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DRAFT McPolin Farm Historic Preservation Plan

Prepared for

Park City Municipal Corporation

Prepared by

Park City Municipal Corporation
SWCA Environmental Consultants

July 2015

MCPOLIN FARM HISTORIC PRESERVATION PLAN

Prepared for

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July 30, 2015

EXECUTIVE SUMMARY

The McPolin Farm is an iconic site on the north approach to Park City, Utah, adjacent to State Route (SR) 224. Park City Municipal Corporation (PCMC; the City) has owned and managed the property on behalf of the local community since the 1990s, during which time it has used the property for recreational trail development, interpretation of local history, limited agricultural activities, and special events.

The extant historic buildings and structures at the McPolin Farm were constructed between about 1920 and 1954 and include a large, gambrel-roofed dairy barn; a corral with an associated corrugated-metal animal shelter; a board-and-batten granary; a wood-framed tool shed; a three-person outhouse; a small bunkhouse; two concrete grain silos; and, on the opposite side of the highway, a wood-framed machinery shed. Two buildings were reconstructed in 1999: a one-story, pyramidal-roofed farmhouse and a shed-roofed machinery building, which is now used as a reception center. The historic significance of the farm derives from its establishment and ownership under the McPolin family and the early years of the Osguthorpe family's tenure. The McPolins' improvements to the farm prior to the 1940s reflect early standards for dairying, while later changes by the Osguthorpes illustrate the advancing philosophy and availability of technology in the dairy industry during the mid-20th century. The McPolin Farm was listed on the National Register of Historic Places (NRHP) in 2004, when it was recognized for the integrity of its buildings, structures, and landscape features.

In 1992, immediately after purchase, the City implemented basic stabilization measures for the barn that included an internal cable bracing system, new collar ties, and a new roof; these modifications were intended to stabilize the building but not allow for any public access or use. PCMC then developed the "Entryway Corridor Master Plan" that is still in force today. The emphasis of the plan is on the preservation of open space and its associated visual qualities and natural resources. Another major goal of the plan is to protect not only the historic quality of the barn, but the historic nature of the property as an agricultural setting for the barn (PCMC 1995).

Today, an administrative policy guides the management of the farm. A PCMC Conditional Use Permit (CUP) allows up to 12 City-sponsored special events each year; these are limited in number and group size to prevent interference with the open-space character of the farm. The barn remains closed to the public. City management of the property is supported by the Friends of the Farm (FOF), a City-sponsored volunteer board that was formed in 2001 to foster community use of the McPolin Farm.

The 1995 master plan provided a Capital Improvements Schedule to be implemented over a five-year period, and nearly all tasks have been accomplished. These include paving the access road, installing an alarm system and fire suppression system in the barn, constructing recreational trails through the property, and reconstructing the McPolin residence. Additional non-scheduled improvements have included repairing and restoring the granary, toolshed, outhouse, and bunkhouse; replacing the McPolin machinery shed with a reception center and restroom facility of similar design; and constructing a trailhead parking lot and highway underpass.

With most short-term goals met and capital improvements made, the farm property and its buildings are in a stable and well-maintained condition. The provision of passive recreational opportunities and limited special events has solidified the perception and use of the property as a community resource among Park City residents. And as development continues apace in the greater Park City area, the barn and the surrounding open space become increasingly more iconic and valuable as an entry point and as a reminder of the city's history. However, the barn, which is clearly the most important building on the property in terms of monumentality, function, and historical interest, remains largely inaccessible to, uninterpreted for, and unused by the public. The cable bracing system, while partially successful in improving structural stability, has a negative visual impact on important interior spaces and limits accessibility and most potential uses. Additional structural improvements to the roof are required to resist snow and wind loads. Windows have not yet been restored and window openings remain boarded. And the property as a whole is underused from an events perspective due to staffing and financial limitations.

Without a vision for the long-term use of the barn and the property, it has been difficult for city staff and elected officials to decide upon the nature and extent of the remaining repairs and capital improvements, or to evaluate the administrative policy guiding the use and staffing of the McPolin Farm. This preservation plan was designed to provide a multi-disciplinary planning tool for the property, one which establishes a framework for the City to consider short-term and long-term alternative actions and associated physical treatments or alterations, and to enter into those actions with a sound understanding of how the proposed work will impact the historic fabric and character of the barn and the farm.

The plan is organized into two main parts:

- Part I is a developmental history, which includes the historical background and historical context of the property, an architectural description, an existing conditions assessment, a code and accessibility review, summaries of several structural evaluations, and an evaluation of existing systems.

- Part II is a discussion of treatment and use, which includes the recommended treatment philosophy for the site, potential future uses and interpretation options, treatment recommendations for buildings and structures, cost estimates for those treatment options, and a maintenance plan.

In summary, a preservation treatment philosophy (as opposed to restoration or rehabilitation) is recommended for the Farm from this point forward, which will focus on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time. This aligns with national standards and is supported by both City Council and FOF; preliminary responses from the public indicate that most community members would support a preservation approach as well. Preservation has multiple advantages and is appropriate because the farm's distinctive buildings, features, and spaces are intact and thus convey its historic significance. The preservation approach is also in accord with existing zoning, the Entryway Corridor Master Plan, and subsequent strategic plans. PCMC has made essential repairs and improvements since purchasing the property and, under this approach, no additional extensive repairs or replacements are required other than structural upgrades and window restoration for the barn, repairs to the Osguthorpe shed, and possibly repairs to the silos. Improvements to the barn would allow for some degree of public access and increased interpretation. The preservation approach also leaves options open for the future, should rehabilitation of one or more buildings become a priority.

Under a preservation treatment philosophy, the use and interpretation of the McPolin Farm would remain essentially the same as at present. The current policy of passively interpreting the Farmhouse, Granary, Tool Shed, Outhouse, Bunkhouse, and Grain Silos aligns with PCMC's vision and appears adequate to public use and interest. Increasing public events to meet the present CUP maximum of 12, or even expanding to 24 events per year, would have little impact on the historic resources because events are typically hosted in the Reception Center and adjacent plaza, or in other open-space areas of the farm. Expanding the use of the Farm to permit a limited number of private events, like weddings, and/or events hosted by local non-profit groups, will likewise have little impact on historic resources.

Aside from routine maintenance, no improvements or upgrades to most buildings or structures would be required under the preservation philosophy. The one significant change would involve expanding the use and interpretation of the barn by opening it to the public on a limited basis, which is strongly supported City Council, FOF, and respondents to a public input survey. This will require removal of the cable bracing system and structural upgrades to the barn to improve both seismic stability and resistance to snow and wind loading. As a corollary, other smaller improvements would be required, like cleaning the interior of the barn and repairing or stabilizing interior finishes; repairing or restoring dairy equipment, particularly in the milk houses and milking parlor; adding interpretive signage and displays to supplement guided tours; improving or replacing the staircase to allow for safe access to the hayloft and upper level of the milking parlor; and addressing minor accessibility issues.

A number of additional projects are recommended to ensure the short-term stabilization, long-term preservation, and continued public enjoyment of the McPolin Farm. Some of these were identified in the most recent strategic plan for the farm while additional tasks have been identified as a result of the assessments conducted for this preservation plan. The plan concludes with a comprehensive, prioritized list of short-term tasks, with cost estimates when available; if possible, these tasks should be implemented in the next 1-3 years. Highest priority is given to tasks that will help ensure the safety of individuals, protect the architectural integrity of the buildings by preventing further deterioration, and solicit public input as part of the decision-making process. Long-term recommendations are also presented, and these should be implemented in the next 3-5 years to improve the condition of the buildings and site, improve visitor experiences, and increase public use and community investment.

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PART I DEVELOPMENTAL HISTORY

CHAPTER 1. INTRODUCTION

In 1886, Harrison P. McLane and his wife obtained a homestead of 160 acres to the north of Park City, Utah, along what is now State Route (SR) 224. Eighty acres of this original homestead were sold to Dan McPolin and Patrick McAleeman for $600 in 1897, following the death of McLane. McPolin purchased additional property for $750 from the McLane estate in 1901 to support the cattle ranching operation he had established. Following Dan McPolin's death in 1922, the property passed to his son Patrick, who grew the farm substantially and specialized in dairying prior to selling the property to Dr. D.A. Osguthorpe for $35,000 in 1947. Osguthorpe continued to expand the dairy and eventually relocated farm operations to the east side of the highway in 1960. Thirty years later, Osguthorpe sold the property at 3000 SR 224 to Park City Municipal Corporation (PCMC or "the City") for $4.4 million. Since the 1990s, the City has used the farm property for trail development, agricultural uses, and special events (xx Figure 1.1 Site Plan). In the spring of 2014, when discussing its future use, PCMC's City Council requested the preparation of a preservation plan for the McPolin Farm.

The extant historic buildings and structures at the McPolin Farm were constructed between about 1920 and 1954 and include a large, gambrel-roofed dairy barn; a corral with an associated corrugated-metal animal shelter; a board-and-batten granary; a wood-framed tool shed; a three-person outhouse; a small bunkhouse; two concrete grain silos; and, on the opposite side of the highway, a wood-framed machinery shed. Two buildings were reconstructed in 1999: a one-story, pyramidal-roofed farmhouse and a shed-roofed machinery building, which is now used as a reception center (Table 1; Figures xx-xx).

Table 1. Buildings and structures at the McPolin Farm, with approximate dates of construction, reconstruction, and/or intensive restoration.

Building or Structure	Original construction year	Restoration or reconstruction year
Barn	ca.1920-22	-
Milk house addition	ca.1930s	-
Milking parlor addition	1954	-
Corral and Shelter	ca. 1920	-
Granary	ca. 1920	(restoration)*
Tool Shed	ca. 1920	2002 (restoration)
Outhouse	ca. 1920	2002 (reconstruction)
Bunkhouse	1932	2002 (restoration)
Grain Silos	1953	-

Osguthorpe Shed	1954	-
Farmhouse	ca. 1900**	1999 (reconstruction)
Reception Center	1950	1999 (reconstruction)

*Date Unknown.

**Originally the assay office at the Grasselli Mine, move to farm in 1923.

The historic significance of the farm derives from its establishment and ownership under the McPolin family and the early years of Osguthorpe's tenure. After suffering from a mining accident in 1890, Irish immigrant Dan McPolin and his wife Isabelle became prosperous entrepreneurs in the Park City community. In addition to the cattle ranch, they owned a number of businesses including bars, restaurants, a bottling works, lumber yard, and even a meat market on Main Street. The shift from cattle ranching to dairy farming in the early 1920s by son Patrick McPolin was driven by the growing demand for dairy products in Summit County. Patrick McPolin's improvements to the farm prior to the 1940s reflect early standards for dairying, while later changes by Osguthorpe illustrate the advancing philosophy and availability of technology in the dairy industry during the mid-20th century. From the specificity of the site layout to the construction of the barn and later milk house additions, the McPolin Farm is a historic reminder of past trends in dairy agriculture as well as the demands of dairying on an individual farmer.

The McPolin Farm was listed on the National Register of Historic Places (NRHP) in 2004, when it was recognized for the integrity of its buildings, structures, and landscape features (Appendix A). The farmstead was deemed eligible for the NRHP under Criteria A and C because of its contributions to the broad pattern of Park City's development as well as its embodiment of the distinctive characteristics of agricultural buildings constructed during the twentieth century.

In 1992, immediately after purchase, the City implemented basic stabilization measures for the barn that included an internal cable bracing system, new collar ties, and a new roof; these modifications were intended to stabilize the building but not allow for any public use. PCMC then developed the "Entryway Corridor Master Plan" (adopted in 1995 and reissued in 1997), which is still in use today. The emphasis of the plan is on the preservation of open space and its associated visual qualities and natural resources. Another major goal of the plan is to "protect the historic quality of the barn located on the Farm Parcel and the historic nature of the property as an agricultural setting for the barn" (PCMC 1995: 1). The plan acknowledges that the barn "has become a cultural icon representing the agricultural heritage of the area" but, during the plan development, no community consensus was reached about the long-term use of the building (PCMC 1995: 9). Thus it was recommended that the barn and farm buildings be used in a way that would preserve future options. Short-term use criteria for the farm and barn were developed, and these focused on passive recreational use of the property. Under the terms of the plan, the property currently serves as community resource that is open for public uses including:[1]

- Walking, jogging, and bike trails
- Interpretive trails
- Picnic areas and benches

[1] Park City Municipal Corporation, Planning Department. *Entryway Corridor Master Plan* (Park City, 1995, reprint 1997), 3.

- Cross-country skiing trails
- Community event venue spaces
- Fishing access
- Animal grazing
- Agricultural fields
- Public bathrooms and locker facilities

Today, an administrative policy guides the management of the farm. A PCMC Conditional Use Permit (CUP), first issued in 2001 and modified in 2001, 20013, 2006, and 2009, also allows up to 12 City-sponsored special events each year; these are limited in number and group size to prevent interference with the open-space character of the farm. The barn remains closed to the public. Criteria to guide long-term use of the buildings are also set forth in the plan; these are discussed further in Chapter 8.

The management of the property is supported by the Friends of the Farm (FOF), a City-sponsored volunteer board comprising mostly City employees (although open to public membership) that was formed in 2001 to foster community use of the McPolin Farm. The board organizes and staffs the City-sponsored events for Park City families allowed under the CUP. The admission collected from the events is used to fund improvements prioritized by the board, which has also applied for and received grants to help fund the preservation of the farm buildings.

The master plan provided a Capital Improvements Schedule to be implemented over a five-year period, and nearly all tasks have been accomplished. These include paving the access road, installing an alarm system and fire suppression system in the barn, constructing recreational trails through the property, and reconstructing the McPolin residence (originally intended to house a caretaker). Additional non-scheduled improvements have included repairing and restoring the granary, toolshed, outhouse, and bunkhouse; replacing the McPolin machinery shed with a reception center and restroom facility of similar design; and constructing a trailhead parking lot and highway underpass. Since the early 2000s additional work has been guided by the McPolin Farm Strategic Plan, prepared and updated semi-annually by the Farm Manager, Denise Carey, which itemizes recommended projects to be funded as capital improvements or as part of asset management. The approach has continued to be conservative, focusing on the passive recreational use of the property and the preservation and maintenance of the farm buildings.

With most short-term goals met and capital improvements made, the farm property and its buildings are in a stable and well-maintained condition. The provision of passive recreational opportunities and limited special events has solidified the perception and use of the property as a community resource among Park City residents. And as development continues apace in the greater Park City area, the barn and the surrounding open space become increasingly more iconic and valuable as an entry point and as a reminder of the city's history. However, the barn, which is clearly the most important building on the property in terms of monumentality, function, and historical interest, remains largely inaccessible, uninterpreted, and unused. The cable bracing system, while partially successful in improving structural stability, has a negative visual impact on important interior spaces and limits accessibility and most potential uses. Additional structural improvements to the roof are required to meet snow and wind loads. Windows have not yet been restored and window openings remain boarded. And the property as a whole is underused from an events perspective due to staffing and financial limitations.

Without a vision for the long-term use of the barn and the property, it has been difficult for city staff and elected officials to decide upon the nature and extent of the remaining repairs and capital improvements, or to evaluate the administrative policy guiding the use and staffing of the McPolin Farm. To address these issues, the creation of a preservation plan was spearheaded by Ms. Carey with the support of the PCMC City Council; funding was provided by the Planning Department and McPolin Farm events revenue. The purpose of the plan is to provide a multi-disciplinary planning tool for the property, one which establishes a framework for the City to consider short-term and long-term alternative actions and associated physical treatments or alterations, and to enter into those actions with a sound understanding of how the proposed work will impact the historic fabric and character of the barn and the farm.

The plan is organized into three sections:

- Part I is a developmental history, which includes the historical background and historical context of the property, an architectural description, an existing conditions assessment, a code and accessibility review, a summary of the structural evaluation, and a summary of existing systems evaluations.

- Part II is a discussion of treatment and use, which includes the recommended treatment philosophy for the site, potential future uses and interpretation options, treatment recommendations for buildings and structures, cost estimates for those treatment options, and a maintenance plan.

- Appendices form the last section, and these include the NRHP nomination for the farm (Appendix A), copies of historic photographs (Appendix B), measured drawings (Appendix C), representative photographs of current conditions (Appendix D), an accessibility review (Appendix E), a number of structural engineering reports (Appendices F, G, H, and I), results of a public survey on the current and future use of the Farm (Appendix J), and general recommendations for the future treatment of historic buildings and materials (Appendix K).

The preservation plan was researched and written jointly by PCMC staff and SWCA Environmental Consultants (SWCA), the consulting historic preservationist specialists. Specifically, Park City Planning Department staff members Anya Grahn, Historic Preservation Planner, and Hannah Turpen, intern and later Planner, prepared much of the written material in Part I, with contributions from the Park City Building Department and ongoing input from Ms. Carey. Anne Oliver, Historic Preservationist with SWCA, prepared much of the written material in Part II and SWCA's technical editing group provided editorial services. Architectural drawings were prepared by ajc architects (AJC), while a structural engineering report was prepared by BHB Consulting Engineers, PC, (BHB). Three meetings were held to solicit input about the short- and long-term vision for the farm, one with the FOF board and two with the PCMC City Council; this input was used to guide the development of the treatment philosophy and recommendations in Part II. The final document was formatted and produced by PCMC.

CHAPTER 2. HISTORICAL BACKGROUND AND CONTEXT

Mormon settler and church leader Parley Pratt discovered the "park-like" meadow for which Park City was later named in 1848.[2] Pratt believed that Emigration Canyon, at that time the only entrance to Salt Lake City through the Wasatch Mountains, was too difficult a route for the increasing numbers of pioneers and gold seekers headed to California. Despite a failed petition to Salt Lake City for $800 to construct a new road through Big Canyon Creek in 1848, Pratt obtained the deed to the canyon and began constructing his road the following year.[3] The canyon became known as Parley's Canyon, and the gold miners using the new road affectionately dubbed it the "Golden Pass."

In addition to Pratt, Mormon settlers J.M. Grant, H.C. Kimball, and Samuel C. Snyder also grazed their cattle in the basin meadows. In 1849, Pratt sold his squatter's rights to Snyder in exchange for a yoke of oxen.[4] Snyder's large polygamous family developed a sawmill, supplying lumber to the growing construction boom in Salt Lake City as well as timbering much of the old growth forests; the area was later named Snyderville.[5] The establishment of the Weber Stage Station at Echo and the construction of the Kimball Hotel in 1862 in what was to become Kimball Junction drew stagecoach travelers, pioneers, and miners to the Snyderville Basin as well.[6] Due to the short growing season, limited arable land, and variable stream flows, the Snyderville Basin was largely reserved for cattle grazing. Between 1870 and 1930, the number of cattle in Utah quadrupled, and by 1930, one-eighth of the state's farms were dairy.[7]

Though federal troops were initially sent to Utah to suppress the Mormon Rebellion in 1858, Colonel Patrick Conner's troops began prospecting in 1862 with the intent of attracting newcomers to Utah and diluting the Mormon population.[8] In late October 1868, soldiers crossed over from Big Cottonwood Canyon and discovered silver in the Park City area.[9] A bandana on a stake marked the silver vein that was renamed the Flagstaff Mine upon their return in the spring. The Flagstaff Mine was the first to ship silver ore from the region; however, others would soon follow. The Ontario Mine, which opened in 1874, ignited the boomtown atmosphere of Park City. The Ontario Mine would become the region's largest silver producer.

