Chicken Coop and addition to the Men’s Dormitory. The Chicken Coop was converted to a Men’s Dormitory after 1952, and a balcony was added to its south side to provide an amenity for the residence for the Fellows who stayed in residence at Midway during the winter and ran the farm. The experimental asbestos board roofing was too brittle to work and did not last very long. The current red asphalt shingles are yet a later replacement of a similar asphalt shingle roof installed in the 1950s.\textsuperscript{13}

As noted, changes between 1952 to 1959 are not documented in the HSR, for unstated reasons. The author has adjusted the phasing so as to incorporate the date of Wright’s death. The following information about this period was collected in 2007 in research by Keiran Murphy, a historic researcher for Taliesin Preservation, Inc.

The Fellowship was no longer responsible for farming activities after Wright’s death in 1959. Eventually, Midway Barn became housing (Men’s Dormitory, in the Train Section) and storage. Stephen Nemtin, an apprentice along with his wife Frances Coan Lockhart (also known as Polly) began living at the Cottage after 1959,\textsuperscript{14} although they had already

\textsuperscript{12} Wright’s drawings numbered #4730.009,#4730.010 and # 4730.011 by TPI.
\textsuperscript{13} Burley Partnership, \textit{Historic Structure Report} (Taliesin Preservation Inc, 1994), 20
\textsuperscript{14} Nemtin, a Canadian, attended McGill University in Montreal before interviewing with Wright and being accepted into the Fellowship in 1958. He arrived at Taliesin in June, 1959, Six months later he
started to improve it, starting in 1959, including building extra bedrooms.\textsuperscript{15}

From the photos taken by Lois Davidson in 1948, The Milk Tower, Machine Shed, Pig Boxes, walls of “Train Section” and extension of Cow Barn were all red, indicating that main building components except the roofs were painted red. Photos from Jim Pfefferkorn, one of the founding members of Taliesin Associated Architects after Wright passed away,\textsuperscript{16} and Lois Karl showed that the spire of the Milk Tower was repainted white between 1952 and 1956. The spire was repainted later and is red at present. A photo taken by Lois Karl shows that the roofs of Barn were painted red by 1956.\textsuperscript{17}

**Phase 5 1959-1992.** Paul Wagner and his wife Susie married and lived in the Apartment and remodeled it from 1965. Joe Fabris built a bathroom for them in that Apartment in the early 1960s.\textsuperscript{18}

Although the Fellowship was no longer responsible for farming activities after Wright’s death, a payment for completing Silo construction found in the Frank Lloyd Wright Archives indicates that work was still continued on a Silo, in 1963.\textsuperscript{19} The Barn, the Pig Boxes and Machine Shed existed at least until 1973. The roof over the Cow Barn had been removed by 1970.\textsuperscript{20}

\footnotesize

\begin{itemize}
\item married Frances Coan Lockhart, who had joined the Fellowship in 1946.
\item Cornelia Brierly interviewed with Maggie Valentine, 1991. Keiran Murphy, *A Brief History of Midway Barns* 2007
\item Photo taken by Jim Pfefferkorn 1952.A Taliesin Fellowship apprentice in the Taliesin Fellowship from 1952 to 1972.
\item Photo taken by Lois Karl 1956.
\item Joe Fabris, mentor to apprentices. He came to the Fellowship in 1948 from Canada, and took part in much of the construction at Taliesin and Taliesin West.
\item 4/23/63 “Enclosed find check for $ 1160.00 to cover payment due at time Silo is completed at Taliesin, Spring Green, Wisconsin.” From Dick Carney
\item Keiran Murphy, *A Brief History of Midway Barns* 2007
\end{itemize}
Construction work continued after 1983, based on designs by Taliesin Associated Architects and included the reconstruction of the east wall of the Calf Pen wing, the addition of new windows in the lower residence, reconstruction of the lower roof on the east side of the Calf Pen and introduction of steel beams and new concrete structure in the upper level of the original Cow Barn.

As the Historic Structure Report was finished in 1994, the alterations after 1994 that are visualized in the SketchUp model are based on later documents, the author’s trip to the site in 2020, and interviews with Taliesin Fellows Ryan Hewson, Director of Preservation for the Frank Lloyd Wright Foundation and Kyle Dockery.

**Phase 6 1992-present.** 1992 marks the founding of Taliesin Preservation Incorporation (TPI) and the beginning of its preservation activities. It commissioned the Burley Partnership to complete an HSR on Midway Barn, intended to guide the restoration and conservation management process. The HSR was completed by The Burley Partnership in May, 1994.

In 1995, new electrical feeds were trenched in from the lower north Apartment at Midway.\(^{21}\) In June 1998, Stephen Nemtin, an apprentice who lived in the Cottage, requested “that a driveway be constructed” to the back door of the Cottage. Approval was given and “a driveway was constructed after clearing the area of sod with the Tractor. Gravel was then poured and spread into the area.”\(^{22}\) Since 1992, TPI completed projects including the construction of two artifact and collection storage rooms inside the Cow Barn.

\(^{21}\) Keiran Murphy, *A Brief History of Midway Barns* 2007
\(^{22}\) Keiran Murphy, *A Brief History of Midway Barns* 2007
and reroofing in fall 1999. That same year, TPI commissioned the *Taliesin Historic Landscape Report*. In 2000, Mohammad Mirmiran accomplished the first digital drawings of the Midway Barn, which were based not on a site visit but on digitizing the Burley Partnership’s drawings. In 2006, the “Train Section” roof and lower Apartments’ roof were replaced. In 2012, the restoration study for the Train Section was proposed by TPI. A set of drawings and a 3D digital model was prepared for the structural stabilization plan, using Mirmiran’s drawings as the base and redrawn by Darren Zblewski and Ryan Hewson. Current agricultural site usage development will be introduced in later chapter.

1.3 Visualization procedures

SketchUp and Adobe suites were used to create the graphic deliverables for this thesis. Sketchup uses Computer Graphics techniques and is simple and easy to use and update. Also, its processing is fast due to less complex algorithms. Taliesin’s site manager should be able to make adjustments in the future when the need arises.

External elements such as topography have been added from Google Earth. The terrain around Midway Barn indicated in the model was created using LIDAR data. LIDAR (light detection and ranging) is an optical remote-sensing technique that uses laser light to densely sample the surface of the earth, producing highly accurate x,y,z measurements.

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24 “Train Section” stabilization plan proposed by Taliesin Preservation Inc 2009
To better demonstrate the evolution of Midway Barn, SketchUp’s “Tags” tool is used for the model. This tool is used to organize objects and control their visibility. By clicking tagged objects, selected chunks of the model can be hidden or displayed. All phases are combined in one single model, including those identified in the HSR and the author’s modifications.

Furthermore, using a SketchUp extension called “Layer Panel”, the model is divided into five groups (same as “tags”) based on HSR phases, and under each group, each sublayer (same as “tags”) represents one building component in a certain phase (Figure 7). By clicking the tags, the building components can be hidden or displayed to show the evolution. The model can be rotated horizontally and vertically for multiple views, adjusted for different viewpoints, and magnified for enlarging areas of display. This model does not yet include floor plans or sections.

![Figure 7 SketchUp extension “Layer Panel” shows the groups and sublayers under groups. Created by the author, 2021](image)
LOC (Level of Certainty)

This thesis’s notion of Level of Certainty, as applied to the development of the SketchUp model, borrows from the industry-standard concept of “LOD” (Level of Development). *The LOD Spec Guide and Commentary* from AIA in 2019 (American Institute of Architects) guides the model-making process for BIM (Building Information Modelling). In it, Level of Development (LOD) refers to how much detail is included in a given model element, the degree to which that element’s geometry, and attached information, has been developed, or the degree in which users may depend on the information when using that model (AIA 2019). This guidance typically is applied to far more complex software such as Revit. The AIA has defined 5 Levels of Development, the lowest number representing the most primitive model and the highest number representing the most developed.

After discussion with John Hinchman, Project Manager of the University of Pennsylvania’s Center for Architectural Conservation (CAC), the notion of levels of Certainty (LOC) was proposed for this thesis. The idea borrows the conceptual framework of LOD and applies it for building digital models for historical sites. The Midway Barn SketchUp visualization model developed for the thesis, consists of three levels corresponding to the degrees of certainty underlying each layer, with the first level representing the basic but most certain information, while the third level contains the most synthesized information. The levels are defined as: the 1st level: Highest level of certainty based upon on-site measurements and HSR drawings, the 2nd level: Medium level of certainty and the 3rd level: Lowest level of certainty.

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certainty. Documenting AIA’s LOD standards,

- **Level 1**: High level of certainty, is the most certain layer, derived from HSR drawings and field records that contain the basic information.

- **Level 2**: Medium level of certainty, is less certain, based on secondary documentation such as historic photos, sketches, and reasonable inferences about the Barn’s configuration. For example, the Foundation’s archive includes Wright’s series of drawings, which chronologically document his design explorations, not all of which were built, along with built components.

- **Level 3**: Low level of certainty, enabling the model to be “closed” in multiple locations, thereby allowing its use as a comprehensive platform for future design or construction purposes but that will require further verification.