Unlike the other self-sufficient, cooperative, Mormon-established communities of the state, Park City grew out of a mine camp. The opening of the west with the completion of the Transcontinental Railroad at Promontory Point in May 1869 drew many Chinese railroad laborers, immigrants, and adventurers to Park City. To support and profit from the mining boom, many businessmen opened general stores, saloons, hotels and boarding

[2] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.
[3] The Church of Jesus Christ of Latter-Day Saints. "Golden Pass Road," LDS Church History, http://history.lds.org/place/pioneer-story-golden-pass-road?lang=eng (accessed September 4, 2014).
[4] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.
[5] Ibid.
[6] Park City Museum. "Timeline of Park City History." http://www.parkcityhistory.org/research/timeline/ (accessed September 4, 2014).
[7] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.
[8] Park City Museum. "Timeline of Park City History." http://www.parkcityhistory.org/research/timeline/ (accessed September 4, 2014).http://www.parkcityhistory.org/research/timeline/.
[9] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.

houses, and other service shops to support the mining boom. Further, the expansion of railroads into Park City in 1890 provided greater access to markets in Salt Lake City and beyond due to the reduced transportation costs.

2.1 Farm Establishment and the Early Years, 1897-1921

Dan McPolin, born in Cork County, Ireland, c.1861, was one of the many immigrants who flocked to Park City with the hope of striking it rich in the mines; however, a mining accident in 1890 left him unable to continue his mining career.[10] McPolin had likely profited from his work in the mines because he soon sent for his future wife and fellow Irish immigrant Isabelle Clark; during their courtship in the U.S., Isabelle worked for her brother, a Catholic priest in Eureka.[11]

Like many hardworking immigrants, the McPolins became successful entrepreneurs. The couple owned and operated a number of businesses including the Bank Saloon on Main Street, a hotel and saloon (1893), a restaurant (1897), the Park City Bottling Works (1899), a confectionary (1903), lumber yard, coal yard, and a boarding house. The Boarding House Law of 1901 prohibited mining companies from requiring that their employees live in company-owned boarding houses, and the McPolin boarding house likely profited from this ruling.

In 1896, Dan McPolin also managed a meat market on Main Street, which may have prompted him to purchase 80 acres of land for $600 in 1897 to raise livestock. This was half of the old Harrison P. McLane homestead, which was valued to have $1,250 in improvements at the 1892 tax assessment; McPolin purchased additional property for $750 from the McLane estate in 1901. [12] Until the 1920s, the family used the land to graze beef cattle and raise hogs. Historical accounts recall that the creek often ran red to Kimball Junction due to the number of animals butchered at the McPolin Slaughter Farm.[13]

2.2 The McPolins and the Move to Dairy Farming, 1922-1947

Park City's growing population and increased demands for dairy products may have encouraged the McPolins to abandon cattle ranching for dairying at the beginning of the 1920s. A granary as well as a combined corral and shelter were constructed in 1920, prior to Dan McPolin's death in September 1922 to gastrointestinal cancer. The dairy barn, one of the largest in Summit County, was completed in 1922 and incorporated the latest scientific methods that combined hay storage, livestock, and dairy operations under one roof. It was not uncommon for mines to sell their assets as technology advanced, mines consolidated, or mine claims were abandoned altogether, and the McPolin barn was constructed from salvaged mine timbers as well as lumber from Briggs Mill and McPolin's own lumberyard. The milk house on the northwest side of the barn was constructed after the dairy barn and by 1930. Similarly, the assay office of the Grasselli Mine is reported to have been moved in two pieces by

[10] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.
[11] Betty (McPolin) Burt recalls that her grandmother was a mail order bride from Ireland. (personal communication , December 9, 2015).
[12] Ibid.
[13] Kathleen Shorr, "Ship in a Sea of Grass: The Story of Our Barn," Lodestar, Summer 1994, 15.

wagon to the farm in 1923; a lean-to addition and front porch were added as part of its renovation to a farmhouse.[14] Patrick McPolin also constructed the outhouse at this time. Other upgrades included bringing electricity to the farm in 1928 and installing indoor plumbing in the farmhouse during the 1930s. Farmers typically viewed painting their buildings as frivolous; however, one 1917 agricultural publication endorsed the use of paint to protect wood surfaces and promote sanitation.[15] The McPolin Barn received its first coat of paint in 1932. That same year, Patrick McPolin's son James constructed the bunkhouse next to the house; it was used to house seasonal workers on the farm. (See Appendix B for historic photographs of the farm and McPolin family).

2.3 The Osguthorpes and Continued Modernization, 1948-1990

The McPolins sold the farm and its twenty-two cows to Salt Lake veterinarian Dr. D.A. Osguthorpe in 1947 for $35,000. Osguthorpe continued to expand operations and improve the farm's efficiency. A machine shed for large farm equipment was constructed near the barn in 1950. Demands of the growing dairy herd led to the construction of two new forty-foot tall concrete silos on the southwest side of the barn in 1953 as well as the new 1,500-square-foot, concrete-block milking parlor and milk house in 1954. Following a fire in 1955 that severely damaged the farmhouse, the Osguthorpes abandoned the McPolin Farm site and moved dairy operations to the east side of Highway 224. They constructed a new cinderblock farmhouse, grain silo, barn, and underground manure tanks. The McPolin Farm buildings sat empty and largely forgotten until PCMC purchased the site for $4.4 million from the Osguthorpes in 1990. The City demolished the newer Osguthorpe farm structures, except for the open air shed on the east side of SR 224 in 1990.

2.4 The McPolin Farm in the Context of 20th Century Farming

Though initially most families kept a cow during Utah's settlement period, the growth of cities at the turn of the last century created greater demands for milk and allowed for the specialization of farming in the 1890s. The founding of the Agricultural College of Utah in 1888 and the creation of the Utah Agricultural Experiment Station further promoted specialized farming practices and soon led to the creation and distribution of agriculture-related publications through the Utah Cooperative Extension Service. These publications covered topics such as barn construction, manufacturing of milk and dairy products, as well as the grain-to-corn ratios to feed livestock. Though many Utah farmers pursued cattle ranching due to the state's topography and climate, a number concentrated on dairying. At the end of the nineteenth century, creameries had been established in the Summit County towns of Marion, Francis, Hoytsville, Oakley, and Henefer. As an indicator of their success, Summit County dairies sold 1.14 million gallons of milk in 1919.[16]

[14] Ibid.
[15] Walker, Percy. "Use of Paint on the Farm." *Farmers Bulletin* 474 (July 1917).
[16] David Hampshire , Martha Sonntag Bradley, and Allen Roberts. *A History of Summit County, Utah Centennial County History Series.* Salt Lake City: Utah State Historical Society and Summit County Commission, 1998.

In contrast to raising beef cattle, modern dairy farming placed great daily demands on the farmer. Much more temperamental than beef cattle, dairy cows required a strict schedule of regular milking and feeding as any upset to their routine could lower milk production. Sanitation was also of the utmost importance as ferments and bacteria could contaminate the quality of the milk. In addition to regularly removing uneaten feed and manure from mangers and stables, the farmer regularly cleaned the concrete floors of the barn with lime and disinfected the milking parlor and milk house in order to prevent contamination of the milk. The layout of the farm site and buildings aided the farmer in maintaining the demanding schedule of dairying as well as the strict government health regulations adopted in the early 1900s regarding the production and handling of fluid milk.

Following the homesteading period, new farms were carefully laid out to maximize the efficiency and profitability of the dairy farm. In addition to choosing a site with sufficient natural drainage, the barnyard was often laid out on flat ground to prevent water from collecting and the cows from becoming muddy. Publications from the Agricultural Extension at the University of Wisconsin also promoted that the barn be a distance of at least 200 feet from the house in order to protect the house from barnyard odors and protect its views.[17] Other buildings and structures such as the granary, machine shed, ice house, and well were also to be carefully located for the convenience of daily farm chores.

The Improvement Era (c. 1910-1940) illustrated the shift from sustenance farming providing for settlers to the specialization of farm products. The growth of urban areas prevented many from keeping their own cow, leading to a greater demand for dairy products in Utah by the early 1900s.[18] While early barn designs were based upon European building traditions, dairy farming necessitated specificity in the design and construction of farm buildings and site planning. The second-story haymow was a typical feature of livestock barns as the hay acted as a heat insulator for animals below; however, the need to feed and house animals year-round in dairy barns increased demand for hay and hay storage. Unlike a traditional gable roof that provided limited hay storage, the dual-pitch roof shape of the gambrel roof became the dominant roof form of Improvement Era barns because of its increased hay storage capacity. Other key features of dairy barns were cupolas to provide ventilation, rows of regularly spaced windows, gable-end doors and hayloft openings with triangular hay hoods to load bails into upper story haymows, as well as silos to store the silage fed to cows during the winter months. Dairy operations also required the construction of milk houses, preferably adjacent to the barn so that all operations were under one roof. Agricultural publications promoted specific barn layouts to promote efficiency of the process and improve livestock comfort.

The McPolin Farm as it exists today embodies many of the trends occurring during the Improvement Era. As was previously noted, it was recommended that the barn (xx Figure 1) be located subservient to the house (xxFigure #) so as to protect the views from the house and protect it from windblown odors. The McPolin farmhouse is located just southwest and uphill of the barn. Though the front porch overlooks the barn yard, the views from the house are largely protected and northerly breezes safeguard the house from strong smells. It was not uncommon for the bunkhouse (xxFigure #) and outhouse (xxFigure #) to be located near the farm house, and it appears that the outhouse has been relocated several times during its lifespan (see Appendix B). The tool shed (xxFigure #) was likely moved from the north side of the driveway to the north side of the house after 2002. Located directly west and behind the farmhouse, the granary would have stored grain harvested from the field to feed the livestock; this structure was also believed to have been first located to the north side of the driveway, closer to the barnyard.

[17] O.R. Zeasman, G.C. Humphrey, and L.M. Schindler. “Dairy Barns 325.” Madison, WI: University of Wisconsin-Madison, 1921.

18 ADD COREY JENSEN BARN BOOK xx

A number of structures from the original McPolin farmstead were removed by Osguthope. Betty (McPolin) Burt recalls that a root cellar was to southwest of the house near the creek. The root cellar was used by her mother to store canned vegetables, jams, and winter vegetables. The root cellar has been lost and there are no physical remnants of its location. The farm also required an icehouse, constructed to the southeast of the house, was constructed on the creek. Ice was harvested annually from the creek and stored in this structure. The ice blocks were used to cool milk inside the barn prior to the installation of milk tanks in the 1940s. In addition to dairying, Patrick McPolin also raised hogs, sheep, and chickens. A hog shed was located to the southeast of the barn and Patrick McPolin had constructed a slaughterhouse in the north field that was used to butcher the hogs. The McPolins had also built a metal granary to the northeast of the barn, likely used to store corn cobs harvested from the surrounding fields. A woodshed was also constructed to the northeast of the house. No physical evidence of these structures remains today.[19] (See xx Figure #).

The barn, in particular, emulates trends in building that were shaped by the demands of dairy farming. The orientation of the barn protected cattle from the prevailing wind, while hopper windows on the northwest and southeast elevations opened to cool the stable during warm weather and provided ample sunlight during the winter months. Sunlight was considered a disinfectant, and good ventilation was necessary to prevent the spread of disease among the herd as well. As a 1948 publication explained,

> A hard working dairy cow breathes a large volume of air during the course of a day's time. Her work requires a large amount of oxygen which she must obtain through her respiratory organs (the lungs). This can only be adequately supplied when the cow has plenty of fresh, pure air. We need good ventilation in our cow stables. Ventilation should be provided as to avoid severe draughts of air on cows. A good ventilating system provides for the continual change of air in our stables without draughts.[20]

Often, additional ventilators such as the cupolas atop the McPolin Barn provided fresh air to the interior of the barn while also cooling and drying the hay. (If hay is placed in the barn while it is still wet, the internal temperature of the hay will rise, the hay may combust, and the barn may catch fire.) The gaps between the vertical wall boards provided additional ventilation in the hay loft. Conversely, battens over the wall-board gaps on the lower level reduced drafts and provided greater warmth for the animals, while the hay above provided ceiling insulation.

The rectangular shape of the barn encouraged efficiency in layout as well. Rows of stanchions faced the northwest and southeast walls of the barn; this arrangement was the most efficient and cost effective to construct. Allowing the cattle to face the outside wall prevented the cows from transmitting respiratory diseases and provided greater ventilation through exterior windows. It also prevented the cows from crowding when being herded in and out of the barn or milking pens. As important, it prevented the manure from collecting on whitewashed wall surfaces. Concrete floors further promoted sanitation and were durable under a regime of regular cleaning and disinfecting.

Agricultural publications recommended that the haymow store more than one year's supply of roughage and it appears that the McPolins' gambrel-roofed haymow had a very large storage capacity. [21] A pulley system running the length of the barn could be used to load hay into the

[19] Personal communication, Betty (McPolin) Burt to Anya Grahn and Hannah Turpen, January 9, 2015.
[20] Mark H. Keeney, *Cowphilosophy: The Art of Practical Dairy Practice.* Lacona: Holstein-Friesian World, 1948.
[21] Zeasman.

haymow through the sliding overhead doors on both gable ends. Hay chutes in the floor above the manger allowed the farmer to drop hay into the mangers below.

Next to the farmhouse, the milk house was the most expensive structure on the farm.[22] The original McPolin milk house is located on the northwest side of the barn. As was typical, the milk house was not located within the walls of the stable, but constructed on the exterior of the barn to prevent milk contamination. It is likely that during Patrick McPolin's time, the cows were milked in the stable or a milking pen. The milk was then transported to the milk storage room in the milk house which was separated from the stable by a small breezeway. The door to this breezeway opens out into the stable, rather than into the breezeway, to protect the stored milk from stable odors and dust. In the milk storage room, McPolin would have utilized a strainer composed of wire gauze and cheese cloth to prevent dirt and hair collected during the milking process from contaminating the milk. The cleaned milk would have been placed in milk cans. It was not uncommon for the milk cans to be placed in ice water baths, such as the poured concrete tub along the west wall of the milk house, to cool. In the early 1940s, modern milk tanks were installed in the milk house.

A second milk house and milking parlor were constructed to the northeast side of McPolin's barn by Osguthorpe in 1954. Unlike the previous simple, whitewashed, wood-framed milk house, the new milk house featured the latest in dairy trends. On the interior, the concrete milking parlor is illuminated through a combination of steel-framed hopper windows on three walls and overhead lamps. The concrete board walls are tiled up to a height of 46 inches and a coat of light-colored paint above promotes sanitation. Four milking stations surround a sunken floor, allowing the farmer to stand while milking the herd. The cement floors of the milking parlor are tiled for further cleanliness. A few steps down from the milking parlor, the milk house once held cooling tanks and other equipment for milk processing and short-term storage. This was also an area in which the farmer could wash up before milking, store a set of spare clothes, and prepare for milking chores.

On the second level of the Osguthorpe addition is a granary. Three large storage bins are parallel to the southeast wall. There is an automatic mixer in the south corner of the room used to mix grain and feed. This feed was then loaded into one of the six feeders that filtered the grain mixture through a chute to the milking parlor on the first level. Feeding the cows during milking is thought to improve milk production.

Osguthorpe's two concrete silos on the west side of the barn also reflect dairying trends of the mid-twentieth century. The regular feeding of dairy cows made it necessary to keep large amounts of feed available during winter months. Silage, typically made up of grasses such as alfalfa or maize, was dried and fermented to prevent spoilage. Once harvested, the silage was loaded loosely into the silo to ferment for preservation. This fermentation process of converting sugars to acids took approximately two weeks, after which the silage could be fed to the herd. Silage was typically combined with hay and other feeds to produce the best milk quality and quantities. At the McPolin Barn, silage could be loaded into wagons driven down the center alley and distributed to the mangers on either side of the stables by a cart or wheel barrow.

Oguthorpe also constructed two new open-air sheds to house farm machinery. The shed on the east side of SR 224 is all that remains of the Osguthorpe farm. The other machine shed had existed to the northwest of the McPolin Barn; however, this building was demolished c. 1990 and replaced by the 1992 reception center.

[22] "Improved Dairy Housing," *Logan-Extension Circular* 268 (1958).

Finally, the modernization of the McPolin farm in 1954 included the construction of large manure pits on the east side of SR 224. Historically, the McPolins would have used a specially sized shovel, matching the width of the gutters along the central aisle of the barn, to shovel manure into a wagon. The McPolins would have hauled manure out of the barn to fertilize the fields or perhaps even have stored piles of manure temporarily in the barnyard. During the winter months, however, it would have been difficult to transport the manure to the field. There is no evidence that the manure was stored beneath the barn, though this is a common practice in dairy farming. During Oguthorpe's ownership, a manure spreader would have transported the waste across the highway to be stored in a manure pit. The pit would have held the decomposing liquid and solid manure until the manure could be spread over the fields.

The changes to the farm during the McPolin and Osguthorpe ownerships reflect changes in farming technology during the twenty-first century. The specificity and demands of dairy farming required improvements not only to barn design but also to outbuildings such as silos, sheds, and animal shelters. These modifications document ever changing demands and advances in technology in order to produce quality dairy products for human consumption. The changes also signify favorable economic conditions for dairying in Park City and the surrounding area and are reflective of the growth and modernization of dairying in Utah as a whole.

CHAPTER 3. ARCHITECTURAL DESCRIPTION

3.1 Overview

The historic McPolin Farm is located along Utah SR 224 near the northwest boundary of Park City in Summit County, Utah, at an elevation of 6,700 ft. The 170-acre property is flanked by Quarry Mountain to the northeast and Iron Mountain to the southwest; the latter has a ski resort on its southwest and northwest faces. The farmstead fills the broad, pastoral valley between the two mountains, and the main cluster of farm buildings is surrounded by pastures and hay meadows that slope northeast toward McLeod Creek (see Figure # xx site plan). The highway parallels the opposite side of the creek and traverses the northeast section of the property, about 360 feet from the barn at its closest point. On the opposite side of the highway are the McCleod Creek Trail, a paved footpath and bike trail, as well as an associated parking lot for 24 cars, including two designated for handicapped parking, and one additional historic farm building. The farmstead, with its iconic barn and significant measure of open space, is a widely recognized landmark on the approach to Park City.

Most extant buildings and structures on the McPolin farm were constructed between about 1920 and 1954, including the barn, silos, corral and animal shelter, granary, bunkhouse, tool shed, and outhouse. Two structures were rebuilt in 1999, including the one-story, foursquare-type farmhouse and the one-story, wood-framed machinery shed. Most of the buildings are aligned on a north-northeast to south-southwest axis. For ease of discussion, an architectural north was established for use in this report and on the architectural drawings, which corresponds with true north-northwest. For example, the true north-northwest side of the barn (the long side with the original milk house) is described as the northwest side of the barn, while the short side of the barn facing the highway is described as northeast.

According to the Entryway Corridor Master Plan, other important historic resources surrounding the McPolin Farm that hold significance to the site are: [23]

- The former Union Lime and Stone Co. quarry
- A quarry hoist
- The site of the Harrison McLane Homestead
- A sawmill site
- Two railroad grades

These are considered archaeological resources and were not documented or evaluated for this report.

3.2 Site

SR 224 skirts the base of Quarry Mountain on the northeast side of the broad valley. The highway serves as the primary entry corridor for Park City. The McPolin Farm is a visual focal point when traveling on SR 224 because of its prominent location in the large open space. Residential and commercial developments border the 170 acre open space to the northwest, southwest, and southeast (Figures xx-xx, overviews of property?).

As detailed in the Entryway Corridor Master Plan, the open space is a wetland and stream corridor that is important to small mammals, birds, native vegetation, and naturally reproducing trout in the McLeod Creek.[24] There are several ecotones located on the property that make up the open space, including: forest, meadow, upland, wetland and riparian. Plant communities include aspen, mountain brush, cool desert shrub, and various riparian/wetland communities. The native vegetation on Iron Mountain consists of forest and upland communities that include Willow, Aspen, Narrow Leafed Cottonwood, River Birch, Alder, River Hawthorne, Bigtooth Maple, service berry, Gambel Oak, Mountain Mahogany, various grasses and forbs. The native vegetation on Quarry Mountain consists of the cool desert shrub community that includes sagebrush and dry grasses. The riparian/wetland communities that make up most of the "open space" consist of willows, river birch, various sedges and wet grasses. There are areas north and south of the farm that indicate evidence of previous pastoral uses based on the existence of non-native species of dry grasses.

McLeod Creek has an average width of 21' and a drainage area of 8.78 miles. The creek has an average peak flow of 34.83 ft^3/s in June, an average low flow of 7.18 ft^3/s in September, and an annual average of 14.07 ft^3/s.[25] McLeod Creek is part of the Weber River Watershed, which provides drinking water for much of the Wasatch Front. The creek is part of the Weber River Watershed Project, which is a larger environmental protection area to prevent non-point source pollution from affecting the drinking water source.[26] The farmstead buildings are surrounded on three

[23] Park City Municipal Corporation, Planning Department. *Entryway Corridor Master Plan* (Park City, 1995, reprint 1997), 8.
[24] Park City Municipal Corporation, Planning Department. *Entryway Corridor Master Plan* (Park City, 1995, reprint 1997), 13-15.
[25] U.S. Geological Survey, "USGS Daily Statistics 2014." www.waterdata.usgs.gov/usa/nwis/dvstat/?site_no=10133600&por_10133600_2=448952,00060,2 (accessed July 28, 2014).
[26] Kamas Valley and Summit County Conservation District, *Summit County Resource Assessment.* 2013.

sides (east-southeast, west-northwest, and south-southwest) by open space and the north-northeast side is flanked by SR 224 and McLeod Creek. There is a bridge spanning McLeod Creek that was constructed in 1998 and just north of the McPolin Barn that connects the farmstead to Utah State Highway 224 (SR 224).

The asphalt interpretive trail system was graded in 1998 and completed in 1999. The network of concrete walkways connects the farm buildings to the concrete plaza west of the barn. The plaza serves as the centralized event/gathering space for the property. Historically, this area was the principal corral and barnyard for the farm. Picnic tables are scattered throughout the plaza and can be moved freely to accommodate site visitors. The concrete area meets the asphalt driveway leading to SS 224. On the east side of the creek, the trail system breaks away from the driveway, continues through an underpass beneath SR 224 constructed in 1998 and connects to a parking lot on the east side of SR 224. There entire trail system includes 1.22 miles of paved trails.

3.3 Barn

The McPolin barn is located 360' southwest of SR 224 and 45' northeast of the Reception Center (Figures xx-xx). The primary entrance faces southwest. Construction on the barn was likely completed in 1922. Family stories explain that the materials used during construction were recycled from an old silver mill in Park City.[27] The theory is corroborated by notches in structural members unrelated to current construction. The method of construction mirrors that of many of the area's mining structures from the turn of the century, thus creating a valuable link between Park City's mining and farming pasts.[28]

The Improvement-Era barn measures 100' northeast to southwest and 36 feet northwest to southeast (Appendix C). There is a concrete plaza southwest of the barn that measures 65' square; this area is used as a gathering space for large events but originally served as the barnyard and principal staging area for the farm. The wood-framed barn is constructed using recycled timbers and dimensional lumber. Cladding on the main level is vertical, board-and-batten siding of rough-sawn boards, while the upper level cladding is of vertical, rough-sawn boards without battens. Horizontal wood trim boards at the junction of the main level ceiling and upper level floor form a belt course that creates a visual delineation between floor levels. The barn's primary entrances are on the southwest façade and comprise a vertical-plank sliding door centered in the wall and a smaller, strap-hinged door at the northwest end. The smaller door has simple pull handles and plain board trim. A strap-hinged, cross-braced, wood-framed door is centered on the second level above the sliding door. In both gable ends are large, wood-framed, cross-braced doors that provided access for hay delivery; they operate on weighted pulley systems that allow the doors to slide down the exterior wall face. The weighted pulley system is supported by a pulley attached near the roof line at each gable end. A rectangular weight hangs on a steel cable from each pulley. Steel cables attach to the upper corners of each door.

www.uacd.org/pdfs/RA/32%20Summit%20County%202013%20Resource%20Assessment.pdf (accessed September 2, 2014).

[27] Compton, Hal. *McPolin Family Chronology.* Undated.

[28] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.

With the exception of the first level windows on the southwest façade, the windows on the main and upper levels were originally six-pane divided-light sash hopper windows. All of the hopper windows have been removed, and the openings are currently boarded with plywood, painted black on the exterior. The window openings have plain board trim, sills, aprons, and standard casement locks. On the southwest façade, two window openings are located on the upper level. On the main level, five extant six-pane divided light wood windows flank the primary entrance sliding door; three are located between the sliding door and the south corner of the barn while the other two are located between the sliding door and the strap-hinged door. With the exception of two wood sashes stored in the second level granary of the barn, all of the original wood window sashes have been lost.

On the southeast side of the barn, ten boarded window openings are evenly spaced just below the belt course on the main level. On the upper level are six unevenly spaced window openings. The fenestration pattern on the northwest side was originally identical, although one of the main level openings has since been blocked by the addition of the original milk house. Two window openings remain on the northeast side, one each at the main and upper level; the other original openings have been blocked by the addition of the milking parlor.

The foundation of the barn is composed of coursed sandstone rubble, reportedly taken from a quarry on the site.[29] The barn is located on a light grade of 3.49%, thus the height of the foundation is approximately 4' on the northeast side of the barn and tapers to less than 6" on the southwest façade. A side-hinged, board-and-batten door in the foundation on the northeast side provides access to the crawl space. The gambrel roof ends have hay hood projections that provided protection for the end of the hay rack, track, and pulley system. Two matching cupolas stand on top of the roof, dividing the ridgeline into thirds. These have gable roofs and louvered sides. Open eaves are supported by the exposed rafter tails on the northwest and southeast facades. The gable ends are finished with fly rafters at the outside edge, and all eave elements are painted white.

In plan, the original portion of the barn is rectangular with a basement crawl space and two levels. The crawl space may have originally served as a stable, used to house horses.[30]The primary function of the main floor was for housing and milking cows. The main level floors comprise poured concrete with a central formed channel to transport waste.[31] Underneath lays a horizontal rough-sawn wood floor supported by 2" x 10" floor joists that run the width of the barn. The ceiling joists are supported by two longitudinal girders that in turn are supported by two rows of 6" x 10" posts box jointed into the girders. The lapped girder joints are bolted together with mine bolts (xx Figure #). The interior is divided into three sections by two cattle stanchions that run the entire length of the building. The two parallel rows of stanchions were used to hold and feed cows while milking. The animals were housed in the large center aisle with their heads facing the outside aisles. The two outside sections functioned as mangers or feed stalls, while the central area was devoted to animal movement. This arrangement provided minimum obstruction for the animals while entering and leaving the barn and allowed for ease of their inspection. Two 18 inch wide and 5 inch deep gutters are located on either side of the center aisle. The gutters were equipped with a specially sized shovel to remove manure. Openings along the exterior wall through the ceiling

[29] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.

[30.] Betty (McPolin) Burt remembers her father Patrick boarding horses for neighbors and friends. She recalls that he stabled the horses in the lower level of the barn. Personal Communication, December 9, 2015.

[31] Grant, Fred M. "Clean Milk Production," *Farmer's Bulletin* 2017, no. 2 (January 1958): 5.

allowed easy delivery of feed from above. A damaged four-paneled wood door in the northwest wall provides access to the stairs into the milk house from the interior of the barn. At the northeast end of the main level a doorway opens into the second level of the milking parlor.

The upper level of the barn was used as a loft for hay storage. The gambrel roof allowed for maximum hay storage because the roof structure uses no posts for support and the entire second floor is open, usable space. A set of steep wood stairs, without handrails, is located in the north corner of the barn and provides access between the main and upper levels. The upper level flooring comprises rough-sawn wood planks. The walls are of post-and-beam construction and are unfinished on the interior side. The ceiling is also unfinished, exposing a gable-roof truss system that comprises a double set of rafters joined at purlins and supported by purlin posts and diagonal bracing (xx Figure #). The rafters are sheathed with horizontal boards; these were originally covered with wood shingles, which have since been replaced with asphalt shingles

Diagonal steel cables were installed on the interior of the barn in the early 1990s to help resist lateral loads. The cross-bracing cable system is anchored using large steel plates at the perimeter of the concrete floor on the main level, for a total of seven on each side of the barn floor. Two cables lead from each anchor, passing through the ceiling of the main floor through cutouts in the flooring of the hayloft. On the upper level, one of the two cables is attached to the roof plate and the other to the purlin. This cross-bracing system creates a series of two rows of seven "X's" on either side of the hay loft.

3.3.1 Milk House

The milk house is an addition to the barn that is roughly centered on the northwest side (Figures xx-xx). The addition was built by the Patrick and Jim McPolin, in the 1930s. The one-story structure housed the main milking operations for the farm until the new milk house and milking parlor were built in the 1950s. The purpose of the milk house was clean, process, and store the milk that was then likely transported to Salt Lake City for processing at the Cloverleaf Dairy.[32]

The milk house measures 14 feet by 16 feet and was constructed using reinforced poured concrete. The foundation is of board-formed, poured concrete and maintains a height of 3 feet on all facades. The foundation is also exposed on the interior because of the sanitary design of the milk house. There is a 10 inch poured concrete step on the exterior that provides access to the primary entrance on the northwest façade. The interior flooring is poured concrete with a series of drains to accommodate the cleaning process.[33] Two concrete steps provide access to the elevated vestibule.

The exterior walls of the milk house comprise reinforced concrete beneath wood frame walls covered in drop siding and finished with a frieze board at the gable end. A vent is centered in the gable above the window. A gable roof with asphalt shingles connects to the main barn just below the upper level windows. The gable end is finished with fly rafters, formed by the last board of the roof sheathing. A wood and concrete elements of the milk house are painted white. Disconnected remnants of the knob and tube electrical wiring are visible on the exterior walls.

[32] Kelly, Ernest. "Farm Dairy Houses," *Farmers' Bulletin 1214* (1939): 1-12.
[33] The drains allowed the Milk House to be easily rinsed out.

The windows of the milk house were originally four-pane divided light wood sash, but the windows have been removed and the openings are currently boarded. Two casement windows flank the primary entrance on the northwest façade. A single fixed sash window is centered in the gable above the primary entrance door. Three divided light casement windows were located on the southwest wall, but have lost and the opening boarded. Another single divided light window was located on the northeast wall, but has also been removed and the opening boarded.

The main room has an alcove and there is an enclosed entryway on the southeast wall accessed by two concrete stairs; this forms an interior vestibule between the milk house and the barn. The entrance from the exterior is a single half-glazed paneled wood door. The vestibule is accessed through a damaged four-paneled wood door.

The concrete floor is elevated 6 inches on the northeast side of the room starting at the edge of the concrete steps, and a large 7 foot 6 inch by 2 feet 8 inch poured concrete cooling tank is built into this elevated section. On the southwest edge of the cooling tank is a 5" x ½" x 12'4" steel plate. The cooling tank was used to cool the milk after the milking process and before it was distributed.[34] The milk was kept in large drums and cooled using ice that was harvested from McLeod Creek in the winter.[35] It was common for dairy operations of this size to utilize cooling tanks because deliveries and pick-ups for distribution did not occur every day, so cooling tanks provided a method for preserving the milk and therefore allowing for increased production.[36]

The alcove on the southeast corner of the milk house is thought to have been used for washing vats as a part of the sanitation of the milking process. Although the washing vats are no longer present, the layout of the room suggests that this area was used for washing vats because of sanitary regulations and typical milk house layouts that were encouraged by the government during the 1930s.[37] There is an opening in the ceiling above the alcove that has plain board trim; this provides attic access. The elevated vestibule was utilized as both a storage space and as an area to create a more sanitary barrier between the barn and the milk house. This area provided a space to change into clean/sanitary clothing and also aided in the prevention of contamination from particulate matter because both doors were never open at the same time. The vestibule walls are clad in wood drop-siding, the ceiling is clad in wood running west-northwest to east-southeast and there is simple board trim around the doors. The walls in the alcove of the milk house comprise horizontal painted wood plank cladding, the walls in the main room of the milk house comprise painted 4" x 4" rectangular patterned drywall sheathing, and the entire ceiling is clad in stripped wood running northwest to southeast.

3.3.2 Milking Parlor

The L-shaped milking parlor addition comprises a two story stem-wing (the actual milking parlor) that extends northeast of the barn and a one and one-half story side wing (the new milk house) that extends northwest from the stem wing; the primary entrance is located in the northwest gable end (Figures xx-xx).

[34] Harrington, W.C., and H.E. Bremer. "Milk Houses" *Vermont Department of Agriculture Bulletin* 40 (June 1932): 8-16.
[35] Compton, Hal. *History of the McPolin/Osguthorpe Farm.* Undated.
[36] Harrington, W.C., and H.E. Bremer. "Milk Houses" *Vermont Department of Agriculture Bulletin* 40 (June 1932): 8-16.
[37] Harrington, W.C., and H.E. Bremer. "Milk Houses" *Vermont Department of Agriculture Bulletin* 40 (June 1932): 8-16.

The stem wing and side wing share their northeast façade, which measures 35' in length. The southeast side of the stem wing measures 35' long while the visible section of its northwest side measures 13'. The northwest façade of the side wing measures 21' long and the southwest side measures 16' long. The addition was constructed using an unreinforced, poured concrete foundation; unreinforced concrete-block masonry walls; and shiplap siding n the gable/gambrel ends.

The foundation is poured concrete and varies in height depending on the façade. On the southeast façade, the foundation is 9'6" on the southwest end and rises to 11' on the northeast end. On the gambrel end of the stem wing, the foundation is 10'8" high and extends to the base of the four evenly spaced windows on the main level. The foundation on the northeast façade of the side wing is 4'9". The foundation on the northwest façade is 2'7" on the southwest end and rises to 3'6" on the northeast end. The foundation on the southwest façade of the side wing is 2'7".

The milking parlor stem wing has a gambrel roof running northeast to southwest. The side wing has a gable roof running northwest to southeast. Both roofs have asphalt shingles. The rafter tails and wood board sheathing are visible in the open eaves, which are finished with fly rafters at the gable and gambrel ends. Disconnected remnants of the knob and tube wiring are visible on the exterior walls. The brick chimney from the interior of the side wing projects from the southwest side of the gable roof. Two metals air vents are located on the ridge of the gambrel roof of the stem wing. The gambrel roof end of the stem wing has a hay rack, track, and pulley system for loading feed into the upper level of the stem wing. Access to the basement level of this stem level was not achieved as part of this investigation.

The primary entrance is formed by a pair of six-paneled wood doors that are centered on the northwest façade of the side wing. The doors do not have any hardware and have simple board trim. The entrance is flanked by two hopper-style divided light-windows with a fixed divided lower sash. Secondary entrances are located on the gable end of the stem-wing and include a paneled wood door at ground level and two large, six-panel wood doors on the upper level.[38]

The windows of the addition were originally steel single-sash hopper windows over a fixed lower sash, but the glazing has been removed and the openings are currently boarded. Three windows are evenly spaced on the northeast façade of the side wing and maintain the height of the windows that flank the primary entrance on the northwest façade. On the stem wing, two windows flank the double doors on the upper level. On the main-level floor below this, four windows are evenly spaced on the gambrel end and maintain the height of the eave. At the main level on the southeast side are four evenly spaced windows. The windows have plain board trim, sills, and aprons.

The interior of the stem wing includes a single room on the main level that is accessed through a sliding barn door on the northeast end of the barn. A single room on the upper level is accessed through an open doorway on the northeast end of the hay loft in the barn. The main level has a tiled floor that leads around the perimeter of the room with bays created by tubular metal fencing for holding each cow. Drains in the tile floor allow for drainage during the sanitation and cleaning process. The electric milking equipment is still in place and the center of the room opens onto the lower level where workers attached the milking cups to each cow's udder. The circular pattern allowed the cows to flow around the room and exit back into the main level of the barn. The tile from the flooring continues to the base of the windows because of sanitation regulations; the walls above that are finished with plaster and paint. The hopper-type windows have metal hoods and wings that were part of creating a sanitary

[38] The secondary entrances were primarily used to access interior grain storage facilities by delivery trucks.

environment while allowing for air flow. Because the windows have a bottom hinge and side and top awnings, the likelihood of foreign particles from the exterior environment contaminating the milking process was greatly diminished. The ceiling is clad in bead board and the ceiling joists are finished with simple molding. Six industrial-style pendant lights are mounted in two rows of three. Rectangular heaters are also installed on the ceiling to comfort the cows during the milking process.