Starting from a 2020 model that the author built with colleagues based on the field measurement, the process of modeling was developed chronologically, working backward, removing the non-existing components at that time and add the components based on author’s analysis and use of historical photos, drawings, maps and descriptions from documents. These three levels of certainty are indicated by the naming convention devised for each layer, in which (1), (2) and (3) indicate the author’s judgement about the level of certainty (LOC). The model was similarly constructed along 3 levels of certainty about the underlying data for each of its layers (Tags), which is indicated by the naming system for each layer (Tag), ‘Years-Components-LOC’, including numbers 1,2,3 to reflect underlying certainty. For example, layer ‘1938-calfpen-level 2’ indicates that the visualization in the model of the Calf Pen as built in 1938 was developed based on historic photos and sketches, combined with reasonable speculation (Figure 8). Of course, field certification will always
be necessary when the model is applied to specific design or construction purposes.

Figure 8. Layer panel shows the ‘Years-Components-LOC’ naming system. Created by the author, 2021

**Using the visualization deliverables**

There are primarily three audiences for this project, including site managers and designers/consultants intervening in the building, along with the public who is the future audience for proposed interpretive programs about the Barn complex and Wright's agriculture theories. In the 3rd level, Low level of certainty, the model can be uploaded to
platform such as Sketchfab, which is a platform to publish, share, discover, buy and sell
3D, VR content. It provides a viewer based on the WebGL with WebXR technologies that
allow users to display 3D models on the web, to be viewed on any mobile browser, desktop
browser or Virtual Reality headset. In a public model platform like Sketchfab, information contained in the model can be viewed by the public and updated by the uploader.

In addition, a 3D PDF of the SketchUp model was created as a thesis deliverable. 3D PDF allows the users to share the digital model in three-dimensional PDF (Portable Document Format) technology by embedding 3D views in PDF files. Theoretically, SketchUp extension SimLab 3D PDF Exporter can export the model, with its layers, into 3D PDF.

Moreover, the “Scenes” tool can allow the viewer to rotate views of each scene to show specific angles that will show the changes more effectively than layers (“Tags”). As a result, “Scenes” was used to create 3D views of the Barn at different historic stages for exporting into a 3D PDF. By turning on or off layers to reflect a specific period, a new scene could be created with a name that reflects that time period. By turning on or off other layers, a different period in the Barn’s evolution can be displayed, thereby creating another scene. Once each scene was created and labelled with certain period, the extension was used to export it as a 3D PDF. The final PDF has arrows at the bottom of the page which will allow the viewer to progress from one scene to the next. The link to and general usage guidance about the 3D PDF is attached as Appendix D.

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1.4 Limitations and recommendations

In comparison with the 1st level, level 2 and level 3 contain more information as well as a higher level of uncertainty. Lacking construction documents, the model’s depiction of the chronological alterations of the Barn’s building components were created based on historical photos and amended by assumptions, given that the existing documents of the Midway Barn generate a large amount of loose ends. Further studies need to be taken to obtain higher levels of detail. However, the levels of information contained in the evolution model synthesize the information of the Midway Barn and help the preservationists to understand its evolution through time. The model also reflects how the form and functions change over time, which help to inform the schematic design process for the future phases. The future reuse, especially for such programmatic changes as the FLWF is considering, needs to be based on the fullest understanding of the Barn’s physical evolution and the functions behind that evolution.
Figure 9. Page 2 of 3
Chapter 2 Agriculture Tourism

With an appropriately restored and rehabilitated Midway Barn and associated site as centerpiece, the Frank Lloyd Wright Foundation has proposed to communicate, educate, and demonstrate the agricultural land management legacy at Taliesin, to promote a healthy and sustainable food system for tomorrow. The Foundation aims to enhance public awareness of sustainable, healthy farming through developing agriculture tourism as an additional component of Taliesin’s interpretative program. To expand the architectural attractions of the site, agriculture will be added to the overall interpretive offerings, especially Wright’s theories as made visible in the Barns and in farming practices.

Midway Barn is a reasonable platform to develop such agricultural tourism, given that it maintains a good physical condition which is witness to the agricultural developments. It also fits Wright’s design philosophy and illustrates his ideas. This chapter provides general information about the agricultural history of Midway Barn, to provide a contextual base for the tourism development plan while incorporating the natural and cultural resources of the site. Contextual research on agricultural tourism, accompanied by brief case studies, has also helped guide the programming process in chapter 4.

2.1 Historic Agricultural Development

Throughout most of the 1930s, Taliesin remained a farm of about 200 acres, but its acreage leaped to about 800 before World War II. Through discussions with Ryan Hewson, the

29 Frank Lloyd Wright Foundation, Midway Barn Rehabilitation Plan draft 2020.
30 Barbra Wyatt, Taliesin Historic Landscape Report (Taliesin Preservation Commission, 1999), 175.
Director of Preservation for the Frank Lloyd Wright Foundation, the historic core is approximately 600 acres; the adjoining Michel’s Farm, now part of Taliesin, is 200 acres. So, the total of both is approximately 800 acres. The active period of the farm operation around the Barn extended from 1940s through the 1950s. The Fellows were no longer responsible for farming activities after Wright’s death in 1959, when those activities were taken over Taliesin Associate Architects.

Lilacs planted along Hill Road behind Midway Barn created a sense of enclosure, as Wright used vegetation to shape views and define spaces. Cropland fans out to the southwest and west. To the south, the vegetable gardens are a fine example of Wright’s expertise at contour plowing. \(^{31}\) Besides the contour plowing, grids tillage for fruit orchard was also applied to the west side of the hill.

As a dairy farm, milking and cheese making were the main operations inside the Barn. However, beside cows, other livestock such as pigs, horses and chickens were raised, to provide food and sell products to neighbors. After Wright’s death in 1959, the building complexes were most altered through the gradual removal of building components (the Machine Shed, the Pig Huts, the Steer Shed) and lack of use in the farm operation. This evolution is broadly illustrated in this thesis’ three-dimensional model.

**Circulation-Roads**

The old main vehicular road was an extension of the road from Tan-y-Deri, a house on the property located south-west of Midway, and owned by Wright’s sister, Jane Porter,

Wright’s sister and her husband. This road circled around Midway Hill. The present road did not exist, but a path left from the vicinity of the Steer Sheds and led north to the pastures, paralleling the existing road for a way.32

The Midway Road extends from the Rhubarb Triangle to Midway Barn, and past Midway Barn to the Taliesin Circle Road. It is one of the most open roads at Taliesin. In front of Midway Barn, the road has vistas across the fields to the Welsh Hills. The roads illustrated in the three-dimensional site model in the earlier chapter explained how this circulation network changed along with the building evolution (Figure 9).

Figure 10. The old road overlapped with the current terrain with present roads. Extracted from model 2021

Farm operations (1940s-1950s)

32 Barbra Wyatt, Taliesin Historic Landscape Report (Taliesin Preservation Commission,1999), 80
To achieve Wright’s ideal of self-sufficiency, the largest commercial production of Taliesin was in corn, oats, and hay in the 1930s through the 1950s. (Whether the hay was solely to support the cow herd of Midway is unclear). The first milk cows appeared in the 1932 summary of farm statistics; 6 cows showed on the list. The number grew steadily and reached its peak in 1942, when 22 cows were reported for Taliesin, seemingly reflecting an increased capacity of the Barn. Cattle was raised as well, as was other livestock such as hens and horses. 20-30 dairy cows were kept throughout the period, and pigs averaged about 15 per year. In 1950 there were 200 chickens on the farm.33

Taliesin Fellows were responsible for operating the farm. One Fellow, Curtis Besinger, who worked at the site in 1950, wrote referring to other Fellows:

Wes was in charge of the fieldwork: the plowing, planning, cultivation, and harvesting of the crops. John Hill and Kenn Lockhart were to be in charge of the cows. Eric Wight was to be in charge of the chickens, and Larry Martyn, a new apprentice, was to be in charge of the pigs. All of these men, except Wes, were going to stay at Midway during the coming winter and run the farm.34

The Barn also provided residence and shelter for Fellows at the site during the 1947-48 winter. The original Horse Stable wing was extended and restored as a Men’s Dormitory. After 1958 or 1959 the dairy operation was moved in its entirety to the nearby King farm, which provided a place for herdsmen to live, given that the facilities at the Barn were no longer considered adequate. A few years later, the dairy operation was discontinued. Tom Casey said, “It was hard to keep hired people.” He also mentioned that the need to take dairy products from Wisconsin to Arizona was negated when such products became more available in Arizona. Susan Lockhart recalled that about half a dozen horses were kept after

33 Barbra Wyatt, Taliesin Historic Landscape Report (Taliesin Preservation Commission, 1999), 203
34 Curtis Besinger. Working with Mr. Wright: What It Was Like (Cambridge University Press, 1995).
the cows were moved out.\textsuperscript{35}

\textbf{Hay Storage and ensilage}

Well before the twin Silos were built in 1952, the 1934 survey plan shows that the original Silo already existed. The twin Silos located on the west side of the collection space (historically known as the Cow Barn extension) are a landmark feature of the site. The history of using a silo as a storage place for grain and feed originates from European countries and was first introduced to America in the late 1870s.\textsuperscript{36} The earlier silos were constructed in square and rectangular shape of stones, and turned to lumber during the 1880s. Professor F.H. King, of the Wisconsin Agricultural Experiment Station, introduced the round silo in 1891, which became known as the King silo. Ensilage, also known as silage, is a type of fodder made within an enclosed silo from green foliage crops, which are preserved by acidification achieved through fermentation, and used as feed for cattle, cows and horses. The silos were usually built above ground along with a platform. The ensilage was pitched onto the platform and then into the silo.\textsuperscript{37} From historic photos \#3802.001 dating to the early 1930s, Midway’s original wood Silo already existed (Figure 11). The new twin Silos of Midway were constructed later, between 1948 and 1952, and a wooden platform connected with them so that the hay would be loaded onto it from the back. Tom Casey said Wright “was constantly trying to get the hay out from where it would cause a fire, and so outdoor storage was the best way to do it.”\textsuperscript{38}

\textsuperscript{35} Barbra Wyatt, \textit{Taliesin Historic Landscape Report} (Taliesin Preservation Commission, 1999), 205
\textsuperscript{38} Barbra Wyatt, \textit{Taliesin Historic Landscape Report} (Taliesin Preservation Commission, 1999), 205
Burley HSR shows the original roof structure of the northern Silo, with 2 × 6 wooden rafters spaced 24” o.c., pitched slightly to the perimeter. Another photo 3-95(Figure 11) shows the twin Silo’s roofs, on which only broken rafters remained. Wright’s concern about fire was likely exacerbated by the tragic events of 1914, when the handyman Julian Carlton set fire to Taliesin and murdered several people, including Wright’s mistress and her two children.

Figure 11. Photo 3-95 Twin Silos. HSR 1994

Contour plowing

The contour plowing that Wright initiated at Taliesin (date unclear from THLR) had become standard procedure by the 1950s. Contour plowing was developed around 1940s, when farmers were facing labor and equipment shortages and various other production problems. Farmers nationally were encouraged by entities such as the US Department of Agriculture and state extension services to change from the up-and-down-hill straight line farming to contour cultivation, to save their soil, benefit from increased crop yields, and save on fuel wear and tear on machinery. 41 Midway hill was especially important for contour plowing as Susan Lockhart mentioned, 42 as the hill provides a natural environment for contour plowing (Figure 11).

Figure 12. Photo taken by Taliesin Architects. Looking to the Barn from the south hill 1950s.

41 AW23 US Department of Agriculture *Contour Farming boosts yields: A farmer’s guide in laying out key contour lines and establishing grassed waterways*.  
42 Barbra Wyatt, *Taliesin Historic Landscape Report* (Taliesin Preservation Commission,1999), 203
Grids cultivation

Apart from contour plowing, grid tillage was applied by Wright near the Barn, which he had seen in Italy, to productive and artistic effect. The greatest advantage of grid gardening and orcharding is as an aid to pollination and, thus, fruit production. 43

2.2 Current Situation

![Image of Barn and field](image)

Figure 13. Photo taken by Ha Leem Ro 2020. Looking west to the front of the Barn from the trail.

The dairy operation based in the Barn was suspended in 1950s, although the cultivated field in front of the Barn has not been fully abandoned. Summarized by Ryan Hewson, the

43 Jerry Minnich, author of Wisconsin Garden Guide, emailed McCrea. Author of Building Taliesin, in October 4, 2010
Director of Preservation of the Foundation, the current agriculture at Taliesin primarily serves a dairy herd on a nearby farm and consists of corn and soybeans, plus other crop such as rye (for whiskey or chicken feed).\textsuperscript{44}

There is no longer any actual farming work taking place out of the Barn as the machinery is too large. The land is all farmed by the Foundation’s tenant farmer Otter Creek Organic Farms (OCOF), which has been farming the Taliesin farm since 2000. The Taliesin farm is used to grow some forage, and provide grazing for OCOF’s cattle, but mostly for rye, cover crop soil and corn. Another partner farm is owned by Gary Zimmer, a board member of TPI since 2012, and is being used today for an agroecology farming project with the Savanna Institute, a nonprofit organization that works with farmers and scientists to lay the groundwork for widespread agroforestry adoption in the Midwest US.\textsuperscript{45} There is an organic poultry farm nearby where corn is sold. On the OCOF main farm, 10 miles to the West on Highway C, a processing facility is under construction for the rye, which will be sold to distilleries, bakers, and for livestock feed.

\textbf{Current Tourism Situation}

General data collected from the Wisconsin Department of Tourism and the Taliesin Preservation Incorporation (TPI) indicate an increasing interest in agricultural tourism. Agritourism is coming of age in Wisconsin. The total business sales impacts of Agriculture, Fishing and Mining in Wisconsin in 2018 reached $ 60.4 million. The economic value

\textsuperscript{44} Discussion with Ryan Hewson by email, Director of Preservation of the Foundation January 15th 2021
\textsuperscript{45} Savanna Institute, a nonprofit organization that works with farmers and scientists to lay the groundwork for widespread agroforestry adoption in the Midwest US.
generated in Agriculture, Fishing, Mining industry by visitors reached $21.4 million in 2018. Midway Barn has great potential for developing such Agritourism.

In 2019, Taliesin had 25,607 total visitors, an increase of about 1% over 2018. Of its visitors, 39.2% identified as seniors (at 62 years old or older), 44.6% identified as adults, and 6% as students. In total the programs and events saw 1437 participants, an increase from 558 participants in 2018. July is the most popular month for visitation, with 21.4% of guests visiting at that time. The Foundation intends to develop agricultural heritage as a new attraction that will specifically relate to Midway Barn and the landscape surrounding it to enhance the awareness of sustainable, healthy farming through public education and food production. Programs such as events and festivals, local farmers’ markets, and K-12 tours are listed in the Foundation’s planning list.

2.3 OCOF’s Agricultural-Tourism vision

As the above paragraphs discuss, the land is now farmed by the Foundation’s tenant farmer Otter Creek Organic Farms (OCOF) since 2000. OCOF does not now use the Barn building to support its farming activities, but a few years back when they had the gardeners doing vegetables they used the lower level for storage. However, given that the daily life of the Taliesin community and the role of sustainable agriculture practices appears to be an important yet under-interpreted aspect of Wright and Taliesin, in 2012, Otter Creek Organic Farms (OCOF) proposed a Taliesin Farm Business Program that included an Agriculture Tourism vision for TPI. TPI agrees with its general ideas and regards it as a

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46 Tourism Economics, *The Economic Impact of Tourism in Wisconsin* 2019
47 Taliesin Preservation Inc, data from Ryan Hewson, director of preservation in TPI. 2021
base document to use for planning. The proposed vision for the Taliesin Farms program is to communicate, educate, and demonstrate the sustainable agricultural land management legacy at Taliesin as well as Wright’s vision about the integration of agriculture and the landscape in present context.\footnote{Otter Creek Organic Farm, \textit{Taliesin Farm Business Plan} 2012.}

There are four major visions in the business program: facilities (e.g., rehabilitation, reconstruction), agriculture-related nature land use (e.g., landscape restoration, natural area tour), education/events (e.g., adult/community workshops, children’s workshop) as well as agriculture tourism (e.g., vegetable gardens, poultry, livestock, agricultural tours). It is a five-year long-term plan, from 2013 to 2017.

In its facilities vision, OCOF recommends that Midway Barn should start with the reconstruction of the Steer Shed, to be reused for uses including a small café with outdoor seating and restrooms. Then, assuming sufficient budget, restore and rehabilitate the “Train Section” for use as offices and classroom in the future. Unfortunately, after several years, Midway Barn is not yet being used as OCOF proposed.

For agriculture related land use, as shown on the map in OCOF’s business plan, the land area surrounding Midway is numbered 450 (see figure 14). Letters A to J indicate ten management units from 450A to 450J. The field land located at the east of the Barn building, 450B, is recommended for field crops and forage. 450C is suggested to restore the Pig Boxes for use for animal housing and interpretive displays. Small-scale demonstration of rotational grazing with chickens, turkeys, pigs and sheep is also planned for this area. Other areas such as 450D are recommended for vegetable cropping and an apiary, and 450F is
proposed for contour vegetable gardens.

The initial plan is utopian. However, Gary Zimmer, a board member of TPI since 2012 who focuses on the land preservation of Midway, had managed to bring on a young couple to grow vegetables, an initiative that failed after a few hard years and income losses. How to make the food production profitable, or at least self-sustaining, remains a great challenge for TPI. The sustainability of small farms relies on clearly defined products, markets and supply chains.49 As a small-scale demonstration purpose farm, the products and markets heavily rely on visitors’ preference and there is hardly any viable supply chain from the local market. To better determine visitors’ preferences, TPI did a survey in 2012.50 The result shows that a majority of visitors are most interested in fresh produce, popcorn, chickens and tomato salsa. Visitors are more willing to purchase locally grown produce when available.