The upper level of the stem wing is accessed through a wood-paneled door in the northwest corner of the upper level of the barn. Two wood-paneled doors on the northeast wall provide access to the hay rack, track, and pulley system that aided in the delivery of hay to the upper level of the barn from the exterior. The space has wood plank flooring running northwest to southeast. The walls are exposed, unreinforced concrete blocks like those found on the exterior of the structure. The southwest wall is clad in horizontal wood planks above the height of the eave. The gambrel roof framing is exposed on the interior with two industrial-style pendant lights centered on the ridge. The room is separated into three different spaces of differing sizes by divider walls that maintain the height of the eave. The divider walls are stud walls that are clad in shiplap siding. The two smallest of the three grain bins are on the southeast 1/3 of the room and are accessed through open doorways that are framed with 2" x 4" pieces of wood. Six grain feeders, a fuel tank, and a large grain sifter are scattered throughout the largest space, although it is not known if these were original to the stem wing. The six grain feeders provide feed to the cows in the milking process through chutes in the floor. The members of the structural supports for the gambrel roof are covered in random splotches of white paint. Because the interior of the second level of the stem wing is mostly unpainted and unstained wood, it is unknown if the boards were reused from a previous structure or if they were scrap-wood from another part of the property, which could explain the evidence of foreign paint.

The interior of the side wing is accessed through a doorway in the northwest wall on the main floor of the stem wing. The single room is one and a half stories tall, and aligns with the basement and main levels of the stem wing. Once in the side wing, a small landing and a set of six concrete stairs with industrial steel handrails leads down into the room below. There is a closet on the northwest side of the southwest wall with a paneled door. The exterior walls of the closet are standard drywall and are finished with a wood board at the crown. The closet was added by PCMC to house fire suppression equipment. All of the doors in the side wing have plain board trim. A brick chimney or flue is exposed on the southeast wall. The ceiling is clad in wood planks running northwest to southeast and fire suppression sprinklers are centered on the ceiling running northeast to southwest. The floors comprise poured concrete and the walls are concrete blocks like those on the exterior. There is a simple molding at the crown on all of the concrete block walls. The windows on the northeast wall were originally hopper-type windows with metal hoods and wings like those found in the stem wing. The windows have been removed and replaced with boards.

3.4 Corral with Animal Shelter

The rectangular corral and its associated animal shelter are located 21' southeast of the barn; the structures were built c. 1920 (Figures xx-xx).[39] This area was used primarily to house a bull and cow during the breeding process. The wood-framed, gable-roofed, one-room animal shelter faces northeast and is clad in corrugated metal siding; it measures 15' by 12' and is located in the southwest end of the corral. The animal shelter has a rectangular plan with deteriorated concrete slab. It is unclear if the concrete was a foundation or remnants of a non-extant building . The interior

[39] Compton, Hal. *McPolin Family Chronology.* Undated.

walls are not finished so the structural wooden 2" x 4" framework and exterior 3' x 4' vertical corrugated metal cladding are visible on the interior. A large doorway provides access into the shelter from the corral on the southeast end of the northeast façade. There is a window opening on the northwestern end of the southwest façade. A sliding shutter with decorative t-hinges covers the opening. The ceiling has exposed wood rafters revealing the corrugated metal roofing material. Two pointed lighting rods are visible on the roof ridge.

Eaves are formed by the protruding exposed rafters tails on the northeast and southwest facades. The eaves are finished with a fascia nailed to the ends of the rafter tails. The gable ends are treated similarly and all elements are unpainted. The 3' x 4' vertical, corrugated metal cladding on the northwest and southeast gable ends is cut evenly and the bases have been lined up with the eave to mimic the height of the eave on the northeast and southwest façades. Lining up the bases of the 3' x 4' vertical corrugated metal cladding pieces even with the eave delineates the transition between the gable end and the lower wall.

The corral measures 20' northwest to southeast and 65' northeast to southwest. The fence rails are made of welded standard gauge railroad tracks probably salvaged from the nearby Denver & Rio Grande Western Railroad track north of the property.[40]

A historic log fence extends 25' west-northwest to east-southeast from the southeast corner of the animal shelter. The log fence then runs 210' north-northeast to south-southwest. Historically, the log fence was the west-northwest boundary of a pastoral area that was located on the east-southeast portion of open space.

3.5 Granary

The granary is located 30' southwest of the farmhouse (Figures xx-xx). The granary's primary entrance faces northeast. Based on McPolin family records, the structure was built c. 1920. Evidence shows that the structure may have been moved since it was built, however its exact original location on the property remains unknown. The granary was used to store feed and horse tack that supported the needs of the farm.[41] It may have also been used as an animal shelter during different periods , perhaps to house sheep and chickens. This is evident not only by its proximity to the house, but also the shrunken size of its entrance doors, suggesting that a ramp may have led into the opening for animals to move in and out.

The granary measures 20'10" northwest to southeast and 13'6" northeast to southwest. The one-story structure has a single-cell plan with one rectangular room. The foundation is of poured concrete, which is a modern alteration. The walls comprise 2" x 4" wood framing clad in 12"-wide vertical boards and 3"-wide battens.

[40] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.
[41] Compton, Hal. *History of the McPolin/Osguthorpe Farm.* Undated.

The room is divided in two by a half wall, which formed a storage bin for grain.[42] The half wall is clad in horizontal wood planks and supported by a stud wall system. The interior has a concrete floor and exposed rafters in the ceiling. A cable bracing system has been installed at the eave on the interior running horizontally northeast to southwest. The cables are aided by several new collar ties and ceiling joists in the truss system. Also, the northeast and southwest walls have been reinforced with plywood sheathing, which hides all exterior openings except the reduced entrance doorway and transom window on the southwest façade. It is likely that this original doorway was replaced by a window opening that would have permitted the ingress and egress of chickens kept in the rehabilitated granary. Original horizontal planks clad the bottom half of the northwest wall and the northeast corner of the northeast wall.

The granary's primary entrance is centered on the building's northeast façade. Two boarded windows symmetrically flank the primary entrance. There is a secondary entrance on the southwest façade. The reduced height of the door suggests that it was perhaps used by sheep or another smaller farm animal that would have been temporarily housed in the granary. Two boarded windows cut the southwest façade into thirds. The sill of the northern window on the southwest façade is lined with metal to protect the wood while grain was shoveled through the opening; this is the only window with a sill. The doors on the northeast and southwest façades have both been boarded. The primary entrance door on the northeast façade, the entrance door on the south-southwest façade, and all four windows have plain board trim. No original doors or window sashes remain.

The northwest and southeast gable ends have a horizontal wood trim board at eave height that creates delineation between the roof gable and the lower wall. The trim is attached directly to the board-and-batten cladding. A 1' wood skirting board wraps the base of the structure and breaks at both doorways. Corner boards are used to finish all four corners. The structure has a gable roof with cedar shingles and two pointed lighting rods on the ends of the roof ridge. Eaves are formed by the exposed rafters tails on the northeast and southwest facades. The gable ends are finished with fly rafters, and all elements are painted white. Disconnected remnants of the knob and tube wiring are visible on the exterior walls.

3.6 Tool Shed

The tool shed is located 9' northwest of the outhouse and was built c. 1920 (Figures xx-xx).[43] This area was used for repairing or constructing farm machinery and equipment. The primary entrance faces east. PCMC restored and relocated the toolshed in 2002, but the exact original location remains unknown.

The tool shed measures about 12' square. The foundation is poured concrete and is a modern addition. The structure is formed by stud walls with board and batten siding that is also visible from the interior. The wood rafters, ceiling joists, and roof sheathing are visible from the interior. The structure is a single-cell square plan with a built in workbench, cupboard, and table. The interior consists of a rough-sawn wood plank floor. Small, 3' x 1.5' cross-garnet-hinged wood doors with plain trim are located at the bases of the east and north walls; the original purpose of these doors is unclear. There is a workbench with wooden nail bins mounted above a cupboard for tool storage and a small table in the southwest corner of the interior.

[42] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.
[43] Compton, Hal. *McPolin Family Chronology.* Undated.

The primary entrance is a strap-hinged wood door centered on the east façade with plain board trim. A small, four-pane fixed wood window with plain board trim is above the workbench on the south façade.

The east and west gable ends have a horizontal wood trim board that maintains the height of the eaves on the north and south façades. This creates delineation between the roof gable and the lower wall. The trim is attached to the board-and-batten cladding. A 1' high wood skirting board wraps the structure and breaks at the small doors on the north and east facades. Wood corner boards finish all four corners of the structure. A 4" x 12"vent on the east wall is covered with a small plywood awning and centered below the peak of the gable ends. A similar vent is located in the west gable end. The gable roof has cedar shingles and two pointed lighting rods at the ends of the roof ridge. The eaves comprise plain frieze boards and a canted soffit formed by the board roof sheathing. Fly rafters finish the gable ends and all elements are painted white. Disconnected remnants of the knob and tube wiring are visible on the exterior walls.

3.7 Outhouse

The three-hole outhouse is located 4.5' west of the bunkhouse (Figures xx-xx). The date of construction is unknown, but it is presumed that it was built prior to the installation of indoor plumbing in the house in the 1930s.[44] The primary entrance faces northeast. PCMC found the outhouse against the southeast corner of the barn, moved, and restored the structure; however, its exact original location remains unknown.

The outhouse measures 6'8" northwest to southeast and 4'5" northeast to southwest. There is no foundation. The outhouse comprises a single rectangular room containing a wood bench along the southwest wall and wood plank flooring. The walls are of single-wall construction and the exterior is clad in narrow clapboard wood siding. The interior walls and ceiling are unfinished, which exposes the exterior wall sheathing and the roof sheathing. The three-hole, built-in wood bench in the outhouse is approximately 5'7" in width, 2.5' in height and 1.5' in depth. The three holes on the bench are of differing diameters, purportedly to allow for men, women, and children to comfortably utilize the outhouse. The northwest hole is the smallest in diameter and was intended for children, the middle hole with the median width was intended for women, and the southeast hole was the largest and intended for men.

The doorway is fitted with a butt-hinged, Z-braced door of vertical boards; it is centered on the northeast façade and has plain board trim. 3"-wide wood corner boards finish all four corners of the structure. The gable roof has cedar shakes. The eaves comprise plain frieze boards, a de facto soffit formed by the last board of the roof sheathing, and a canted fascia nailed to the ends of the rafters. The gable ends are finished with a frieze board and all elements are painted white.

3.8 Bunkhouse

The bunkhouse is located 4.5' southeast of the outhouse and was built c. 1935 (Figures xx-xx).[45] The primary entrance faces northeast. McPolin family records state that the bunkhouse was built by James McPolin when he was 17 years old.[46] The bunkhouse could sleep 2-3 farmhands who

[44] Ibid.

would have been working on the farm on a seasonal basis. There was just enough room for 2 to 3 cots to fit next to the wood burning stove. PCMC restored and moved the bunkhouse in 2002; however, the exact original location remains unknown.

The bunkhouse measures about 10' northwest to southeast and 8' northeast to southwest. The structure has no foundation but sits on sandstone blocks that are visible on the corners of the structure. The structure was built using single-wall construction, with 12" boards and 3" battens on the exterior. The interior comprises a single rectangular room and has a wood plank floor covered with deteriorating, glued-on felt. A small woodstove is on the northwest wall of the interior. The interior walls and ceiling are finished with horizontal tongue-and-groove boards. There is evidence of newspaper and pressed board being used as additional insulation because of remnants attached to nails. McPolin family records show that a farmhand froze to death in the bunkhouse during a winter night.[47]

The doorway is fitted with a strap-hinged door of vertical boards set in square framing members; the opening is finished with plain board trim. A square window opening with plain board trim and no sill is centered on the rear wall (southwest façade); it is fitted with a modern Plexiglas window with false muntins. A 6"-wide wood skirting board wraps the base of the structure, and the corners are finished with 3"-wide wood corner boards. A metal stovepipe projects through the roof ridge to serve a small wood stove on the interior. The gable roof has cedar shakes, a metal ridge cap, and a pointed lighting rod at each end of the roof ridge. The open eaves are supported by the exposed rafters tails on the long sides and small purlins on the gable ends. The eaves comprise plain frieze boards and a canted fascia nailed to the edge of the eave; all elements are painted white.

3.9 Grain Silos

The two concrete grain silos are 15' southeast of the barn (Figures xx-xx). The grain silos are approximately 3' apart and are arranged side-by-side running northeast to southwest. The only ground-level openings, which were originally unloading doors, are located on the northwest sides and are both blocked with a sheets of galvanized metal. The grain silos were utilized as surplus grain storage that would be used to feed the cows. Oguthorpe constructed these silos in 1953.

The grain silos each measure 17'1"in diameter with a wall thickness of 6"; they were built using formed, poured concrete reinforced with vertical and horizontal metal rebar. The walls retain a square block pattern that was created by the concrete forms. The rounded protrusion on the northwest exterior sides of both silos is a chute covering a column of unloading doors. The bases of the chutes originate just above the unloading doors and extend vertically to the roofline. The base of each chute is boarded up with a sheet of plywood and the top of the chute is capped off with a conical metal topper. The roofs of the silos comprise hemispherical metal caps with recessed joints and conical metal toppers at their peaks (xx Figure #).

[45] Compton, Hal. *McPolin Family Chronology*. Undated.
[46] Compton, Hal. *History of the McPolin/Osguthorpe Farm*. Undated.
[47] Compton, Hal. *History of the McPolin/Osguthorpe Farm*. Undated.

The silos are connected at their roofline by a metal bracing system that was likely the support framework for a filling platform. The filling platform would have provided access to both silage distributers which were located on the southwest side of the northeast silo and on the northeast side of the southwest silo. On the northwest side of the bracing system is a rounded metal bracket that was most likely the anchor for the filling pipe that would deliver grain to the silage distributer while someone would be overseeing the process on the filling platform.[48]

3.10 Osguthorpe Shed

The Osguthorpe shed is located 640' southeast of the parking area on the northeast side of SR 224; it faces southwest (Figures xx-xx). The shed was constructed in 1960 because the Osguthorpes moved their dairy operations to the northeast side of the property after a fire in 1955 damaged the house and the advantage of increased snow melt on the northeast side of the broad valley.[49] During this time, the Osguthorpes constructed a group of dairy facilities and a residence, of which the only remaining structure is the wood shed, now referred to as the Osguthorpe shed.

The Osguthorpe shed measures 73' northwest to southeast and 30' northeast to southwest. The structure has a shed roof covered with ridged metal panels and the roof is highest on the southwest facade. The shed has two open sides on the southwest and southeast facades and two wood-framed walls on the northwest and northeast facades. The framing comprises vertical wood posts and horizontal nailers of dimensional lumber, to which the exterior cladding is attached. The open side on the southwest façade has a partial wood wall on the upper third of the façade. The wood walls are clad in white-painted board-and-batten siding, although many of the batten pieces are missing.

The roof is supported by three rows of eight wood poles that are reinforced by simple wood brackets connected to the roof. There is no ceiling on the interior and the rafters and board sheathing are exposed. Eaves are supported by protruding exposed rafters tails. The eaves comprise plain frieze boards, a canted soffit formed by wood panels.. The structure does not have a foundation.

There are seven window openings evenly spaced on the upper wall on the southwest façade. These were originally fitted with pairs of six-pane, fixed wood windows but nearly all have been lost. Only the pair of windows on the southeast end retain a complete set of muntins. The window openings have plain board trim.

3.11 Farmhouse

The farmhouse is located 135' southwest of the barn and was constructed in 1999 to replace the original c. 1900 one-story, four-square type, pyramidal-roofed house (Figures xx-xx). According to family history, the original house was previously the main office for the Grasselli Mill, a large mining operation in Park City.[50] The Grasselli Mill would later become the King Con Mill.[51] In 1923, the building was moved in two pieces

[48] McCalmont, James Robert. *In Solos: Types and Construction*. 1939. Reprint, Washington D.C.: U.S. Department of Agriculture, 1948.
[49] Compton, Hal. *History of the McPolin/Osguthorpe Farm.* Undated.
[50] Morrison, Sandra. *McPolin Farmstead: National Register of Historic Places Document.* Washington, D.C.: United States Department of the Interior-National Park Service, 1990.

by wagon to its present location, where it was reassembled and given a front porch and a lean-to addition on the southwest side. The building was severely damaged by fire in 1955 and abandoned. In 1995, the gutted house was demolished and replicated using similar materials. During the reconstruction, the City chose only to reconstruct the house to its original size when it had served as the Grasselli Mill's office. The c.1923 lien-to addition was not rebuilt.

The farmhouse measures 22'6 'northwest to southeast and 24'4"northeast to southwest on the west-northwest façade. A 7'-wide, hip-roofed, covered porch extends across the northeast and southeast sides of the building, and continues for 5' beyond the southwest side of the house to cover a walkway.. The reconstructed farmhouse has a poured concrete foundation with stud wall construction, and the exterior walls are clad in wood drop siding with the exception of a 1' section of board-and-batten siding at the wall base.. The walls are finished with 4"-wide wood corner boards.

A pyramidal, hipped roof covers the main room and a hipped roof extension covers the rear addition. The porch on the northeast facade has a hipped roof, which transitions to a shed roof over the southeast side of the porch. All roofs are covered with asphalt shingles. The porch has a ceiling clad in bead board with two flush-mounted, lantern style light fixtures on each porch façade. There are roof vents on all four peaks of the pyramid roof and a ventilation stack on the southwest pitch. The southeast porch extends to the southwest of the building, continuing the shed roof form and creating a 5' section of covered walkway.. The eaves comprise plain frieze boards, soffit panels, and a fascia nailed to the edge of the eave; all wood elements are painted white.

The porch framing rests on cylindrical concrete piers, and a wood fascia covers the floor framing. Lattice work covers the crawl space underneath the porch. The deck material on the porch is 4" wide wood boards that run across the short axis. The wood porch posts are 4" square with 2" square simple brackets that have a 1' projection and 1' height. The wood balusters are 2" square with 4" x 2" top and bottom rails. There is a stretcher bond brick chimney with a Flemish bond above its shoulders on the northwest façade. The southwest façade has a security system siren speaker near the door. There is a vent on the southwest end of the southwest façade for the utility closet and a vent just east-southeast of the entrance door. A water meter and electrical circuit box are on the northwest façade.

The primary entrance is a glazed, two-panel wood door with a glazed top on the northeast façade. A pair of two-over-two, double-hung wood windows are north of the doorway. The southwest (rear) façade has a four-paneled wood door that is slightly off center and is flanked by two lantern-style, wall-mounted light fixtures. Both doors have plain board trim and lever handles. Two two-over-two, double-hung wood windows are on the northwest and southeast facades. The windows have with plain board trim, sills, and aprons.