Unfortunately, except for the field crops grown in front of the Barn building and unsuccessful experiments for growing vegetables, other agriculture-tourism visions proposed for Taliesin remain unaccomplished. To learn from OCOF’s lesson, the agricultural land use needs sufficient funding from TPI or other local farming networks such as Wisconsin Food and Farm Support Fund to support the food production progress or increase marketing for produce available at Taliesin.

50 Otter Creek Organic Farm. *Taliesin Agricultural Tour Survey 2012*
Figure 14. Recommended Land use map for Midway Barn in Taliesin Farm Business Plan. Prepared by OCOF 2012.
Besides the agricultural land use, other natural area tour developments are proposed by OCOF, including guided natural area tours and picnics, winter ski tours and ice skating on the pond, all with a food component. Under the current pandemic situation, outdoor activities face a great opportunity. For education/events vision, the program components divide into adult workshops, children’s workshop and signature events. Adult workshop provides culinary training such as cheesemaking, vegetables fermentation, and failsafe practices of garden composting. Also, various activities such as “Farm Food Adventures” and “Young Farm Entrepreneur” are provided for different grades students in Children’s workshops. Signature events are defined by months, for example, Taliesin Farms Market Dinner is proposed for late September, Harvest Feast and Scarecrow auction is provided for October, Christmas at Taliesin Farms in December. OCOF aims to provide an all-year around experience based on the seasonal crop and festivals.

OCOF’s survey (Figure 15) shows there is a high level of tourist interest in sustainable agricultural practices and a chef-accompanied Farm-to-Table tour. The agricultural tours from OCOF’s agritourism vision consist of a Daily Life at Taliesin Tour, Children at Taliesin, Taliesin Tasting Tour and Taliesin Evening Dinner Tour. For all these tours, Midway is recommended as a stopping point. For example, for the “Tasting Tour”, it would be where visitors sample historical/current menu items or value-added products from gift shop. In the poultry section from the agritourism vision, to provide material for such activities, OCOF recommended using mobile chicken tractors to raise two varieties of meat chickens and turkey pens for long-term food production, although without an identified location. Other livestock such as cattle, pigs, goats are also proposed to be raised in Taliesin, in partnership with Otter Creek Farms. After careful research and selection of animal units,
water needs, forage type, paddocks and fencing, pasture needs and location, livestock could be delivered and raised in rotational pastures and demonstration pens. Water lines and tanks would be necessary as well as the erection of paddocks and fencing, all of which have potential impact on the Barn’s cultural landscape. Maintenance for the pasture and exploration of meat production for Harvest Feast at Taliesin are the next step. OCOF’s vision for Taliesin is to return it to use as a functioning and educational farm, which includes the Barn.
<table>
<thead>
<tr>
<th>TALIESIN AGRICULTURAL TOUR SURVEY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. On a visit to Taliesin, how likely would you be to take a tour related to:</td>
</tr>
<tr>
<td>a. Sustainable agricultural practices</td>
</tr>
<tr>
<td>17%</td>
</tr>
<tr>
<td>b. Rotational grazing of livestock</td>
</tr>
<tr>
<td>c. Organic field cropping</td>
</tr>
<tr>
<td>d. Chef-accompanied Farm-to-Table tour</td>
</tr>
<tr>
<td>e. Prairie preservation and restoration</td>
</tr>
<tr>
<td>2. How likely would you be to travel to Taliesin to</td>
</tr>
<tr>
<td>a. Building a Backyard Greenhouse</td>
</tr>
<tr>
<td>b. Home Cheesemaking Techniques</td>
</tr>
<tr>
<td>c. Fermenting Your Favorite Foods</td>
</tr>
<tr>
<td>d. Cross-Country Skiing</td>
</tr>
<tr>
<td>e. Horse-drawn Sleigh Rides</td>
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<td>3. If Taliesin held an annual Harvest Dinner fundraiser in the fall, how likely would you be to attend it?</td>
</tr>
<tr>
<td>14%</td>
</tr>
<tr>
<td>4. How likely would you be to purchase agricultural products raised or produced at Taliesin, including:</td>
</tr>
<tr>
<td>a. Popcorn</td>
</tr>
<tr>
<td>b. Chickens</td>
</tr>
<tr>
<td>c. Heritage breeds of turkeys</td>
</tr>
<tr>
<td>d. Tomato Salsa</td>
</tr>
<tr>
<td>e. Fresh produce</td>
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<tr>
<td>5. Zip Code</td>
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<tr>
<td>6. How often do you visit the Dane County Farmers’ Market?</td>
</tr>
<tr>
<td>Weekly</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
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<tr>
<td>7. Are you a member of a Community Supported Agriculture (CSA)?</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>8. When making food purchases, do you choose to buy locally grown produce when available?</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>9. Have you ever visited Taliesin before?</td>
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<tr>
<td>How many times:</td>
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<tr>
<td>1 time</td>
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<tr>
<td>4 times</td>
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<tr>
<td>3 times</td>
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<tr>
<td>2 times</td>
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<tr>
<td>10. Into which age group do you fall?</td>
</tr>
<tr>
<td>Under 18</td>
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<tr>
<td>18-39</td>
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<tr>
<td>40-59</td>
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<tr>
<td>60-74</td>
</tr>
<tr>
<td>75+</td>
</tr>
<tr>
<td>Total Responses</td>
</tr>
</tbody>
</table>

Figure 15. Taliesin Agricultural Tour Survey by OCOF in 2012.
The long-term Taliesin farm business program that OCOF has proposed might not be achieved within years. Some ambitious visions are put aside for lack of funds or supplies. To mitigate these problems, a smaller scale short-term plan is provided by the author, as follows.

2.4 Agricultural-Tourism Proposed Program: Refining the OCOF Proposal

The plan proposed by the author will continue OCOF’s facility vision of reconstructing the Steer Shed and rehabilitating the “Train Section” for future use. The scale of the agriculture-related land use is reduced to experimental fields for contour plowing. The OCOF idea of using mobile chicken tractors and turkey pens for long-term food production is borrowed and adjusted for demonstration purposes, using 2-3 cows and a dozen chickens.

To enhance the Foundation’s tourism scheme, learning from the visitor experiences proposed by OCOF, a modified development plan focused on Midway Barn has been proposed by author, which begins with the question: What interpretive and education possibilities can the Barn area itself offer from historical times and present days? The answer includes the cultural resource embedded in the building and landscape, the agricultural activities and natural resources surrounding and served by the Barn. Interpretation of these cultural resources includes FLW's theories of organic architecture and self-sustainable farming, specifically in Taliesin's state and region. Agriculture activity happened in the Barn and on the agricultural land it supported, including contour plowing, dairy production and Hay Storage. Moreover, natural resources surrounded the farm fields (corn, orchard, hay), including a creek, Midway hill and woodlot, which collectively have
ecological vulnerability as they sustain a balanced ecological system.\textsuperscript{51} As a result, ecotourism, which is environmentally-friendly, should also be considered as a component of interpretive planning for the site. Clark, the author of \textit{Farm tourism}, highlights that farm tourism can include: farm accommodation (serviced, self-catering and camping), amenities (restaurants, cafes, farm shops, etc.), leisure activities (horse-riding, fishing etc.), attractions (museums and education centers), access and events (farm open days, guided tours and farming demonstrations).\textsuperscript{52} Integrating with the resources and knowledge, the proposed interpretive plan intends to transform the resources into resonant tourism products that cater to evolving different groups’ needs. As there is no actual farming work taking place out of the Barn, the proposed tourism plan mainly focuses on possible visitor amenities inside the Barn (café, farm shops), attractions (museums or exhibition space restored in the Barn), events (sightseeing tours, farming demonstrations), access (trials and pathway), and other leisure activities (fruit picking, picnic).

This proposed plan is based on OCOF’s general plan, borrowing concepts such as restoring and rehabilitating the interior space of the Barn for a variety of uses, such as raising a small number of livestock, planning tasting tours with Midway Barn as a stop point, seasonal events and festivals and agricultural land use, all modified with adaptive reuse of the Barn’s specific building components but at a much smaller scale.

The author’s proposed rehabilitation programs, as described below, are not included in OCOF’s proposal, except for their being supported through reconstruction of the Steer


\textsuperscript{52} Clark, J. “Farm Tourism,” \textit{Insights}, (January 1996): 19–24
Shed and rehabilitation of the Train Section.

**Midway Area Agricultural Land Use**

Midway agricultural land now primarily serves a dairy herd, as well as cultivation of corn and soybeans, plus other crop such as rye (for whiskey or chicken feed). Continued mowing and fertilizing the field by partner OCOF is needed to maintain and improve the existing soil condition. Small scale experimental fields could be provided for contour vegetables or orchard gardens (e.g., grapes, apples, herbal) near the Barn. Assuming sufficient budget from TPI or other local organization, the orchard garden could be self-sustainable and support the following agritourism events, supported by the access and amenities described thereafter.

**Barn related events (Farming demonstration: livestock restoration)**

Busby and Rendle note that farms with animals have a greater visual appeal for visitors. Although livestock were no longer kept in the Barn after 1960s, this plan intends to reintroduce it as part of its proposed program. To make sure visitors are aware of the farming environment as living unit, the Barn will provide them with the experience of feeding the animals (cattle and chickens). Stabling for and management of approximately 2-3 cattle, and 5-10 chickens can be incorporated within the rehabilitated interior space of the Barn, and would be managed by the Foundation’s partner farmer Otter Creek Farm. The idea is to restore the cattle and chickens in the outdoor area which used to serve as

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54 Otter Creek Organic Farm, *Taliesin Farm Business Plan 2012*.
Steer Shed extension, erect paddocks and fencing along with the existing piers during daytime, and kept within the Steer Shed at nights. Forage and corn, which grows in front of the Barn, can provide grazing for cattle and chicken. Water lines and water tanks will also be installed inside of the Steer Shed. Visitors, including young students, could feed them from outside of the fences. The Machine Shed and Pig Boxes could be reconstructed to provide agricultural program and demonstration support.

**Access (Sightseeing tours and visitor walkway)**

The Foundation now provides an estate tour to visitors that includes Midway Barn and landscape tour for visitors. The estate tour begins at the Frank Lloyd Wright Visitor Center, located 1.16 km south of the Barn, at the intersection of Highway 23 and County Road C. Visitors are shuttled with a tour guide for a four-hour walking tour, which moves through a large portion of the estate including “checking out Midway Barn en route to the Taliesin home itself.” The interior space of the Barn is not yet accessible for visitors. The landscape tour offers an experience of the natural terrain of Taliesin estate, in addition to viewing the surrounding hilly landscape. This tour thus involves Taliesin’s nature, farming, and cultural history including but not actually entering the Barns(Figure 15). Proposed enhancements to this visitation pattern would include access to the Barn interior, rehabilitated to serve identified interpretive purposes.

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In addition to the existing landscape tours, sightseeing tours alongside the cultivated field surrounded the Barn can be offered seasonally with emphasis on how food was produced at Taliesin. For example, the harvest of forage and corn can be provided from early July through August. Farm market and picnic could be provided for late September. Christmas feast could be provided for December. The tours can incorporate branches that could diverge from the main vehicular path. As the pond and creek are hidden among the cornstalks, a small number of plank roads or observation decks could be installed along the edge of the field.

**Amenities (Residence, café and shops) and Attractions (Museums or Exhibition Space)**

The Barn provides visitors opportunities to experience Frank Lloyd Wright’s designs for
an atypical building type. The Cottage and the lower Apartment are currently available to offer overnight stays as part of a broader visitor experience. Two bedrooms with porch and kitchen and bathroom facilities in the lower Apartment allow overnight dwelling for at least two visitors. In addition, the Cottage’s three bedrooms provide adequate facilities for at least three visitors. Also, the “Train Section” which once was used as a Men’s Dormitory, could provide future accommodation with further development. The courtyard and the upper floor of the Train Section could be rehabilitated as the café and outdoor café space. The lower floor of the Train Section could be restored as the servant space including restrooms and kitchen. And the semi-open space (Calf Pen) with the original Silo could be renovated as the farm shop to connect the collection space and residential area.

The art craft and collection space (housed in what uses to be the Cow Barn and Cow Barn extension) is environmentally conditioned and now stores a collection of Wright’s designed furniture (chairs, lights) and installations (statue, paper screen, designed carpet), but is not yet accessible to the public. A number of site models of Wright’s design are stored in collection storage (formerly Hay Storage near the old Silo). However, the hay collection space is almost abandoned and lacks any surface furnishes or lighting. These collection storage spaces have the potential to be opened to the public in the future.

Again, the above rehabilitation programs proposed by the author are not included in OCOF’s proposal except for their being supported through the reconstruction of the Steer Shed and rehabilitation of the “Train Section”.

45
2.5 Frank Lloyd Wright’s vision for Taliesin: A natural house

“Taliesin”, is a Welsh word that means “Shining Brow”. Growing up on a Wisconsin farm with his family, Wright built Taliesin as his home on the “brow” of the hill. Surrounded by rolling hills and neighboring dairy farms, the property eventually grew to six hundred acres dotted with his designed buildings. This does not include the additional 200 acres Michel’s farm which, though now part of the overall property, did not historically belong to Taliesin. “There must be a natural house, not natural as caves and log-cabins were natural but native in sprit and making, with all that architecture had meant whenever it was alive in time past.” As Wright wrote in his own account of how he conceived and built Taliesin, he regards Taliesin as needing to consist of a garden and a farm behind an architects’ workshop and a dwelling for young workers. The natural house works both aesthetically and functionally to achieve Wright’s goal: a self-sustaining lifestyle which would be supported in turn by the Fellowship, which was a formal apprenticeship program.

Wright and his wife Olgivanna built Taliesin and established the Fellowship to demonstrate the benefits of communal living and learning to the world. Wright had welcomed students into his home and drafting studio since the 1920s. The Fellowship officially began in October 1932 with a few dozen young people and expanded over the course of a few years to a list of hundreds of people who lived and worked there. The combination of design

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57 Wright’s words written in 1926 Published in 1932 McCrea, Ron,  *Building Taliesin: Frank Lloyd Wright’s Home of Love and Loss*, 2012
education with communal living found a second expression at Taliesin after 1935 as “the Fellowship is as important to Mr. Wright and Mrs. Wright as the buildings.”

The financial constraints and the goal to make Taliesin a self-sustainable farm turned the Fellows into laborers as well as architectural apprentices. In addition to architecture drafting, the Fellows lived on-site and took on daily farm work such as contour plowing, harvesting vegetables, feeding livestock and touring visitors around the site. Taliesin thus was not only an architecture school, it was also a home to up to fifty young men and women at a time. The Fellows raised cows as well as chickens, goats, and pigs in the farm. They planted and plowed rows of potatoes, lettuce, peas, rutabaga, corn, tomatoes, lima beans, beets, and chard, and canned them for use at Taliesin West, cooked them for their own consumption, and sold them to neighbors. Fellow Cornelia Brierly recalled that “Mrs. Wright taught all of us to cook,” and that her Fellowship experience included “constant cooking and baking.”

“Work was the essence of life at Taliesin: work in the drafting room, work on construction, work in the daily upkeep, and work in the farm fields and gardens.” So wrote Curtis Besinger, one of the Fellow architects who worked with Wright summarizing his life at Taliesin. He believed that for Wright, work with growing food was fundamental to a person’s development, particularly to his understanding and appreciation of an “organic

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60 Sarah Leavitt, “Food at Taliesin” in Taliesin Diary: A Year with Frank Lloyd Wright, Henken. Priscilla J (New York: W.W. Norton & Company, 2012), 244-246
61 Besinger, Curtis. Working with Mr. Wright: What it Was Like. (Cambridge England: Cambridge University Press, 1995.)
Wright was one of the first to use the term “organic architecture”. For him it meant a grown coherence of architecture, which consist of various interconnected and interdependent elements of art, nature and human aspects of life. Organic architecture has indicated an architecture that seeks “a harmonious relationship between buildings and landscape, with form developed organically from the function, as a biological, psychological and social utility. Architecture and nature should form a single entity, a unity with human beings and with the culture of human beings”62. “We were surrounded by farmland with pastures for beef cattle as well as for the milk cows. And there were fields producing hay, oats, and corn which, according to the season, crews were sent out to help harvest.” (Besinger 1995)63. The interrelation between and interdependence of terrain, ground, landscape, architecture, residents, livestock management and farming was a manifestation of Wright’s idea of a self-sustainable lifestyle.

Wright’s vision for Taliesin to be a natural house was expressed in his architectural designs for the house itself, but also for its prominent and supporting Midway Barn. “The lines of the hills were the lines of the roofs. The plastered surfaces of light-wood walls, set back into shade behind broad eaves, were like the flat stretches of sand in the river below and the same in color, for that is where the material that covered them came from.”64

63 Besinger, Curtis. Working with Mr. Wright: What it Was Like. (Cambridge England: Cambridge University Press, 1995.)
64 Wright’s words written in 1926 Published in 1932 McCrea, Ron, Building Taliesin: Frank Lloyd Wright’s Home of Love and Loss, 2012
The organic architecture idea which transforms the profile of the natural environment into building components is also reflected in the design of the building components of Midway Barn, both in form and function, in the whole and detail.

Midway Barn is located at the east side of the Midway Hill, facing a great plain of cultivated field. (Figure 16) The hilly landscape with treetops on the west side of the Barn building provides a changeable scene through spring to winter. The terrain throughout and around Taliesin offers surprise views and vistas at the curves of hills and roads. The original Barn building itself consists of a Horse Stable and a Cow Barn, which was oriented from north to south, orthogonally intersecting with the Horse Stable in a cross-shape layout. Wright enhanced the horizontal lines by extending the Cow Barn and adding windows. The horizontal unified windows on the east façade reflect the panorama of the landscapes. In the south end of the Steer Shed, the cantilevered flat roof creates a relationship to the landscape, while the three rows of piers in front give a solid base that holds the roof on the top. These echo themes that can be found in nature.65

Horizontal lines were also enhanced in their expression by punctuating vertical elements, such as the Milk Tower. A similar structure can be found in the roof of the First Christian Church which Wright designed in 1949. In the early 1970s, the First Christian Church approached Wright’s widow, Olgivanna, who granted them permission to use Wright’s triangular chapel design. The chapel’s roof and spire rise seventy-seven feet, supported by the 23 slender triangular pillars. The design of the Milk Tower also echoes his design of spire roof in a smaller scale. Everything was integrated in the building’s structure-not only

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the forms, but also how they served the functions. For example, the wooden platform that functioned for Hay Storage not only extended the roof of the Cow Barn, but also connected with the Silo to get the hay apart from where it could cause fire.