In plan, the farmhouse has a single square room on the northeast side with a small closet space on the southwest wall and a rectangular lean-to addition that extends across the southwest elevation. The square main room is part of the original c. 1900 plan. There is a set of three stairs in the addition that leads to a 4' x 4' entryway for the southwest door. The flooring in the main room is of tongue and groove pine boards that run northwest to southeast. Approximately half of the floorboards are original to the c. 1900 farmhouse. Most of the flooring was damaged in the 1955 fire, but some was salvaged and refurbished. The addition has resilient flooring and wood baseboards. The walls are finished with 4'-

[51] Ibid.

highwainscoting capped by a decorative 1” molding and drywall in the main room; approximately half of the wainscoting was salvaged from the fire-damaged structure. The addition walls are finished with drywall.

There is a bead board suspended ceiling that is suspended to the ceiling joists by cables; the ceiling is clad in standard drywall. The closet door is a four-panel wood door and the closet has an unfinished plywood subfloor. There is a doorway to the lean-to addition from the main room from which the door has been removed. A four-panel wood door on the northwest side of the addition leads to a small utility closet with an unfinished plywood subfloor. The doorways have plain board trim and all of the doors have lever handles. Three two-over-two double-hung windows are on the southwest wall of the main room. In the original mill office, these would have been exterior windows but became interior windows when the addition was added in c. 1900. A 5” baseboard wraps the interior walls. The windows have plain board trim, sills, aprons, and standard casement locks. A historic wood-burning stove is centered between the two windows on the northwest wall of the main room. The stove is 1.5’ from the wall, 4.5’ tall with a 1’ wide stovepipe that extends 3’ above the stove and connects to the wall.

3.12 Reception Center

The reception center is located 45’ southwest of the barn and the primary façade faces southeast (Figures xx-xx). The original 1950 shed was demolished in 1999 and was rebuilt to accommodate events and receptions. The original shed was used primarily for storage of large farm machinery and equipment. The reception center also serves as a facility for recreational trail patrons to use the payphone, store items in the lockers, and use the restrooms.

The one-story reception center measures 90’ northeast to southwest and 30’ northwest to southeast. The foundation is poured concrete with a height of 3’ on the northeast, southeast, and southwest facades. The foundation on the northwest façade is stepped to accommodate the change in grade, and ranges from 3’ to just a few inches above grade.

The structure is of stud wall construction clad in wood drop-siding. The primary entrance is a pair of aluminum-clad, wood French doors on the southeast side. These are supplemented by three large, wood-framed, sliding glass doors divided by A-shaped framing members, reminiscent of barn doors that can be opened to allow free circulation into the plaza area. There are metal services doors with half-glass tops on either end of the building, one on the northeast façade and the other on the southwest end, facing southeast from the vestibule. The half-glass doors have a lever handle and plain board trim. There are 12 evenly spaced, 8-paned, wood clerestory windows below the eave on the southeast façade with plain board trim, sills, and aprons. A two-over-one, double-hung window is adjacent to the door on the northeast façade. There are two two-over-one, double-hung wood windows near the northeast corner of the northwest façade and two, two-over-one, double-hung wood windows centered on the southwest side of the vestibule on the southwest end. All have plain board trim, sills, and aprons, and all wood elements are painted white. Electrical and plumbing fixtures are centered on the west-northwest wall.

The reception center has a shed roof covered with asphalt shingles; it is highest on the southeast side. A continuation of the shed roof provides shelter for the doorway on the northeast façade. The penthouse does not have a clad ceiling, thus the rafters and sheathing are visible. The penthouse is supported by 6” square wood posts that rest on concrete piers. The vestibule on the southwest end of the building is likewise covered

by an extension of the shed roof... Eaves are formed by protruding exposed rafters tails. The eaves comprise plain frieze boards, protruding a canted soffit formed by wood panels, and a fascia nailed to the edge of the eave. There are circular air vents that are covered with mesh in-between each set of exposed rafters and five ventilation stacks on the roof.

Six wall-mounted, goose-necked light fixtures are placed between every other transom window on the southeast façade. The same types of fixtures are mounted above the southwest and northeast doors. The walls are finished with 5" corner boards and a 5" trim board at the base of the siding.. An exterior, heavy-duty, structural steel prefabricated stair landing and staircase runs northwest to southeast on the southwest side of the vestibule. There are 8 steps total with a landing after the first three steps on the southeast end. The steps are 1.5' deep, 1' high, 6' wide and the landing is 4' x 6'. The staircase frame has 12 channel stringers with welded 1-1/2" x 1-1/2"" tubular steel hand rails.

Two poured-concrete retaining walls are located southwest of the staircase and vestibule. The two retaining walls create a planter between their two differing elevations. The first and lower retaining wall is 2.5' tall and 5" thick. It is 2" southwest of the staircase. The second and higher retaining wall is 4' southwest of the lower retaining wall and is 5' tall and 5" thick, but only the top 2.5' of the retaining wall is visible above grade. There is a poured concrete retaining wall southeast of the building. The southeast retaining wall is 5' tall and 5" thick. The southeast and lower and upper south-southwest retaining walls connect at the east-southeast ends of the upper and lower retaining walls.

The interior is divided into four rooms that are connected by a series of hallways, including a main reception room in the northeast half, a locker room in the southwest corner, and two restrooms split the length of the locker room in the center of the southwest end of the building. There is a hallway connecting the reception room to the locker room and a hallway connecting the reception room to the restrooms. There are no interior stairways.

The reception room's purpose is to hold large gatherings. It is accessed from the exterior through the three sliding doors and the two French doors on the southeast façade. The sliding doors allow access to the concrete plaza on the southeast side of the building. A partitioned staff service area that can be used during events is on the southwest end of the reception room. The floors are of reddish-brown stained concrete with wood baseboards, the walls and ceiling are clad in horizontal wood boards, and corner boards protect projecting corners. Three square wood posts with simple brackets and one square wood post without brackets support a large wood purlin that spans the length of the room. Two simple wood brackets project from the southeast wall above the barn doors to support the roof. A triangular metal floor grate in front of the French doors aids in snow and water removal. Three rows of four rustic metal pendant lights hang from the ceiling. The service area in the main reception room has a counter, built-in cabinets, and the environmental controls for the room (i.e. lighting, temperature, etc.).

Two flat-finished, wood-grained doors with lever-style handles lead to a service area hallway on the southwest corner of the main reception room. The service hallway heads southwest to a small storage room and continues to the locker room on the southwest end. There are small storage closets in the southwest and northwest corner of the service hallway with interior flat finish wood grain doors and lever handles. The floors comprise reddish-brown stained concrete with wood baseboards consistent with those found in the main reception room. The walls and ceiling are textured plaster.

The locker room has a narrow rectangular plan with double-tier industrial metal lockers on the northwest and southeast sides, and a single row of benches down the center. Two fluorescent wraparound light fixtures are mounted to the center of the ceiling. The locker room provides access to a women's bathroom on the northeast end and a men's bathroom on the southwest end. The floor and baseboards are textured concrete, the slanted ceiling is clad in horizontal wood boards, and the walls are finished in textured plaster.

The bathrooms can be accessed from the locker room through solid, wood-grained doors. Six-pane interior transom windows above the entrance doors provide natural light for the restrooms. The women's restroom has three partitioned stalls and two sinks with a shared laminate countertop. The men's restroom has two partitioned stalls, two urinals, and two sinks with a shared laminate countertop. All restroom areas have textured concrete floors and baseboards, and the walls and ceiling are of textured plaster. There is a wood chair rail in the hallways of the restrooms.

The narrow hallway to the restrooms on the southeast side of the building extends from the southeast corner of the reception room to the southeast corner of the building. In the hallway to the bathrooms are two drinking fountains that are centered in an alcove between the restroom doors. The northwest wall is textured plaster and the southeast and southwest walls have a prefabricated, textured plaster wainscoting that extends to the chair rail, above which is textured plaster. The ceiling is clad in horizontal wood boards.

A decorative, Z-framed half-glass wood door on the southwest end of the locker room provides access to the vestibule on the southwest façade. The northwest interior wall of the vestibule consists of poured concrete on the lower 2/3 of the wall and wood drop siding on the upper 1/3. The other three walls are clad in concrete on the lower 1/3 of the wall and horizontal wood paneling on the upper 2/3. The ceiling is clad in wood paneling. A square stainless steel grate is centered in the vestibule's concrete floor for snow and water removal. The vestibule serves as a mudroom for patrons of the recreational trails who may be accessing the payphone, storing supplies in the lockers, and using the bathrooms.

3.13 Farm Equipment

There is historic farm equipment scattered throughout the property (Figures xx-xx).[52] Most of the farm equipment has been donated and is not original to the site; however, it is much like the equipment that would have been used historically on the McPolin Farm.

3.13.1 Hay Wagon

The hay wagon is located 50' southeast of the farmhouse. It was used to transport hay bales from the field to the barn and would have been pulled by a truck or team of horses.

[52] The farm equipment information has been gathered from historic markers and informational plaques throughout the McPolin Farmstead property and interpretive trail system.

3.13.2 Hay Rake

The hay rake is located 56’ northeast of the farmhouse. A hay rake was used to pull hay together into piles in the field. Once the rake was full, the hay would be released to create large piles. Farmhands would then toss the hay onto the hay wagon, which would deliver the hay to the barn.

3.13.3 Hay Elevator

The hay elevator is located 40’ southeast of the farmhouse. The hay elevator was attached to the end of the hay wagon and hay bales would be placed on the elevator belt, which would then transport the bales to the back of a truck or wagon where they would be stacked for transportation. The elevator was powered by a series of chains attached to the axle and wheels which would spin the belt on its track. As the truck drove through the field, the belt would spin. The belt speed was determined by the speed of the truck so as the truck drove faster, the belt would spin faster as well, which meant faster hay bale stacking.

3.13.4 Tractor

The tractor is located 35’ northeast of the of the reception center. The tractors on the McPolin Farm were used for manure management, snow removal, and towing other farm equipment.

3.13.5 Baler

The baler is located 50’ northwest of the of the reception center. The baler would have been towed behind the tractor to gather the cut hay piles and compact them into a bales using a plunger device. Bales would then be wrapped with a wire to hold them in the compacted position. The baler would drop the hay bales behind the baler and tractor in the field once the hay bales were completed.

3.13.6 Seed Drill

The seed drill is located 76’ northwest of the milking parlor addition to the barn. The seed drill was used to plant alfalfa and small grains (oats or barley) as part of the crop rotation cycle. The seed drill guaranteed even distribution of the seed in the field which was favored because seeds were often expensive. The seed drill would be pulled behind a tractor and could be adjusted to accommodate different sizes of seeds and different depths of planting.

3.13.7 Plow

The double-bottom plow is located 53’ northwest of the milking parlor addition to the barn. The plow was mounted directly behind the tractor and the two plow shares cut and turned the field. The plow was designed to turn over the dirt in the fields which would bury weeds and debris from the previous year’s crop. The depth of the plow furrow could be adjusted depending on the needs of the crop.

CHAPTER 4. CONDITION ASSESSMENT

The condition of each building on the McPolin Farm was evaluated in order gain an understanding of its physical integrity and current state of preservation. For the buildings, the condition of each architectural feature was inventoried and assigned a condition level in order that future treatments can be planned and prioritized. Condition levels are defined as:

- *A-Excellent*: Element or feature exhibits few if any deterioration conditions.
- *B-Good*: Element or feature exhibits minor deterioration conditions that can be addressed through routine maintenance or in future repair or restoration projects (within 5–10 years).
- *C-Fair*: Element or feature exhibits moderate deterioration conditions that should be addressed in near-term repair or restoration projects (within 2–5 years).
- *D-Poor*: Element or feature exhibits advanced deterioration conditions that should be addressed in short-term repair or restoration projects (within 1–2 years).

The exterior and interior of each building was also photographed comprehensively to create baseline data that can be used to evaluate changes in conditions over time. In the following sections, the exterior and interior conditions of each building are summarized and then inventoried in tabular form. More detailed information is included in Appendix D; the PCMC Planning Department will also maintain a separate file documenting each building with additional all photographs and condition assessment information, as well as future maintenance and treatment records.

Future actions to address deterioration conditions should be guided by the treatment philosophy for the farm and the individual buildings, which is discussed in Chapter 8. This philosophy guided the optimum and acceptable treatment recommendations for each condition; these are are included in the condition assessment tables for ease of reference.

4.1 McPolin Barn

4.1.1 Exterior

Overall, the McPolin barn, with its milk house and milk parlor additions, is in good condition (Table 2). Aside from structural issues, which are discussed in Chapter 6, the most notable deterioration conditions are mortar erosion in the stone foundation of the original barn; cracking and spalling of the board-formed concrete foundations in the two additions; and cracking in the concrete block walls of both additions. There are also signs of past wood rot and deterioration. Large sprinkler heads for the lawn irrigation system have been placed immediately adjacent to the

foundation on all side. Overspray from this system has led to some moisture damage and paint loss, and may be the cause of the paint loss on the southeast wall of the milking parlor. Animal activity and burrow have also undercut the foundation in a few areas.

The original window openings on the main barn and the milk house addition have been boarded and the window frames have been removed. The majority of the sashes have been lost. Staff has only located two original sashes which have been used to reconstruct new sashes. On the milking parlor additions, the steel window frames remain but the glazing has been removed and the openings have been boarded with plywood. A full list of exterior conditions is provided in Appendix D.

Table 2. Condition assessment and treatment recommendations for architectural elements and features on the exterior of the McPolin barn and additions.

Architectural Feature	Location	Material	Condition Level	Deterioration Conditions and issues	Treatment	
					Optimum	Acceptable
Foundation	Barn	Stacked rough-cut sandstone	Fair	Minor paint deterioration, mortar erosion, some spalling, sprinkler heads located adjacent to foundation, animal burrows.	Strip paint; repoint foundation with compatible mortar. Relocate sprinkler heads 3' from foundation, maintain gravel border, block burrows, trap and remove animals.	Repoint with compatible mortar; discontinue painting and allow existing paint to weather away, monitor sprinkler spray pattern, block burrows.
	Milk house and milking parlor additions	Board-formed concrete	Good	Spalling, horizontal stress cracking, some paint deterioration, sprinkler heads located adjacent to foundation, animal burrows.	Remove loose material and patch with compatible concrete; monitor cracks for movement. Repaint cyclically.	Remove loose material and patch with compatible concrete. Repaint cyclically.
Walls	Barn, second level	Vertical Wood Siding	Fair	Minor wood rot, cracking, warping, wood knots have fallen out.	Replace boards with significant deterioration >30% of total area; reattach loose boards; repaint every 5-10 years as part of routine maintenance.	Reattach loose boards; repaint every 5-10 years as part of routine maintenance.
	Barn, first level	Board and batten wood siding	Fair	Minor wood rot, cracking, warping, wood knots have fallen out, sprinkler heads located immediately beneath walls.	Fully replace boards/battens with significant deterioration >30% of total area; reattach loose boards; relocate sprinklers as above; repaint every 5-10 years as part of routine maintenance.	Reattach loose boards/battens; repaint every 5-10 years as part of routine maintenance.
	Milk house addition	Horizontal wood drop siding	Good	Minor paint deterioration and cracking, sprinkler heads located immediately beneath walls.	Scrape as needed and repaint every 5-10 years as part of routine maintenance; relocate sprinklers as above; repaint every 5-10 years.	Scrape as needed and repaint every 5-10 years as part of routine maintenance.
	Milking parlor additions	Concrete block	Good	Minor to moderate paint deterioration, mortar erosion, some spalling, structural cracks, sprinkler heads located immediately beneath walls.	Remove loose concrete material and patch with compatible concrete; monitor cracks for movement; relocate sprinklers as above; scrape and paint southeast wall.	Remove loose material and patch with compatible concrete.
Windows	Barn and milk	Plywood	Fair	Wood sashes and glazing have been lost.	Remove plywood and install	Remove plywood and install

	house	boarded window openings		Minor wood rot, cracking, and paint deterioration on sill boards.	accurate reproductions.	accurate reproductions.
	Milking parlor	Steel frame hopper windows	Fair	Steel frames boarded with plywood. Mortar deterioration on masonry sills.	Remove plywood, reglaze existing metal sashes.	Remove plywood and install accurate reproductions.
Doors	Barn	Wood framed haydoors , sliding doors	Good	Minor paint deterioration, wood rot, and signs of wear and tear.	Restore hay doors to operable condition, replace deteriorated sections of wood on a very limited basis, scrape and repaint cyclically.	Replace deteriorated sections of wood on a limited basis, scrape and repaint cyclically.
	Barn and all additions	Paneled person-doors	Fair	Glazing has been lost and opening boarded. Minor paint deterioration. Wood rot, splintering, and deterioration.	Reglaze doors, replace deteriorated sections of wood on a limited basis, scrape and repaint cyclically.	Replace doors in-kind with historically accurate reproductions.
Fly Rafters	Barn and all additions	Wood	Good	Signs of wood rot, paint deterioration, some splintering.	Replace deteriorated sections as needed, scrape and repaint cyclically.	Replace in-kind as needed; full replacement acceptable, scrape and repaint cyclically.
Eaves	Barn and all additions	Exposed wood rafter tails	Good	Signs of insect/bird infiltration and nesting. Minor paint deterioration.	Replace deteriorated sections as needed, scrape and repaint cyclically, annually remove insect/bird nests. Block access holes with aluminum or galvanized wire mesh.	Replace in-kind as needed; full replacement acceptable, scrape and repaint cyclically, annually remove insect/bird nests. Block access holes with aluminum or galvanized wire mesh.
Roofing	Barn and all additions	Asphalt shingle	Excellent	New roof.	Inspect yearly and repair or replace shingles as needed, replace with wood shingle roof when fully re-roofing.	Inspect yearly and repair or replace shingles as needed, replace with asphalt shingle roof when fully re-roofing.
Chimney	Milking parlor, side wing	Masonry	Fair	Some spalling, signs of past Portland cement-based repairs.	Remove incompatible repairs and repoint with mortar matching original as needed.	No action.

4.1.2 Interior

The interiors of the McPolin barn, the McPolin milk house addition, and the 1950s Osguthorpe additions are in good to fair condition (Table 3). In the barn, the concrete floors and exposed wood framing of the main-level stable are in good condition, although the cable bracing makes it difficult to walk down the outside aisles. The floor of the upper level haymow is in poor condition, with loose and broken floorboards that are inadequately supported and are unsafe to walk across; the cable bracing also makes it difficult to traverse the interior. The McPolin milk house is in fair condition, with some damage to ceiling panels and paint deterioration. Horizontal structural cracks at the foundation has caused limited damage to the interior of this space. To the northeast, the main level of the Osguthorpe stem wing (milking parlor) addition is also in good condition, with some moisture damage along the southeast wall causing plaster and grout deterioration. The upper level granary is also in good condition, despite soiling and the preponderance of animal excrement The side wing (milking house) addition has been slightly altered with the addition of a new framed storage area in the northwest corner of the room.