Figure 17. Taliesin contour map. FLWF’s collection Drawing 3420-010
Chapter 3 Agritourism in U.S: Some Examples

Agritourism has spread throughout the U.S for both urban and rural areas. This chapter will introduce several successful farmland reuse cases which have thrived at the unique intersection between food access and preservation.

Fowler Clark Epstein Farm won the 2020 Richard H. Driehaus Foundation National Preservation Awards, the highest national recognition bestowed upon a preservation project by the National Trust for Historic Preservation. In 2015, Historic Boston Inc. (HBI) purchased this designated Boston landmark farmstead, Fowler Clark Epstein Farm in the Mattapan neighborhood of Boston. In an effort to develop a natural re-use for the site that satisfied both historic building preservation and contemporary needs for agricultural uses, a partnership among four nonprofit organizations evolved. HBI, the Urban Farming Institute, the Trust for Public Land, and North Bennet Street School worked together to carry out the transformation of the 18th-century farmstead into a 21st-century urban farm that offers educational courses, productive farmland, office space, a greenhouse, and a residence for two full-time farmers (Figure 1). The key point is that HBI joined its particular expertise in a partnership venture with several local active farming and community garden networks which had grown up nearby and knew this property in its better days. Their collective strengths helped to ensure that this farm could really reach communities in neighborhoods with the greatest need, particularly its health and food

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access. Also, architects and other contractors generously offered discounted pricing and donations from individuals and foundations help HBI to close the financing gap.

Figure 18. Fowler Clark Epstein Farm. Photo taken by Peter Vanderwarker

Another successful case is the Shelburne Farms, a nonprofit organization whose goal is to inspire and cultivate learning for a sustainable future.\textsuperscript{67} Based on Abenaki land located in Shelburne, Vermont, Shelburne Farms includes a 1,400-acre working farm, forest, including a farm barn. The farm barn is the hub of Shelburne Farm’s education programs and nonprofit administration. It is a five-story building with a nearly 2 acre courtyard, constructed in the 1890s to house offices, workshops, farm machinery, stables and crop storage rooms (Figure 19). From 1990-1993, the barn underwent a $3 million renovation to become an education center. The barn now serves for administration offices, the

\textsuperscript{67} “Shelburne Farms: Who are we” accessed March 22\textsuperscript{nd} 2021. https://shelburnefarms.org/about
McClure Center for School Programs, children’s farmyard, housing cheesemaking facilities and an independent organic bakery. Other than restoration of the building itself, Shelburne Farms is the coordinating organization for several local farm-based communities, such as the Farm-Based Education Network (FBEN), which provides virtual and offline workshops for educators and students. PLACE (Place-based landscape Analysis and Community Education), which offers local residents a forum for exploring and understanding the natural and cultural history of their town landscape.

Figure 19. The Shelburne Farms barn photo. Shelburne Farms website 2021.

Another case is the Silos & Smokestacks National Heritage Area (SSNHA), which is one of 55 such federally designated heritage areas in the nation.68 Most of these National Heritage Areas enjoy some limited technical assistance from the National Park Service.

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Through the development of a network of sites, programs and events, SSNHA aims to interpret farm life, agribusiness and rural communities. In SSNHA website, the “Experiences” tab displays a regional agriculture tourism network for viewers to search for a list of attractions and sites. By clicking each site, information including map, accessibility and hours are linked. Joining a similar regional network such as the Wisconsin Agricultural Tourism Association could also help Taliesin to create connection with other agriculture tourism sites. To enhance the connections with other Frank Lloyd Wright Foundation sites, TPI might also provide a Foundation “passport” as a benefit of membership in the Foundation, so that members can get stamped at participating Foundation attractions.

Although these examples vary in scale and contexts, they are examples of success in building connections between local communities and farms, reinforced by education events, historical fabric and, in the case of SSNHA, National Park Service assistance. Such events help participants to gain recognition and a sense of belonging to the site, which leads to the future preservation as well as providing steady visitor flow for developing long-term agritourism. These agritourism cases demonstrate that such programs have the possibilities to succeed in Midway Barn, especially with local and regional support.
Chapter 4 Reprogramming

Through the discussion with Ryan Hewson, FLWF is thinking of adaptively reusing the Midway Barn complex as a land use center that can embrace and interpret agricultural considerations as well as natural landscapes and also cultural landscapes. (from plans summarizing the programmatic intent. The concept is to use the Barn building as a landmark hub to demonstrate the agricultural history of the site (contour farming, strip cropping, irrigation, vegetation, soil survey, animals, biodiversity). In addition to interior presentation spaces, seasonal site harvest or simulation dairy production could be presented to visitors.

4.1 TPI matrix

This section presents two TPI preliminary programming documents for the Barn, which are a baseline for the author’s proposed program modifications, described in section 4.2. These documents, provided to the author by TPI in October, 2020 are as follows:

1) A 2008 floor plan of each Barn level (Figure 20-22), indicating TPI’s assessment at the time of the relative historical significance of the Barn’s components. As plans, these do not strongly convey that the highest level of historical significance is in fact the exterior. Nor do they locate components of “Non-significance” or “utility” (Zone 3/Green and Zone 4/Blue respectively). Also, the methodology for distinguishing between “Primary” and “Secondary” significance is not apparent. Nevertheless, the author is in general agreement with these zones of significance,
and incorporates them for reference in the proposed program adjustments in section 4.2 - with the caveat that the restrictions of the pandemic did not allow for field examinations of the Barn interiors.

2) A 2020 “Midway Space Planning Table” (Figure 23). It is important to note that the terminology used in this table, especially its right columns, could be misinterpreted, and moreover is somewhat different from the use of “zone” in figures 20-22.

Mr. Hewson explained the status and interpretation of figures 20-23 in a 4/29/21 email to the author as follows.

For the space planning table- you are reading that correctly. I would also consider the planning table a “living document” so as we get into the project our priorities might change. How we determined priority in this case was two-fold: what were the easy “wins” smaller projects that we could start to start working on Midway and attract interest (ie Machine Shed). The medium ones, would be the next step, not as easy a project to work on but needed for programming or due to structural concerns. Finally low are the last, and usually larger areas, that will take more time and resources to work on. Essentially, we realize that the preservation of this building will take multiple years and phases, so this was a way to determine where it made sense to start and which direction to go.

For the zoning, I do have one update:

Zone 1- Highest historic importance (the whole exterior)

Zone 2- Secondary importance- still trying to maintain historic materials, but provides leeway, these are usually residential, in the case of the barn it is most of the interior spaces. In this case it gives us the leeway to insert different functions into this building and not strictly adhering to making it a barn.

Zone 3 & 4- This is the edit- we have merged these two zones, and consider them to be utility spaces, kitchen or bathrooms, this indicates that we need to adhere to codes and may have to make some alterations to achieve that. An example would be a mechanical room, that has a piece of equipment in it that needs to vent to the outside (meaning we will need to, sensitively, core a hole a wall to get the venting to work.

As he mentioned, the plan and zoning are a “living document”, indicating that they are
likely to change due to the emergence of different program perspectives and project ideas. As a result, the table and zoning maps do not fully match. For example, Zone 4-Utility is not applied in the table, and neither Zone 3 nor Zone 4 are demonstrated in the floor plans. From the author’s interpretation, this matrix indicates that the building envelope should remain unchanged, although the overriding importance of that exterior significance does not emerge in either the plans or the table. Moreover, the areas shown in the zoning map are unclear - for example, the west side of the lower Apartment and the original Silo are not included. Also, at the 1st zoning level, the façade of the Train Section in the 2nd level and Cottage in the 3rd level are not included either. For secondary significance, the zoning plan only conveys that all interior space can be renovated and rehabilitated; within those spaces, no spatial hierarchy has been identified.
Figure 20. TPI Historical Significance Rating plan level 1. Prepared by TPI 2008
Figure 21. TPI Historical Significance Rating plan level 2. Prepared by TPI 2008
Figure 22. TPI Historical Significance Rating plan level 3. Prepared by TPI 2008
## MIDWAY SPACE PLANNING

<table>
<thead>
<tr>
<th>First Level</th>
<th>Area</th>
<th>Current Use</th>
<th>Program Opportunities</th>
<th>Zoning</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Steer Shed</td>
<td>Non Existant</td>
<td>Interpreters/Presentation Space, Dining, Restrooms</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Pump Room</td>
<td>Empty</td>
<td>Utility Room</td>
<td>3</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Machine Shed</td>
<td>Non Existant</td>
<td>Agricultural Program Support</td>
<td>1</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Pig Barns</td>
<td>Non Existant</td>
<td>Agricultural Demonstration</td>
<td>1</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Chicken Boxes</td>
<td>Non Existant</td>
<td>Agricultural Demonstration</td>
<td>1</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Calm Pen</td>
<td>Storage</td>
<td>Agricultural Program Support, Storage</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Loading Dock</td>
<td>Storage</td>
<td>Café</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Cow Barn/Barn Main Level</td>
<td>Collection Storage</td>
<td>Program Unknown</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Lower Apartment</td>
<td>Residential</td>
<td>Residential</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Stable</td>
<td>Empty</td>
<td>Agricultural Program Support, Office, Storage</td>
<td>2</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Train/Chicken Coop Lower Level</td>
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<td>Offices, Classroom</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Silo (in Barn Main Level)</td>
<td>Empty</td>
<td>Agricultural Program Support, Office</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Silo (1)</td>
<td>Empty</td>
<td>Office, Classroom, Residential</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Silo (2)</td>
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<td>Office, Classroom, Residential</td>
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<td>Low</td>
</tr>
<tr>
<td></td>
<td>Milk Tower</td>
<td>Residential</td>
<td>Office, Residential</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Hay Storage Upper Level</td>
<td>Empty</td>
<td>Program Unknown</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Train</td>
<td>Empty</td>
<td>Office, Classroom, Storage</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Upper Cottage</td>
<td>Residential</td>
<td>Residential</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Upper Guest Cottage</td>
<td>Residential</td>
<td>Residential</td>
<td>2</td>
<td>Low</td>
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### Second Level

<table>
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<th>Second Level</th>
<th>Area</th>
<th>Current Use</th>
<th>Program Opportunities</th>
<th>Zoning</th>
<th>Priority</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Calm Pen</td>
<td>Storage</td>
<td>Agricultural Program Support, Storage</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Loading Dock</td>
<td>Storage</td>
<td>Café</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Cow Barn/Barn Main Level</td>
<td>Collection Storage</td>
<td>Program Unknown</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Lower Apartment</td>
<td>Residential</td>
<td>Residential</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Stable</td>
<td>Empty</td>
<td>Agricultural Program Support, Office, Storage</td>
<td>2</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Train/Chicken Coop Lower Level</td>
<td>Empty</td>
<td>Offices, Classroom</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Silo (in Barn Main Level)</td>
<td>Empty</td>
<td>Agricultural Program Support, Office</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Silo (1)</td>
<td>Empty</td>
<td>Office, Classroom, Residential</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Silo (2)</td>
<td>Empty</td>
<td>Office, Classroom, Residential</td>
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<td>Low</td>
</tr>
<tr>
<td></td>
<td>Milk Tower</td>
<td>Residential</td>
<td>Office, Residential</td>
<td>2</td>
<td>Low</td>
</tr>
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</table>

### Third Level and Up

<table>
<thead>
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<th>Third Level</th>
<th>Area</th>
<th>Current Use</th>
<th>Program Opportunities</th>
<th>Zoning</th>
<th>Priority</th>
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<tr>
<td></td>
<td>Hay Storage Upper Level</td>
<td>Empty</td>
<td>Program Unknown</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Train</td>
<td>Empty</td>
<td>Office, Classroom, Storage</td>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Upper Cottage</td>
<td>Residential</td>
<td>Residential</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Upper Guest Cottage</td>
<td>Residential</td>
<td>Residential</td>
<td>2</td>
<td>Low</td>
</tr>
</tbody>
</table>

* all exterior spaces are rated zone 1
4.2 Program Adjustments

The reprogramming proposed by the author is illustrated in figure 24-27. It follows the priority level and borrows the zoning that TPI formulated, modified with the amenities and attractions for developing agritourism. Besides restoring and maintaining the entire exterior façade, the interior rehabilitation areas are divided into more specific uses and equipment including servant spaces (program support area) such as restrooms and ventilation space. Precedents such as those summarized in Chapter 3 help inform ideas about how to incorporate land, building, livestock and human beings. Although not addressed in this thesis, any restoration and rehabilitation of the Barn requires similar analysis and evaluation of the interiors and the surrounding cultural landscape.
Figure 24. Exterior elevations, all “Zone 1” primary significance, created by author 2021
1st Level
Reprogramming Suggestions

1st Level Map:
- Agriculture demonstration area
- cafe
- Agriculture Program Support

Zone 2: Secondary Significance
- Agriculture Program Support
- Residential
- Collection (Public)
- Collection (Private)
- Office / Classrooms
- Shop

Zone 4: Utility
- Restrooms for visitors
- Kitchen
- Mechanical

TPI Zoning diagram (See Figure 20)

Figure 25. Author’s reprogramming, level 1
2nd Level
Reprogramming Suggestions

Figure 26. Author’s reprogramming, level 2
3rd Level
Reprogramming Suggestions

Zone 2
Secondary Significance
Agriculture Program Support
Residential
Collection (Public)
Collection (Private)
Office/Classrooms
Shop

Zone 4
Utility
Restrooms
Kitchen

Figure 27. Author’s reprogramming, level 3
Chapter 5 Conclusion

The first part of this research updates the detailed chronology of the development of Midway Barn from that presented in the 1994 Historic Structure Report (HSR) by visualizing the evolution through analysis of primary and secondary sources such as field documentation, historic photos and drawings. The final output of visualization includes a parallel comparison between the Barn’s phases of development as laid out in the Burley HSR and the author’s modifications, augmented with 2D graphics (views, axonometric, diagram). These in turn are extruded from the 3D model, using imaging software SketchUp and Adobe Suite. Layer Panel extension plus the “Tags” and “Scenes” tools from SketchUp help the viewer to manipulate the model to understand the evolution of the building.

The SketchUp visualization model consists of three levels corresponding to the degrees of certainty underlying each layer. “Level of Certainty” (LOC) refers to the certainty of information embedded in each layer of the model. The first level is the highest level of certainty, representing the basic but most certain information, the 2nd level, the medium level of certainty, is based on secondary documentation such as historic photos, sketches, and reasonable inferences about the Barn’s configuration. The third level is the low level of certainty, containing the most synthesized information with least certainty.

Another extension, SimLab 3D PDF Exporter, was used to export the SketchUp model into a 3D PDF which allows the viewers to open the model in PDF format. Further research and data gathering is needed for clarifying and adding details to the model’s layers and identifying the certainty for information existing in HSR and other sources. A comprehensive site documentation such as laser scanning for more precise measurements
is needed. As a result, the model does not yet include interiors of the Barn and their evolution, nor the evolution of the immediate landscape, nor that of the broader landscape. All of this is essential context prior to any serious interventions into the Barn and its surroundings.

The Otter Creek Organic Farm (OCOF) provided a general agritourism plan for Taliesin in 2012, including Midway Barn, although after a few years of experiments including growing vegetables, Midway Barn has not been used by OCOF. Such attempts, on the other hand, help TPI to build the foundation for developing an agritourism plan. Based on OCOF’s research and experience, TPI proposed a planning priority for the exterior and interior spaces of the Barn building (See figures 20-23).

This thesis offers a refinement of TPI’s program concepts, informed to a degree by the experience learnt from other farms around the U.S. For the reuse of the Barn complex, responding to the TPI’s proposed program, the visualization also provides a foundation for reprogramming, informed by the significance, integrity, and condition of the Barn complex, and the associated reuse possibilities of its various components (See figures 24-27). The last chapter clarifies the program opportunities, informed by the Foundation’s zoning and priority of the rehabilitation of each area.
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Taliesin Preservation Inc., “Midway Barn Rehabilitation Plan draft _2010.” 2020


Appendix

Appendix A- Side-by-side comparison of phasing chronology, Burley Partnership HSR as modified by author. (Page 73-77)

Appendix B- Phases, illustrated with selected model images. (Pages 78-82)

Appendix C-Selected images from digital model. (Pages 83-87)

Appendix D- Link to 3D pdf, with general instructions.
Appendix A - Side-by-side comparison of phasing chronology, Burley Partnership HSR as modified by author.

<table>
<thead>
<tr>
<th>Phase 0</th>
<th>1918-1934 (Pre-Wright's Intervention)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1918</td>
<td>Wright acquired the land.</td>
</tr>
<tr>
<td>1934</td>
<td>Wright moved a house and a barn, which had been near the highway, up onto the side of Midway Hill.</td>
</tr>
</tbody>
</table>

Cow Barn, Horse stable, the original silo, Calf Pen, Cottage were built by 1934.