Table 3. Condition assessment and treatment recommendations for architectural elements and features on the interior of the McPolin barn and additions.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
General	General	NA	Fair	General soiling, animal excrement.	Sweep and clean interior, block major animal access point with compatible wood members, or aluminum or galvanized wire mesh.	Sweep and clean all interior spaces.
Floor	Barn, main level, southwest room	Poured Concrete	Good	Minor spalling.	Remove loose concrete material and patch with concrete similar in composition, color, and texture to original.	Remove loose concrete material.
	Barn, main level, stable	Poured concrete	Good	Minor signs of spalling.	Remove loose concrete material and patch with concrete similar in composition, color, and texture to original.	Remove loose concrete material.
	Milk house and vestibule	Poured concrete	Good	Minor spalling.	Remove loose concrete material and patch with concrete similar in composition, color, and texture to original.	Remove loose concrete material.
	Milking parlor, stem wing, main level	Red square tiles	Good	Some cracked and spalling tiles.	Repair/replace loose or damaged tiles in kind, regrout.	Repair/replace loose or damaged tiles in kind, regrout.
	Milking parlor, side wing	Poured Concrete	Unknown	Unable to assess conditions due to amount of debris and storage in the space.	Remove loose concrete material and patch with concrete similar in composition, color, and texture to original.	Remove loose concrete material.
	Barn, upper level	Wood plank	Fair	Knots have fallen out of boards; minor wood rot, warping, and cracking of boards, insufficient support/excessive deflection.	Replace cracked and broken boards in kind; install wood walkway and/or viewing platform directly over existing flooring to allow for limited public access and routine maintenance inspections.	Replace cracked and broken boards in kind.
	Milking parlor, stem wing, upper level	Rough-sawn wood	Good	No major defects. Staining due to bird feces and animal excrement.	Sweep and clean routinely, block animal access as described above.	Sweep and clean routinely.
Walls	Barn, main level, southwest	Wood post and beam structure with	Good	Minor wood rot and loose connections.	Replace boards with significant deterioration >30% of total area; reattach	Reattach loose boards; repaint every 5-10 years as part of routine maintenance.

	room	exterior board and batten cladding			loose boards; repaint every 5-10 years as part of routine maintenance.	
	Barn, main level, stable	Wood post and beam structure with exterior board and batten cladding	Good	Replacement boards, signs of slumping, and some cracked boards.	Replace boards with significant deterioration >30% of total area; reattach loose boards; repaint every 5-10 years as part of routine maintenance.	Reattach loose boards; repaint every 5-10 years as part of routine maintenance.
	Milk house and vestibule	Horizontal wood drop siding, pressed board with faux-tile finish	Good	Minor paint deterioration.	Clean and repaint in compatible color.	None.
	Milking parlor, stem wing, main level	Green ceramic glazed square tiles and plaster board atop concrete block wall	Good	Cracked tiles, plaster deterioration due to moisture penetration on southeast wall.	Replace plaster with similar material, reattach/repair loose and cracked tiles.	Remove loose/deteriorated plaster and stabilize edges, reattach loose tiles.
	Milking parlor, side wing	Board form concrete, textured concrete block, drywall	Good	Contemporary framed drywall closet constructed in northwest corner.	Remove to restore room to original configuration.	None.
	Barn, upper level	Exposed post and beam structure with gaps between vertical wood board siding	Good	Knots have fallen out of the boards; some wood rot, warping, and cracking of boards.	Replace boards with significant deterioration >30% of total area; reattach loose boards; repaint every 5-10 years as part of routine maintenance.	Reattach loose boards; repaint every 5-10 years as part of routine maintenance.
	Milking parlor, stem wing, upper level	Concrete block; tongue and groove wood	Good	No major defects	Clean and repaint in compatible color.	None.
Windows	Barn, main level, southwest room	3-over-2 wood window	Excellent	New wood windows. Minor cracking along sill plates. Signs of previous wood rot on trim.	Scrape and paint wood elements every 5-10 years.	Scrape and paint wood elements every 5-10 years.
	Barn, main level, stable	Galvanized steel hopper guides	Fair	Window openings have been boarded with plywood from the interior.	Remove plywood and install accurate reproductions.	Remove plywood and install accurate reproductions.
	Milk house	Wood frame	Fair	Window openings have been boarded with	Remove plywood and install	Remove plywood and install

	and vestibule	and plywood		plywood from interior	accurate reproductions.	accurate reproductions.
	Milking parlor, stem wing, main level	Steel frame and plywood; galvanized steel hopper guide	Good	Windows have been boarded with plywood from the interior.	Remove plywood, reglaze existing metal sashes.	Remove plywood and install accurate reproductions.
	Milking parlor, side wing	Steel frame and plywood, galvanized hopper guide	Good	Windows have been boarded with plywood from the interior.	Remove plywood, reglaze existing metal sashes.	Remove plywood and install accurate reproductions.
	Barn, upper level	Wood frame and plywood	Good	Windows have been boarded with plywood from the interior.	Remove plywood and install accurate reproductions.	Remove plywood and install accurate reproductions.
Doors	Barn, main level, southwest room	Wood	Fair	New hardware, minor wood rot.	None.	None.
	Milk house and vestibule	Wood	Fair	Minor paint deterioration and damage to wood panel	Repair wood panel, repaint, or replace in kind if necessary.	None.
	Milking parlor, stem wing, main level	Wood	Unknown	Wood panel doors have been boarded from the interior. See Exterior Conditions Survey.	NA	NA
	Milking parlor, side wing	Wood and aluminum	Good	Historic exterior wood panel doors have been boarded from the interior. New aluminum doors on closet.	Remove modern closet, including doors.	None.
	Barn, upper level	Wood	Good	Minor wear and tear.	Repair as needed.	None.
	Milking parlor, stem wing, upper level	Wood	Fair	Doors secured by 2x4s from the interior. Some paint deterioration.	Install more permanent/compatible system to block doors, paint to match.	None.
Ceiling	Barn, main level, southwest room	Exposed wood joists	Good	No major defects.	None.	None.
	Barn, main level, stable	Exposed joist ceiling	Good	Grain has lifted from wood ceiling joists, and some split boards.	None.	None.
	Milk house and vestibule	Tongue and groove wood	Good	Paint deterioration; original ceiling covered by pressed board that has disconnected in some areas.	Remove pressed board ceiling to expose original.	Reattach or reinstall damaged sections of pressed board ceiling.
	Milking parlor, stem wing, main level	Tongue and groove wood	Good	Minor paint deterioration.	Scrape and paint in compatible color.	None.
	Milking parlor, side wing	Tongue and groove wood	Good	Minor paint deterioration.	Scrape and paint in compatible color.	None.
	Barn, upper level	Exposed joist ceiling	Good	New structural supports and steel cable system have been installed to stabilize roof.	See Chapter 6 and Appendices F and G for	None.

					detailed discussion.	
	Milking parlor, stem wing, upper level	Exposed wood rafters	Good	Salvaged rafters with signs of previous plaster application.	None.	None.

*Using architectural north.

4.2 Corral and Animal Shelter

4.2.1 Exterior

The animal shelter is in fair condition overall (Table 4). Of greatest concern is that the wood framing and support posts sit directly on the ground. It is unclear if the broken concrete slab was the original foundation for this structure or of a previous one. The corrugated metal siding suffers from severe rust and corrosion, as well as tears to the metal sheathing. Some metal sheets have partially disconnected from the wood framing and one piece hangs loose above the doorway. Roof defects are limited to corrosion. The steel rails of the corral fence have a natural patina of corrosion but are in good condition. A full list of conditions is available in Appendix D.

Table 4. Condition assessment and treatment recommendations for architectural elements and features on the exterior of the animal shelter.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Foundation		N/A	N/A	Wood frame structure sits directly on the ground.	Set building on low, unobtrusive footers of rock or poured concrete; remove debris from interior to below base of studs. Repair or replace wood framing members as needed.	Remove debris from interior to base of studs. Repair or replace wood framing members as needed.
Walls		Corrugated metal	Fair	Severe rusting and corrosion at the base of the wall. Sheathing is disconnecting from the framing members.	Reattach loose panels; replace short sections of corroded metal if necessary, not full sheets.	Reattach loose panels.
Window covering	Southwest	Corrugated metal	Good	Corrosion of sliding corrugated metal shutter.	None.	None.
Door Opening	Northeast	Corrugated metal	Good	Minor rusting and corrosion. Some signs of paint deterioration.		
Fascia	Northeast	Wood	Fair	Exposed wood fascia showing signs of cracking and splintering.	Replace in kind as needed.	Replace in kind as needed.
Roof		Corrugated metal	Fair	Significant rust and corrosion.	Inspect for loose panels periodically, reattach as needed; replace in kind when corrosion leads to holes in metal.	Inspect for loose panels periodically, reattach as needed.

*Using architectural north.

4.2.2 Interior

The interior walls are unfinished, thus the wood framing is exposed and the exterior corrugated metal sheets are also visible. The metal sheets are disconnecting from the wood framing in some locations and the framing shows signs of wood rot and deterioration near the ground (Table 5). The window opening is framed, but no window exists. The ceiling comprises exterior metal sheathing atop dimensional lumber framing. A full list of conditions is available in Appendix D.

Table 5. Condition assessment and treatment recommendations for architectural elements and features on the interior of the animal shelter.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Flooring		Dirt and concrete	Poor	Dirt and broken concrete floor.	Remove debris from floor to packed earth surface.	Remove debris from floor to packed earth surface.
Walls		Corrugated metal	Fair	Severe rusting and corrosion at the base of the wall. In some places, corrosion has eaten through the corrugated metal siding. Siding is beginning to disconnect from the base of the structure.	See exterior recommendations.	See exterior recommendations.
Window frame	Southwest	N/A	N/A	No major defects.	Replace in kind as needed.	None.
Ceiling		Corrugated metal	Good	Minor rusting and corrosion on interior side of panels.	See exterior recommendations.	See exterior recommendations.

*Using architectural north.

4.3 Granary

4.3.1 Exterior

The exterior of the granary has largely remained the same since its construction in about 1920. A new poured concrete foundation was added after the City's acquisition of the property (Table 6). Damaged board and batten siding has been replaced in-kind in shorter lengths and butt-jointed over time, as well. The walls are in generally good condition, but show signs of past wood rot, cracking, and splintering. The door has been nailed shut and the windows boarded. The original wood shake roof has also been replaced in-kind. A full list of conditions is available in Appendix D.

Table 6. Condition assessment and treatment recommendations for architectural elements and features on the exterior of the granary.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Foundation		Poured concrete	Excellent	New poured concrete slab. No major defects.	None.	None.
Walls		Board and batten wood	Good	Minor wood rot, cracking, and splintering boards. Damaged battens have been	Scrape and paint routinely, monitor for continued rot and replace board/batten	Scrape and paint routinely. Ensure any sprinklers are

		siding		spliced and replaced in kind. Some wood knots have also fallen out.	sections in kind when needed. Ensure any sprinklers are directed away from building. Keep shrubs pruned to 3' from walls.	directed away from building. Keep shrubs pruned to 3' from walls.
Windows	Northeast, southwest	Wood frame and plywood boarding	Good	Window has been removed and opening boarded with plywood. There is a window opening on the southeast elevation that may have replaced an original door opening to allow for the building's use as a chicken coop.	Replace with compatible window or replica of known original.	None.
Door	Northeast	Wood frame and plywood boarding	Good	Door has been removed and opening boarded with plywood.	Replace with compatible doors or replicas of known original.	None.
Eaves		Exposed wood rafter tails	Fair	Rafters show signs of past wood rot as well as some cracking and splitting.	Scrape and paint routinely.	None.
Fascia		Wood	Good	No major defects.	Scrape and paint routinely.	None.
Roofing		Wood shake	Excellent	New wood shake roof. No major defects.	Oil routinely to extend life.	Oil routinely to extend life.

*Using architectural north.

4.3.2 Interior

The interior of the granary is broken up into two sections—one for storage and the other for storing grain. Overall, the walls of the structure are in good condition (Table 7). New structural supports and plywood sheathing have been added by PCMC to increase the building's stability, but the plywood sheathing has significantly altered the original interior appearance and blocks window openings. The window washes have been removed and the openings have been boarded. The exposed roof framing system is in overall good condition, as well. A full list of conditions is available in Appendix D.

Table 7. Condition assessment and treatment recommendations for architectural elements and features on the interior of the granary.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment Level	
					Optimum	Acceptable
Walls	Northwest	Wood frame with horizontal planks cladding the lower half of the wall	Good	Normal wear and tear. Holes resulting from missing exterior batten pieces.	Cover holes with small sections of wood or wire mesh if animal/insect access becomes a problem.	None.
	Southeast	Wood frame and sheathing	Good	Normal wear and tear. Holes resulting from missing exterior batten pieces.	Cover holes with small sections of wood or wire mesh if animal/insect access becomes a problem.	None.

	Northeast	Wood frame and plywood boarding with horizontal planks cladding the lower half of the wood frame wall on the northwest corner	Excellent	Normal wear and tear on horizontal planks. New plywood.	Remove plywood sheathing and replace with less obtrusive bracing/stiffening system.	None.
	Southwest	Wood frame and plywood boarding	Excellent	New plywood.	Remove plywood sheathing and replace with less obtrusive bracing/stiffening system.	None.
Windows	Southwest	Boarded up with plywood with 2" x 4" bracing	Good	Normal wear and tear.	Remove plywood to re-expose opening. Install compatible window or replica of known original.	None.
	Northeast	Not visible because of plywood boarding	NA	NA	Remove plywood to re-expose opening. Install compatible window or replica of known original.	None.
Doors	Northeast	Plywood with 2" x 4" bracing	Good	New plywood.	Replace with compatible door or replica of known original.	Replace with compatible door or replica of known original.
Ceiling		Exposed wood rafters and sheathing. Some new collar ties and cable bracing.	Good	Normal wear and tear.	Monitor periodically for leaks.	None.

*Using architectural north.

4.4 Tool Shed

4.4.1 Exterior

The tool shed was restored by PCMC in 2002 and several alterations were made, including the addition of a new concrete slab foundation, the replacement of some siding, and the installation of a new roof. As a result, the tool shed is generally in good to excellent condition (Table 8). A full list of conditions is available in Appendix D.

Table 8. Condition assessment and treatment recommendations for architectural elements and features on the exterior of the tool shed.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Foundation		Poured concrete	Excellent	New concrete slab foundation. No major defects.	None.	None.
Wall	All sides	Wood board and batten siding	Good	Lower portions of battens have been replaced in-kind. Minor wood rot, cracking, and splitting of boards. Wood knots have fallen out. Some battens are detached.	Reattach loose battens; scrape and paint routinely.	Reattach loose battens; scrape and paint routinely.
Window	Southeast	Wood sash with Plexiglas glazing	Excellent	Replacement window. No major defects.	Replace Plexiglas with glass.	None.
Door	Northeast	Framed wood door	Good	Minor signs of previous wood rot, splintering, and paint deterioration. Knob missing.	Install compatible door knob/pull; scrape and paint routinely.	Scrape and paint routinely.
	Northeast	Small board and batten access door	Good	Wood boards show signs of past wood rot, cracking, and splintering.	Scrape and paint routinely.	Scrape and paint routinely.
	Northwest	Small board and batten access door	Good	New wood door. No major defects.	Scrape and paint routinely.	Scrape and paint routinely.
Eaves		Exposed wood rafter tails	Fair	Signs of past wood rot, cracking, and splintering.	Scrape and paint routinely.	Scrape and paint routinely.
Fly rafters	Northeast, southwest	Wood	Good	Missing board section on southwest side.	Replace missing section, scrape and paint routinely.	Replace missing section, scrape and paint routinely.
Roofing		Wood shingle	Excellent	New wood shingle roof. No major defects.	Oil routinely to extend life.	Oil routinely to extend life.

*Using architectural north.

4.4.2 Interior

The interior of the tool shed was also refurbished in 2002 but has had few alterations other than the addition of tools and other equipment donated by the McPolin family. It is in good to excellent condition (Table 9). A full list of conditions is available in Appendix D.

Table 9. Condition assessment and treatment recommendations for architectural elements and features on the interior of the tool shed.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Flooring		Wood plank	Fair	Minor wear and tear.	Sweep out occasionally and monitor for roof leaks and animal activity.	Sweep out occasionally and monitor for roof leaks and animal activity.
Walls	All sides	Wood board and batten siding over	Good	Signs of previous paint deterioration (salvaged boards). Knots have fallen out of boards.	Place wire mesh over knot holes if animal/insect activity becomes a	None.

		stud wall framing.			problem.	
Window	Southeast	Wood sash with Plexiglas glazing	Excellent	New replacement window. No major defects.	None.	None.
Door	Northeast	Z-braced wood plank door	Good	Minor wear and tear.	None.	None.
Ceiling		Exposed wood rafters and board sheathing	Good	Minor splintering and cracking of wood boards.	Monitor periodically for leaks.	None.

*Using architectural north.

4.5 Outhouse

4.5.1 Exterior

Due to its deteriorated condition, PCMC almost fully dismantled, repaired, and reconstructed the outhouse in a new location in 2002. Almost all of the materials were salvaged in order to reconstruct the outhouse. Improvements include a new concrete slab foundation a new roof framing system built over the existing framing, and a new wood-shingle roof (Table10). A full list of conditions is available in Appendix D.

Table 10. Condition assessment and treatment recommendations for architectural elements and features on the exterior of the outhouse.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Foundation		Concrete	Excellent	New concrete slab foundation. No major defects.	None.	None.
Wall	All sides	Mix of new and salvaged wood clapboard siding	Good	. Very minor deterioration of trim boards at the base of the structure.	Direct sprinklers away from outhouse and maintain 3' gravel border around building to improve drainage. Scrape and paint routinely.	Direct sprinklers away from outhouse. Scrape and paint routinely.
Door	Northeast	Wood	Excellent	None.	Scrape and paint routinely.	Scrape and paint routinely.
Eaves	All sides	Wood	Good	Exposed wood boards on east and west show signs of past wood rot, cracking, and splintering. New roof structure was framed and constructed atop original.	Scrape and paint routinely.	Scrape and paint routinely.
Fascia	All sides	Wood	Good	Minor cracking and splintering of wood on east and west elevations.	Scrape and paint routinely.	Scrape and paint routinely.
Roof		Wood shake	Good	New wood shake roof. Shingles on ridge have separated.	Install metal ridge cap; oil routinely to extend life.	Repair ridge shingles; oil routinely to extend life.

*Architectural north.

4.5.2 Interior

The interior of the outhouse is in excellent condition (Table 11). A wire grate has been mounted across the doorway to allow public viewing but no physical access. A full list of conditions is available in Appendix D.

Table 11. Condition assessment and treatment recommendations for architectural elements and features on the interior of the outhouse.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Flooring		Wood plank	Good	Signs of normal wear and tear.	Sweep periodically and monitor for animal/insect activity.	None.
Walls	Northwest, southeast, southwest	Wood	Good	Widely spaced vertical wood boards with sheathing exposed between boards. Signs of normal wear and tear.	None.	None.
	Northeast	Wood	Good	None.		
Door	Northeast	Wood	Excellent	None.	None.	None.
Ceiling		Wood	Good	Normal wear and tear.	Monitor routinely for leaks.	None.

*Using architectural north.

4.6 Bunkhouse

4.6.1 Exterior

The bunkhouse was relocated north of the farmhouse after 2002. The structure has been well maintained (Table 12). When it was relocated, the bunkhouse was set on stacked stone footings. Lower portions of the board and batten siding have been butt-jointed and replaced in-kind. The board and batten siding shows signs of cracking and splintering. The window on the west elevation has been replaced with a new wood sash and Plexiglass glazing. The door appears to be from the historic period, and the original wood shake roof has been replaced in-kind. A full list of conditions is available in Appendix D.

Table 12. Condition assessment and treatment recommendations for architectural elements and features on the exterior of the bunkhouse.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Foundation	All sides	Stacked stone	Good	None.	Maintain gravel border around base to improve drainage; direct sprinklers away from building.	Direct sprinklers away from building.
Walls	All sides	Board and batten wood siding	Good	Lower portions of the battens have been replaced. Some wood rot, cracking, and splitting of boards.	Scrape and paint routinely.	Scrape and paint routinely.
Window	Southwest	Wood frame, Plexiglas glazing and false muntins	Good	Replacement rectangular Plexiglas window.	Replace with more compatible wood-framed window with wood muntins and glass glazing.	None.
Door	Northeast	Exterior-hinged, wood-framed door.	Good	None.	Scrape and paint routinely.	Scrape and paint routinely.
Eaves	All sides	Exposed wood rafters	Good	Minor cracking, warping, and splitting of exposed rafters. Signs of past wear and tear.	Scrape and paint routinely.	Scrape and paint routinely.
Fascia	All sides	Wood	Good	Some new replacement boards. Minor cracking.	Scrape and paint routinely.	Scrape and paint routinely.
Roof	All sides	Wood shingles, metal ridge cap	Excellent	No major defects.	Oil routinely to extend life.	Oil routinely to extend life.

*Using architectural north.

4.6.2 Interior

The bunkhouse has been minimally altered since its construction in 1935. The wood floors appeared to have been covered by thick black felt at an early date, which has been largely removed or worn away (Table13). Similarly, only remnants of the original pressed board wall covering remain, exposing the horizontal wood plank structure of the interior walls. A wood stove sits on the north half of the one-room structure. The room is decorated with a cot and other historic artifacts. A full list of conditions is available in Appendix D.

Table 13. Condition assessment and treatment recommendations for architectural elements and features on the interior of the bunkhouse.

Architectural Feature	Location	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Flooring	Main Room	Wood plank	Fair	Deteriorated glued-felt flooring	Sweep out periodically and monitor for animal/insect activity.	None.
Walls	Main Room	Horizontal wood boards	Good	Signs of cardboard sheathing remaining on walls.	None.	None.
Window	Main Room	Wood framed Plexiglas window	Good	Replacement window. No major defects.	Replace with more compatible wood-framed window with wood muntins and glass glazing.	None.
Door	Main Room	Vertical wood plank door	Good	Corrosion on hardware.	None.	None.
Ceiling	Main Room	Wood plank	Fair	Paint deterioration and past wood rot with cutout along north wall for stove pipe.	Monitor routinely for leaks.	None.

4.7 Grain Silos

4.7.1 Exterior Conditions

The concrete silos are overall in good condition (Table14). There is some minor cracking of the poured concrete; however, this does not appear to threaten the structural integrity of the silos. There are also signs of discoloring due to rain runoff patterns, as well as delamination that has exposed the large aggregate of the poured concrete mixture. A full list of conditions is available in Appendix D.

The interiors of the silos could not be accessed for this project, but it is recommended that these be inspected and photographed in the near future.

Architectural Feature	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
				Optimum	Acceptable
Foundation	Formed Concrete	Good	Black waterproofing sealant has been applied to the base of each silo.	Patch spalls with concrete compatible in composition, color, and texture to the original.	None.
Walls	Formed Concrete	Good	Signs of spalling and deterioration at the base; cracking and delamination beneath filling chute; discoloring and spalling.	Remove loose material from cracks and repair with compatible concrete. Application of a sealant or water repellent is not recommended.	Remove loose material from cracks and repair with compatible concrete. Application of a sealant or water repellent is not recommended.
Roof	Metal	Fair	Metal has corroded. Conditions assessment made from ground level.	Conduct detailed inspection of using a lift and repair metal roofing materials or replace in kind as needed.	Conduct detailed inspection and monitor for future deterioration.

Table 14. Condition assessment and treatment recommendations for architectural elements and features on the exterior of the silos.

4.8 Osguthorpe Shed

4.8.1 Exterior

The Osguthorpe shed is in overall fair condition (Table 15). The open design of the structure and its lack of foundation have led to minor deterioration and rot at the base of its wood structural posts. There are also some gaps, cracks, and deterioration of the wood siding on the east, north, and west sides. Window openings on the west elevation are suffering from deferred maintenance: many of the window frames are severely damaged and are missing mullions, and no glazing remains in any of the windows. The fascia shows signs of minimal wood rot and paint deterioration. The standing seam metal roof has some rust and corrosion as well. A full list of conditions is available in Appendix D.

Table 15. Condition assessment and treatment recommendations for architectural elements and features on the exterior of the Osguthorpe shed.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Foundation		No foundation	NA	Dirt floor.	None.	None.
Walls	Northwest, northeast, southwest	Wood board and batten siding	Fair	Cracking, warping, and signs of wood rot along the foundation. Paint deterioration overall. Some battens have detached from the siding, while others have been replaced due to wood rot.	Remove dirt and debris from exterior wall base, regrade to direct water away from exterior wall bases, install gravel border to improve drainage. Replace damaged boards and battens in kind.	Remove dirt and debris from exterior wall base, install gravel border to improve drainage.
Windows	Southwest	Wood	Poor	All glazing has been lost. Some window frames have survived, but have lost mullions. Signs of wood rot, splintering, and paint deterioration around window openings and surrounding trim.	Reproduce original wood and glass 6-pane windows and install.	None.
Eaves		Exposed rafters	Good	No major defects.	Scrape and paint routinely.	Scrape and paint routinely.
Fascia	Northwest	Wood	Good	Minor wood rot and paint deterioration.		
Roofing		Ridged metal roof	Good	Some signs of corrosion, particularly on the southeast side of the shed.	Replace roof panels as needed.	None.

*Using architectural north.

4.8.2 Interior

The interior of the Osguthorpe shed is a single open room, supported by wood posts sunk directly into the ground. These posts show signs of minor wood rot and deterioration (Table 16). Along the north and east walls, there are some gaps, cracking, and deterioration of the wood siding forming the exterior walls. On the west elevation, the trimmed window openings have survived, but the glazing and wood mullions have been largely lost. The existing window frames are in deteriorated condition. The ceiling is comprised of exposed wood rafters and sheathing. A full list of conditions is available in Appendix D.

Table 16. Condition assessment and treatment recommendations for architectural elements and features on the interior of the Osguthorpe Sshed.

Architectural Feature	Location*	Material	Condition Level	Deterioration Conditions and Issues	Treatment	
					Optimum	Acceptable
Walls	Northwest, northeast, southwest	Horizontal framing members nailed to poles	Fair	Treated wood poles are set directly in the dirt leading to minor wood rot and deterioration at the base. Some gaps, cracks, and deterioration of wood siding.	Excavate around pole bases and retreat with creosote or similar matieral.	None.
Windows	Southwest	Trimmed wood window openings	Poor	Window frames have survived, but glazing has been lost. Wood rot, splintering, and paint deterioration. Limited remaining mullions; many have been lost.	Reproduce original wood and glass 6-pane windows and install.	None.
Ceiling		Exposed wood rafters and sheathing	Fair	Some signs of moisture due to the open design of the enclosure.	Monitor for leaks.	None.

*Using architectural north.

4.9 Farmhouse

4.9.1 Exterior

The Farmhouse has been well maintained and is in excellent condition; there are no major deterioration conditions to report.

4.10 Reception Center

The Reception Center has been well maintained, and there are no major deterioration conditions to report.

CHAPTER 5. CODE AND ACCESSIBILITY REVIEW

5.1 Methodology

Michelle Downard and John Allen of the Park City Building Department conducted a site evaluation of the McPolin Farm property on December 11, 2014. During that evaluation, the accessibility was evaluated with the concept of possibly allowing guided public tours on the property. The findings from the site evaluation are provided herein and shall be required unless technically infeasible, in accordance with the exception listed in the International Building Code (IBC).

Because a structural engineer has evaluated the major buildings on the site and has made recommendations regarding the structural integrity of the barn, silos, and pole shed (see Chapter 6), Building Department staff did not evaluate structural issues on the site.

5.2 Preliminary Code Review

Within Chapter 34 of the IBC, the requirement for providing an accessible route to the primary function allows for an exception. This exception states that the cost of providing the accessible route is not required to exceed 20% of the alteration affecting the area of the primary function. This should be considered as the structural engineer's recommendations are evaluated and costs are identified.

5.3 Preliminary Accessibility Review

The following list of findings for each structure is as follows:

- Site Access
    - Accessible route- accessible parking, signage and accessible route (Existing ramp- too steep at various locations in between the parking area across the street to the barn, including area surrounding drain inlet and provide a 60" long landing at every 30" of rise)
- Barn Interior
    - This evaluation includes access from the main west door to the livestock area. Additional requirements will be necessary to allow the public into the milking area (door threshold, stairs and pathway width), storage area (door width, stairs), and the loft (ramp with landings or elevator, floor deterioration and openings)
    - On the main level, create a ramp at the floor transition between the tractor/garage area on the west side of the barn and the livestock area to the east
    - On the main level, provide guardrails separating the walking surface area from the drainage trench

    - Alternatively, fill in or cover the drainage trench to eliminate the surface level transition if the public will be allowed to approach the livestock area/pen; also provide a guardrail
- Reception Center
    - Fully accessible. No concerns or violations identified.

It is the Building Department's understanding that the following structures will not be accessible or occupied by the public; are for amusement purposes only; and that there is no proposed change in occupancy. Therefore they are not required to be accessible. However, the following items should be noted:

- Silos
    - No concerns or violations identified.
- Farmhouse
    - Provide a guardrail on the existing ramp on the south end of the building.
- Bunkhouse, Outhouse, Tool Shed, Granary, Corral and Animal Shelter, Osguthorpe Shed
    - There is no accessible route to approach the individual structures

5.4 2009 Staff Review of Accessibility

In 2009, the City completed trail work in order to provide an ADA accessible route from the parking lot on the east side of the highway to the farm buildings, restroom, farm equipment display, and trail connections (Appendix E). The driveway is no more than 10 feet wide and surfaced with asphalt. It was installed in this manner in order to reduce its visual impact and therefore its effects on the historic integrity of the farm property. Bike trails surrounding the farm were limited to 6 to 8 feet in width in order to be subordinate to the driveway.

CHAPTER 6. STRUCTURAL EVALUATION

The structural integrity of the McPolin Barn has long been a point of concern for PCMC, and several previous structural reports have provided evaluations of both existing conditions and past interventions. The barn was re-evaluated for this project, and the Osguthorpe Shed and the Silos were also evaluated for the first time.

6.1 Previous Reports

In 1992, shortly after PCMC purchased the farm, Cooper/Roberts Architects prepared a plan for renovating and restoring the barn (Cooper/Roberts Architects n.d.). The plan included a description of existing conditions as well as recommendations for excavating the lower level of the barn and finishing the main and upper levels to create office space, perhaps for the Park City Chamber of Commerce, and/or a cultural center. Recommendations to improve structural performance and allow for new uses included replacing or strengthening floor joists, installing plywood sheathing over the main and upper level floors, strengthening all beam-column connections, and applying a plywood skin over the building exterior (to be covered with new boards and battens to match the original, which would remain on the interior face of the wall).

None of these recommendations were carried out, however, and in 1992 the City chose instead to stabilize the barn in its existing condition by installing a cable bracing system as designed and specified by Cooper/Roberts. The bracing system was intended to straighten the vertical walls and strengthen and stiffen the building laterally. The barn was also painted and both a fire sprinkling system and lighting system were added. “No code compliance life safety issues were addressed and the modifications were not intended to allow for any public use of the building” (Richards Consulting Group, Inc. 2003: 2).

The structural integrity of the barn and the bracing system was re-evaluated in 2003 by Richards Consulting Group, Inc. (see Appendix F). The report found that not all elements of the cable bracing system had been installed per the specifications, but that the system was functioning. Additional calculations indicated that the roof framing system was considerably overstressed under snow loading, and that the barn was vulnerable to lateral wind-loading. A major point of the study was to investigate options for modifying the cable bracing to allow for better use of the space for storage, either by removing the two lowest cables or removing and relocating the existing cables to a higher position. Upgrading the barn to meet current code requirements for public use was considered cost-prohibitive. Again, none of the recommendations from the 2003 report were carried out.

6.2 Structural Evaluations, 2014-2015

In conjunction with the creation of this preservation plan, the City contracted BHB Consulting Engineers, PC, (BHB) to conduct structural evaluations of the McPolin Barn, Osguthorpe Shed, and the Silos in order to assess their current condition under current design loads and use, identify areas of concern, make recommendations for structural improvements, and, for the barn, provide reasonable options to upgrade the building for different uses.

6.2.1 McPolin Barn

The BHB report concludes that the McPolin Barn is in relatively good condition for its age but that it also suffers from a number of deficiencies in the existing framing, again typical of buildings of similar type and age. These deficiencies are outlined in the full report but in summary, the existing structure is inadequate to resist snow loads, wind loads, and high seismic loads as required by local building codes (see Appendix G). Connections between floor beams and posts on the exterior walls should be improved, gable end walls should be stiffened, and the floor framing around the staircase should be strengthened. Also, the roof framing members are highly overstressed under snow loads, and BHB recommends either not using the building during the winter months or reinforcing the roof. This could be done by adding trusses at the center of the building adjacent to each roof joist, bracing the outside joists, and adding minor bracing to the main timbers. Finally, the Osguthorpe additions to the original building pose a hazard in an earthquake. The walls are constructed of unreinforced masonry and, due to their relatively high weight and potential to tear away from the roof during a seismic event, connections between the walls and roof trusses should be improved.

The report also provides options for removing the cable bracing system and replacing it with new braced frames that could be shaped in a way to minimize their visual impact on the significant interior spaces of the barn, to be supplemented with sheathing on the ends of the barn to create shear walls.

If the use of the barn does not change, all structural improvements are voluntary. However, the report provides recommendations and options for four levels of upgrade that would allow for different levels of use: “No Changes,” “Historic Building Use,” “Code Level Upgrade,” and “Full Upgrade.”

NO CHANGES

Building should not be occupied when winds over 40 mph are expected. Building should not be occupied when there is snow on the roof.

HISTORIC BUILDING USE

This level of upgrade, also termed “Dangerous Building Use” in the BHB report, allows for tours during the late spring, summer, and early autumn months. Building is occupied as an unimproved historic building by small groups of less than 50 people and is not occupied when snow is on the roof. Seismic upgrade is taken to the level of preventing collapse. Minimum retrofits would include:

- To address gravity load deficiencies, a) reinforce beam-to-column connections at the exterior walls by flanking timber columns with 2 x 6 studs and attaching correctly; b) replace modified column on the southwest side of the building and improve beam-to-column connection; c) add additional framing at the stair opening to reinforce the joists; and d) repair deteriorated masonry and wood elements.
- Remove cable bracing.

- To address lateral load deficiencies, a) add new steel brace frames at three locations, similar in shape to the historic framing; b) add sections of sheathing on the interior faces of the long exterior walls to create shear walls; c) overlay the existing hayloft floor with wood sheathing; and d) add large wood girts at each gable end to stiffen the walls under wind loads.
- Bolt unreinforced masonry walls to floor/roof diaphragm to strengthen connections.

CODE LEVEL UPGRADE

This level of upgrade allows the barn to be occupied year-round by less than 50 people. Improved mechanical and electrical systems would be added and seismic upgrades would be taken to a life safety level. Minimum retrofits would include:

- All of those described under "Historic Building Use."
- Reinforcement of roof to meet snow loads, including a) adding wood trusses adjacent to each existing roof truss; b) adding 2 x 6 studs to support the roof beams; and c) adding 2 x 6 studs to reinforce diagonal roof-framing timbers.
- Further improving connections between unreinforced masonry walls and floors/ceilings.
- Further improving beam-to-column connections.

FULL UPGRADE

This level of upgrade allows the barn to be occupied year-round by less than 300 people. Improved mechanical and electrical systems would be added and seismic upgrades would be taken to a life safety level or higher. Minimum retrofits would include:

- All of those described under "Code Level Upgrade."
- Finishing and insulating interior walls.
- Increasing seismic performance per additional requirements of the City.

6.2.2 Osguthorpe Shed

BHB conducted a structural assessment of the Osguthorpe shed in 2014, observing conditions and making recommendations for improving its stability. This can be done by replacing all deficient nails connecting the back wall and braces to the columns with positive attachments, such as lag screws, and reinforcing the 2x6 members supporting the roof joists along the back wall with a new wood beam. BHB recognizes that even with minimal improvements to stabilize the building, the building will not comply with current local building codes. Specifically, the roof will not be safe for occupants when snow is on the roof. The full structural engineering report for the Osguthorpe Shed is provided in Appendix H.

6.2.3 Grain Silos

In July of 2015, BHB conducted a structural assessment of the silos; the full report is included in Appendix I. In summary, deterioration conditions were mainly confined to the exterior and included concrete spalling, corrosion of reinforcing steel, and corrosion of the metal roof. BHB also observed that the silos do not meet current code for seismic stability and, in the event of an earthquake, may rock and/or overturn. BHB provides preliminary recommendations to repair concrete and address issues of corrosion. As a next step, the development of a trial testing and treatment program is strongly recommended before any treatments are applied to the silos. BHB also recommends attaching three micro-piles, or helical piers, to the interior of each silo to address seismic concerns.

CHAPTER 7. SYSTEMS EVALUATION

For each building, summary of existing systems:

Mechanical
Seismic
Electrical
Plumbing
Security
Fire protection

PART II TREATMENT AND USE

CHAPTER 8. TREATMENT PHILOSOPHY

The McPolin Farm buildings and associated open space have been recognized as important resources by PCMC for multiple reasons, including their location on the approach to the city; their visual, historic, and natural qualities; and the educational and recreational opportunities they provide. Among the chief goals of the City is to "protect the historic quality of the barn located on the Farm Parcel and the historic nature of the property as an agricultural setting for the barn" (PCMC 1995: 1).