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>1938-1944</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1 is c.1938</td>
<td></td>
</tr>
<tr>
<td>Midway was composed of below building components;</td>
<td></td>
</tr>
<tr>
<td>• Cow Barn (spanning north-south, but shorter than exists now)</td>
<td></td>
</tr>
<tr>
<td>• Calf Pen (spanning north-south, same size and shape as exists now)</td>
<td></td>
</tr>
<tr>
<td>• Silo (now missing the roof, with resulting collapse of the interior wood)</td>
<td></td>
</tr>
<tr>
<td>• Silo within the newer exterior concrete silo. The original Silo was also shorter and made of stone)</td>
<td></td>
</tr>
<tr>
<td>• Steer and Tractor Shed (spanning north-south)</td>
<td></td>
</tr>
<tr>
<td>• Horse Stable (spanning east-west)</td>
<td></td>
</tr>
<tr>
<td>• Cottage (detached)</td>
<td></td>
</tr>
<tr>
<td>The original roofs were all constructed of cedar shingles.</td>
<td></td>
</tr>
<tr>
<td>An earlier road was directly below the barns, removed unknown.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Notes</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wright receives the land from his sister, Jane Porter, although how that exchange occurred is unknown.</td>
<td>Taliesin Historic Landscape Report 1939</td>
</tr>
<tr>
<td>The house was believed to be built by John Lloyd Jones, Wright’s uncle.</td>
<td>Taliesin Historic Landscape Report 1940</td>
</tr>
<tr>
<td>Wisconsin survey plan 1930s</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Images extracted from visualization model created by author 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Extension of Calf Pen from north to south.</th>
<th>The photo shows building extended between 1930 and 1940.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.jpg" alt="Image" /></td>
<td>Tuschua collection 1934-1935. TPI #915</td>
</tr>
<tr>
<td>Extension of Steer and tractor Shed from north to south.</td>
<td>FLWF 1929-1930 TPI #2331</td>
</tr>
<tr>
<td>Extension of Cow Barn from north to south.</td>
<td>Curtis Bessinger 1940 TPI #1375</td>
</tr>
</tbody>
</table>
Phase 2 1944-1948

Phase 2 is 1944 to 1948.

- Construction of board fencing.
- Extension of the 2nd floor of the horse stable, in preparation for the later construction of Men's Dormitory.
- Extension of the 2nd floor of the Calf Pen.
- Extension of the roof over Calf Pen. A flat roof “eyebrow” over the west side apartment.
- Construction of the connection between the Cottage and the Barn complex.
- Construction of the stone wall and interior structural changes along the north side windows.
- All of the barn walls were clad with vertical boards and the roofs were covered by wood shingles.

Prepared stones for later construction work. Building alteration unclear.

Phase 3 1948-1952

Phase 3 1948 to 1952.

- Construction of the Steer Shed with its large sloping roof, supported on new stone piers.
- Construction of Wright’s signature spired milk tower and the pump house.
- Pavement of the courtyard.
- The courtyard is paved with cement and framed by collection space, within the “Train Section”
- Construction of the flat-roofed Cow Barn.
- Wright experimented with the installation of an asbestos roofing system in which sheets of asbestos cement boards were cut for use as roofing boards.
Phase 4  1952-1959

- Construction of the twin Silos, and their related Terrace.
- Construction of the semi-circular Machine Shed at the south end of the main complex.
- Construction of the Pig Boxes.
- Construction of the Chicken Coop and addition to the Men's Dormitory.
- Asphalt shingles probably replaced the cement asbestos roofing during this period.
- Reinforcement of the original silo, and construction of an inner wood silo within it.
- Construction of the porch for lower apartment.

C.1957
Alterations to cottage.

Walls of main building components except the roofs were painted red by 1948.
The spire of the Milk Tower was repainted white between 1952 to 1956.
The roofs of Barn were painted red by 1956.

Phase 4  c.1952.

The hay storage (drying rack) was removed later, date unknown. Existed until at least 1973.
Existed until at least 1973.

Frances and Stephen Nemtin built addition to the Cottage started from 1957.
A Brief History of Midway 2007

Comparison between Historic photos between 1952 and 1956.
Comparison between Historic photos between 1912 and 1956.
A Brief History of Midway 2007

Phase 5  1959-1992

In 1959, Wright died. After Wright's death, under fellowship's management, Barn became used only for housing (men's dorm and cottage) storage.

- Alteration to Midway Cottage.

New fenestration for the cottage after Wright's death. The original wall of garden level windows on the southwest side of the new bedroom was removed and replaced with solid wall. New skylights were introduced for the cottage.

A Brief History of Midway 2007
Early 1960s
Farming activities suspended after the early 1960s.
Construction of bathroom in lower Apartment.
Apartment remodeled.

1970
The roof over the Steer Shed had been removed by 1970.

1973

Paul Wagner and his wife Susie married and lived in the Apartment which they remodeled between 1985-1990s.
Joe Fabris built a bathroom for them in that apartment.
Removed by 1970 due to dilapidation.

Post-Wright Restoration/ Rehabilitation work c.1983
• Reconstruction of the east wall of the Calf Pen wing.
• Addition of new windows in lower apartment.
• Replacement of the lower roof of the east side of the Calf Pen.
• Introduction of steel beams and new concrete structure in the upper level of the original Cow Barn (now collection space).

Phase 6
1992-Present
1992
Beginning of Taliesin Preservation Inc [TPI]

1994
TPI Commissioned Burley Partnership to develop HSR, completed 1994.

1995
New electricals were trenchied in from the lower apartment.
Constructed two artifact and collection storage rooms inside the Cow Barn started from 1992 and finished over years.

1998
Construction of the driveway to the back door of the Cottage.

An HSR was prepared for Midway Barn in 1994.

A Brief History of Midway 2007

A Brief History of Midway 2007

A Brief History of Midway 2007

A Brief History of Midway 2007
1999
The cottage was re-roofed in fall.

1999
TPI commissioned Barbara Wyatt to develop Taliesin
Historic Landscape Report, completed 1999

2000
The Taliesin field was farmed by Foundation’s tenant
farmer Otter Creek Organic Farms (OCOF) since 2000.

2006
Train Section roof and lower apartment’s roof were
replaced with current red asphalt shingles.

2012
TPI Agricultural-Tourism survey

In service of a dairy
{hard (served for
{nearby farm’s cows),
{consisting of corn
{and soybeans, plus
{other crop such as
{rye (for whiskey or
{chicken feed).

Otter Creek Organic
Farms

A Brief History of
Midway 2007
Appendix B- Phases, illustrated with selected model images. Appendix B- Phases, illustrated with selected model images. Appendix B- Phases, illustrated with selected model images.

1918 Wright moved a cottage and a barn, which had been near the highway, up onto the side of Midway Hill.

From visualization model created by author 2021

C. 1938 Midway was composed of:
- A Cow Barn which was the main block of the building;
- An Apartment at its north end; one Silo located along the west side of cow barn;
- A Calf Pen and Steer/Tractor Shed—both east of Cow Barn;
- A Horse Stable—perpendicular to the cow barn;
- A Cottage which was not connected to Midway.

From visualization model created by author 2021

1938 Midway outline
Drawn by author 2021

1938 Midway outline
Drawn by Burley Partnership
HSR 1994
- Extension of the Calf Pen.
- Construction of the 2nd floor of the Horse Stable.
- Connection to the Cottage.
- Construction of the board fencing.

From visualization model created by author 2021
• Construction of the Machine Shed
• Construction of the Pig Bunker
• Construction of the Twin Silos and the attached terrace (Hay Storage)
• The 2nd floor of the Horse Stable turned into Men’s Dormitory
• Construction of Chicken Coop and addition to the Men’s Dormitory
From visualization model created by author 2021

- Machine Shed was removed
- Pig Boxes were removed
- Hay Storage was removed
- The roof over Steer Shed was removed
- Reconstruction of the east wall of the Calf Pen wing
- New windows in lower residence
- Introduction of steel beam and new concrete structure in upper level of original Cow Barn

1983 Midway outline
Extracted from the model by author 2021
Building outline drawn by author (2020) based on site measurements. (Cottage included, but not based on measurements)

From visualization model created by author 2021
Appendix C-Selected images from digital model.

1938 scene from SketchUp model, Looking southwest to the Barn. Created by author 2021.
1944 scene from SketchUp model, Looking north to the Barn. Created by author 2021.
1983 scene from SketchUp model, Looking inside of the collection space, showing the truss beam. Created by author 2021.
2020 scene from SketchUp model, Looking at the Barn from aerial view. Created by author 2021.
Appendix D - Link to 3D pdf, with general instructions.

STEP 1 --- The SketchUp model is available and can be downloaded from the link: https://drive.google.com/file/d/1aoPoaHhZ0glxdtSGH1VoIu94bcOE1F9/view?usp=sharing

An extension, Simlab 3D Exporter, was used to export the SketchUp model into a 3D PDF. Use of the 3D PDF is described in the steps below.

STEP 2 --- The model is available for access on page 83 and requires Adobe Acrobat, the model allows the users to rotate the images, view it from multi perspectives, zoom in or out, or add or delete chronological layers. This allows different scenes of the Barn at different periods to be created and manipulated by the users.

STEP 3 --- To open the model, go to page 83 and click on the arrow.

STEP 4 --- Once the model is opened, a yellow bar at the top with the message will show “3D content has been disabled.” Enable this feature by clicking the Options button and then select an appropriate option: “Trust this document one time only.” Or “Trust this document always.” Then the model will be activated.

STEP 5 --- To rotate the 3D model, hold left mouse button down and move mouse.

STEP 6 --- To zoom in or out of the model, use the scroll wheel on the mouse.

STEP 7 --- To add or delete chronological layers requires the addition of SketchUp extensions” Layer Panels”. This extension enables the Barn components to be visible or invisible to reflect any periods in its chronology.

STEP 8 --- To view 3D PDF model in full screen, right-click and select Full Screen Multimedia.

3D PDF (See next pages)

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