In recognition of its historic significance, the farmstead was listed on the NRHP in 2004. In the United States, standards and guidelines for the treatment of historic properties are set by the Secretary of the Interior (Secretary). The Secretary defines four approaches to their treatment:

1. ***Preservation,*** which focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time.
2. ***Rehabilitation,*** which acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character.
3. ***Restoration,*** which depicts a property at a particular period of time in its history, while removing evidence of other periods.
4. ***Reconstruction,*** which re-creates vanished or non-surviving portions of a property for interpretive purposes.

Under the City's tenure, past approaches to treatment have included all of the above: preservation (for the barn and most of the outbuildings), rehabilitation (through the addition of a trail system and reception center), restoration (through the removal of most later-period buildings from the Osguthorpes' time), and reconstruction (of the farmhouse). Moving forward, the recommended approach to the property, and the barn in particular, is preservation, with rehabilitation applied in a careful and limited manner.

After evaluating past planning documents, including the Entryway Corridor Master Plan (1995) and the McPolin Farm Strategic Plan (2014), and gathering feedback from FOF and PCMC's City Council, ***preservation*** is the most strongly recommended approach. As the Secretary notes, "When the property's distinctive materials, features, and spaces are essentially intact and thus convey the historic significance without extensive repair or replacement; when depiction at a particular period of time is not appropriate; and when a continuing or new use does not require additions or extensive alterations, Preservation may be considered as a treatment" (National Park Service 2014). This is the case at the McPolin Farm. Because it is such a good representation of the evolution agriculture and dairy farming in the region, the period of significance for the property is recommended as 1897-1954. In the future, the emphasis should be on the preservation and interpretation of buildings, structures, and landscape features dating from that period.

Limited ***rehabilitation*** of one or more buildings at the farm, particularly the barn, may also be a viable treatment approach either now or in the future. Retaining the exterior appearance of the barn while altering the interior to accommodate a new use has been discussed over the years and would allow for increased use of the site, which in turn might fill a space need of PCMC or its affiliates (e.g., the Chamber of Commerce or Park City Historical Society and Museum) and possibly generate revenue sufficient to cover the costs of maintaining and operating the property. This

approach would also allow for the construction of one or more new buildings or structures that might improve or increase use without significantly detracting from the historic qualities of the farm.

The ***restoration*** and ***reconstruction*** treatment approaches have been appropriate at the McPolin Farm on a limited level in the past. However, as future approaches, both imply that the goal for the property would be to use and interpret it as a historic museum. Because this is outside of the City's present intent, restoration and reconstruction are not considered in this discussion.

8.1 Secretary of the Interior's Standards for Preservation and Rehabilitation

The Secretary defines the standards for preservation of historic properties as listed below. By adhering to these standards during the design and implementation of future maintenance work and improvements, the historic qualities of the McPolin Farm will be maintained. The advantages and disadvantages of each approach are summarized in Table 17.

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

The Secretary's Standards for Rehabilitation are similar to those for preservation, although the focus shifts from the comprehensive preservation of existing historic material to the selective preservation of character-defining features. The standards for rehabilitation also allow for additions and/or new construction that may be necessary to accommodate a new or expanded use.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Table 17. Advantages and disadvantages of the two potential treatment approaches to the McPolin Farm.

Preservation		Rehabilitation	
Advantages	**Disadvantages**	**Advantages**	**Disadvantages**
In accord with existing planning documents and zoning.	Costly structural upgrades required to preserve barn.	Increased property use or revenue may cover improvements and maintenance.	More costly structural upgrades required to rehabilitate barn.
In accord with City Council vision and goals	Limited use means property revenue will not cover improvements and maintenance.	Increased presence of official managers/users on property.	Potentially high cost of other rehabilitation measures.
In accord with FOF vision and goals.	Higher maintenance costs for historic buildings.	Improved security due to increased presence/use.	Potentially long and divisive public process to determine appropriate new use.
In accord with perceived public opinion.	-	Potential increase in public use of property.	Significant additional parking likely required to accommodate new use.
Least physical impact on current site and buildings.	-	Fulfillment of potential PCMC office/storage space need.	If applied to barn, loss of historic character, particularly on interior.
Maximum retention of historic character.	-	-	Limits future options.
Least expensive approach.	-	-	-
Lower parking requirements.	-	-	-
Future options remain open.	-	-	-

8.2 FOF, City Council, and Public Input on Treatment Philosophy and Farm Use

In order to understand the current thinking of the PCMC groups most actively involved in planning for and managing the McPolin Farm, namely the FOF and City Council, several meetings were held to present the initial findings of the preservation plan and gather feedback about 1) the current strengths and weaknesses of the farm, including its physical assets, operation and management, and 2) the vision for its future in the short term (next 1-5 years) and the long term (next 5-15 years).

8.2.1 FOF Meeting

The first meeting was held with PCMC staff and members of the FOF on November 12, 2014. Feedback is presented below:

CURRENT STRENGTHS OF THE McPOLIN FARM

- It is a visual icon.
- The barn in particular is a landmark and an icon on the approach to Park City.
- The farm creates a character-defining entry corridor for Park City.
- The farm provides a breather /open space within increasingly dense development.
- The open space is well-protected under current Recreational Open Space (ROS) zoning.
- The property is also afforded protection as a jurisdictional waterway/wetland.
- The farm is a visual reminder of Park City history.
- The farmstead provides complete picture of history, and different eras are reflected in the buildings.

- The farm is rich in historic documentary resources, including photographs, videos, and biographical information on the McPolin family.
- The trail system is heavily used.
- Public accessibility is good.
- FOF has provided publicity and exposure.
- Park City Historical Society and Museum is also interested and active.
- It is appropriate that preservation is currently the main treatment philosophy.

CURRENT WEAKNESSES OF THE McPOLIN FARM

- Lack of signage hinders recognition/interpretation.
- There is no officially recognized parking and public events must have a transportation plan.
- Safety issues and dangerous conditions arise when unofficial overflow parking occurs on the shoulders of the highway.
- UDOT involvement and cooperation with future parking, site access, management, and improvements is uncertain.
- Access to the buildings and site is only partially in compliance with the Americans with Disabilities Act (ADA).
- There is a lack of easy access to historic archival materials.
- Direct revenue funds maintenance rather than capital improvements.
- There is no easy way for the public to donate to the farm and no means to provide name recognition that might encourage further donations.
- The current administrative policy and conditional use plan limit use, staffing, and budget.
- The administrative policy also limits opportunities for increased public education and exposure.
- Limited staffing (one part-time Farm Manager and reliance on FOF volunteers to staff public events) severely constrains use, such that the number of events currently allowed under the CUP cannot be met.
- The energy and vision for the farm and its future are too dependent on the Farm Manager, and there is a danger of losing these positive things in the event of retirement or a change in staffing.
- There is no real maintenance or improvement plan for the trees, gardens, and general landscaping.
- The location of the highway causes a disconnect between the Osguthorpe shed and the McPolin farm buildings, and neither the shed nor the Osguthorpe period of ownership are interpreted for the public.
- For the barn in particular:
    - The windows are boarded.
    - There is no public access, no tours, and very little interpretation of the most significant building on the property.
    - The barn is vulnerable to fire, structural damage/failure, and use/overuse.

VISION FOR THE FUTURE OF THE McPOLIN FARM

- In the next 1-5 years:
  - Address all deterioration conditions noted in the condition assessment and in accordance with the treatment recommendations in the preservation plan.
  - In particular, restore the barn windows.
  - Implement structural stabilization measures for the barn, including removing the cables and replacing with a new system that doesn't impede access.
  - Allow staff-guided tours and provide the means for self-guided tours, particularly of the barn.
  - Allow the public to walk inside barn, even if not in the hayloft yet.
  - Move existing interpretive signs to meet current circulation patterns.
  - Consider using the Osguthorpe shed as a picnic pavilion and/or interpretive center for the later farming period. Perhaps include photos of lost Osguthorpe buildings and also interpret the vista of McPolin Farm across the highway.
  - Focus on tree and landscape preservation.
  - Maximize the number of community events allowed under the CUP by:
    - Increasing staffing and budget to allow more events.
    - Streamlining the process for requesting and holding events.
  - Improve parking, access, and public safety with regard to the highway.
  - Begin to revisit and evaluate the effectiveness of the current administrative policy, especially regarding parking, staff, budget, and site management.
  - Investigate and facilitate ways for the public to donate to the farm and be recognized.
  - The barn will be 100 years old in c. 2020. Plan for a centennial celebration and use this as the impetus to begin a fundraising/capital campaign.
- In the next 5-15 years:
  - Continue to revisit the administrative plan and CUP, and consider expanding it to allow for 24 public/community events.
  - Add a permanent on-site staff member to allow for more effective site and event management, increased public interpretation and interaction, and improved security.
  - Keep the buildings as they are after the 1-5 year goals are met.
  - Continue to focus on preserving open space.
  - Continue to focus on preserving community access.
  - Continue to focus on preserving Park City history.

8.2.2 City Council Meetings

The second meeting was a work session involving the PCMC City Council and Planning Department staff, held on January 29, 2015. The meeting took the form of a more open discussion, but Council's vision was very similar to that of FOF; feedback was as follows:

- Preservation of the barn is a very high priority of the Council.
- First and foremost, Council would like to gather public input about the community's vision before approving any changes to the barn or the use of the farm.
- Council supports investigating a limited expansion of barn use, but continuing to keep levels of use low.
- Council's preference would be to upgrade the barn to somewhere between a "Historic Building Use" level and a "Code Level Upgrade."
- Council would like to receive cost estimates for both types of upgrades.

An update on the preservation plan was provided to Council on June 11, 2015, by City staff and BHB. Council members and the mayor reiterated their support for improvements to stabilize and preserve the barn, but stressed their concern that these improvements might change the barn's appearance either on the exterior and interior. Brett Goodman from BHB stated that most of the proposed stabilization measures would be visible but that their visual impact could be minimized. All agreed that public input would be crucial and that many more opportunities would be available to discuss preservation options for the barn and the Farm.

8.2.3 Public Input

Per Council's direction, Planning Department staff created a survey to solicit public input about the present and future use of the McPolin Farm. The survey was posted on Survey Monkey and received 488 responses (Appendix J). Following is a summary of the main questions asked and responses.

1. *How often do you visit the McPolin Farm?*

   66% = once every few months
   15% = once a week
   10% = never
   9% = more than once a week

2. *In what capacity do you visit the Farm?* (more than one response possible)

   79% = trail use
   41% = hiking
   32% = cross country skiing

17% = FOF-sponsored events
8% = picnic

3. *What season(s) do you use the trails at the Farm?* (more than one response possible)

88% = summer
77% = fall
61% = spring
45% = winter

4. *Have you ever attended a Farm event? If yes, which one(s)?* (more than one response possible)

50% = none
41% = Scarecrow Festival
23% = BBQ and Music
12% = Full Moon Snowshoe

5. *The City currently permits 12 events per year at the Farm. Would you be interested in other public/non-profit uses? If so, how would you like to see the Farm used?*

64% = a mix of public and private with minimal or no access to the patio and reception center (e.g., family reunions, weddings, local non-profit meetings, etc.)
22% = public events only
14% = no events

6. *Should weddings be an allowed use of the Farm? If so, how frequently?*

41% = yes, limited number
34% = no
18% = yes, weekly
7% = yes, monthly

7. *Should local non-profits be allowed to hold community events at the Farm?*

83% = yes
17% = no

8. *When visiting the Farm, how do you get there?*

38% = public transit, walking, biking, etc.
32% = Farm parking lot (across SR 224)
23% = parking on Aspen Springs Rd.
6% = parking on SR 224

9. *Is there sufficient parking near the Farm?*

60% = yes
35% = no, we need additional parking
4% = no, we need less parking

10. *Would you like to be able to tour inside the barn?*

75% = yes
25% = no

11. *Would you be interested in maintaining the pole barn across the highway from the Farm site?*

56% = yes
44% = no

In summary, 90% of respondents use the Farm at least once a year, with the majority using it every few months. The predominant uses are for recreational activities (trail use, hiking, and skiing), which occur year-round but predominantly in the warmer months. Half of the respondents have attended an FOF event; the Scarecrow Festival is the most popular. Most respondents arrive via the trail system or public transportation, and the majority of the rest use the designated trailhead parking lot across SR 224 from the Farm; the amount of parking in the lot is generally considered sufficient.

In terms of future use, most respondents support a mix of public and private events, including a limited number of weddings. Respondents also felt strongly that local non-profits should also be allowed to use the Farm for community events. A large majority would like to tour inside the barn, while over half supported the maintenance of the pole barn (Osguthorpe shed).

8.3 Conclusions

In summary, the ***preservation*** treatment philosophy aligns with national standards and is supported by both the FOF and City Council; preliminary responses from the public indicate that most community members would support a preservation approach as well. Preservation has multiple advantages and is appropriate because the farm's distinctive buildings, features, and spaces are intact and thus convey its historic significance. The approach is also in accord with existing ROS zoning, planning documents like the Entryway Corridor Master Plan and strategic plans. PCMC has

made essential repairs and improvements since purchasing the property and, under this approach, no additional extensive repairs or replacements are required other than structural upgrades and window restoration for the barn and repairs to the Osguthorpe shed. Improvements to the barn would allow for some degree of public access, and the approach would also support increased signage and interpretation of the historic farm. The preservation approach also leaves options open for the future, should rehabilitation of one or more buildings become a priority.

To support a preservation treatment approach, it will be important to evaluate the existing administrative plan, CUP, interpretive plan (particularly the level of public access to the barn), staffing, and budget for the farm. Is the present system sustainable? How can it be modified and updated to meet current realities while achieving short-term and long-term goals for the farm? It will also be important to gather additional public input on the treatment and use of the farm, and to shepherd any proposed changes through the typical public process (e.g., City Council meetings and the Planning Department's design review process) to ensure the approach reflects the wishes of the majority of community members.

CHAPTER 9. USE AND INTERPRETATION

Under the proposed preservation treatment philosophy, the use and interpretation of the McPolin Farm would remain essentially the same as at present. The current policy of passively interpreting the Farmhouse, Granary, Tool Shed, Outhouse, Bunkhouse, and Grain Silos aligns with PCMC's vision and appears adequate to public use. Increasing public events to meet the present CUP maximum of 12, or even expanding to 24 events per year, would have little impact on the historic resources because events are typically hosted in the Reception Center and adjacent plaza, or in other open-space areas of the farm. Expanding the use of the Farm to permit a limited number of private events, like weddings, and/or events hosted by local non-profit groups, will likewise have little impact on historic resources. A majority of respondents to the public input survey felt that parking at the site was sufficient, and this should remain true if additional events are limited in size and number.

Aside from routine maintenance, no improvements or upgrades to most buildings or structures would be required under the preservation philosophy (see Chapter 10). The one significant change would involve expanding the use and interpretation of the barn by opening it to the public on a limited basis, which was strongly supported by respondents to the public input survey. BHB Engineers identified four levels of upgrade to the barn that would allow for different levels of use: "No Changes," "Historic Building Use," "Code Level Upgrade," and "Full Upgrade" (see Chapter 6). The "Historic Building Use" upgrade is most in keeping with the preservation treatment philosophy. It involves the least impact to the historic barn while ensuring its preservation by improving seismic stability and increasing snow and wind load resistance. The upgrade would also allow for increased interpretation and public access to the farm's premier building during the summer and fall, the seasons when most respondents to the public input survey visited the Farm. As a corollary, other smaller improvements would be required, like cleaning the interior of the barn and repairing or stabilizing interior finishes; repairing or restoring dairy equipment, particularly in the milk houses and milking parlor; adding interpretive signage and displays to supplement guided tours; improving or replacing the staircase to allow for safe access to the hayloft and upper level of the milking parlor; and addressing minor accessibility issues identified by PCMC staff (see Chapter 5). A "Code Level Upgrade" would be more expensive but would also align with a preservation philosophy. Because additional framing members would be introduced to the barn interior, careful design would be required to reduce their visual impact.

Preservation work also aligns with the goals of PCMC and could be funded as one or more capital improvement projects. Given the importance of the farm to the Park City community, the upcoming centennial anniversary of the barn would likely generate enthusiasm and support for the improvements. Long-term modifications to the administrative plan, including staffing and budget, would also be required in order that the barn interior could be regularly cleaned and maintained and that tours could be provided to the public in a safe manner and on a regular schedule.

Full rehabilitation of the barn, as implied under the "Full Upgrade" option, is not recommended. However, limited application of rehabilitation measures may help to make the farm more usable and ultimately enhance its preservation. For instance, rehabilitating the Osguthorpe shed for use as an interpretive and picnic pavilion would help to bridge the divide created by the highway, reincorporate (through the use of historic photographs and signage) the Osguthorpe era and demolished buildings into story of the farm, and provide interpretation of the farmstead for trailhead users and passersby. With careful design, the historic character of the shed could be retained while accommodating these new uses.

Another possibility is the rehabilitation of one wing or room of the barn, perhaps the Osguthorpe milk house, for use as an on-site office and volunteer coordination center. Code upgrades would be confined to this section of the barn, thereby minimizing alterations to the historic spaces and materials. Other possible measures include rehabilitating the Granary as a small office or constructing a small new building for that purpose, and the construction of additional permanent (paved) or temporary (gravel or turf) parking facilities to accommodate and facilitate a significant increase in active uses.

CHAPTER 10. PRESERVATION TREATMENT RECOMMENDATIONS

Preservation treatment recommendations for each building or structure are summarized here; detailed recommendations are provided in Chapter 4, Tables 2 – 16, in conjunction with the condition assessments. In Chapter 4, treatments are further organized by defining both optimum and acceptable levels of treatment for contributing features. The optimum treatment level will ensure the highest degree of preservation while the acceptable treatment level will, at a minimum, preserve the basic character-defining attributes of a feature while allowing for the maximum amount of flexibility in project planning and implementation. Generally, the optimum and acceptable treatment levels for features of primary significance will be the same, while acceptable treatment levels for secondary and non-contributing features will be less stringent. The condition level of each feature (excellent, good, fair, or poor) is also noted, which provides a tool for prioritizing future maintenance and repair work.

The methods and materials used to maintain and treat historic buildings sometimes differ from those used for non-historic buildings. Appendix K includes guidelines on the most appropriate methods and materials for preserving the historic buildings at the McPolin Farm. While not comprehensive, the guidelines address the most common historic materials and deterioration conditions identified on the buildings and structures. Of note, rehabilitation treatments are not discussed and would require additional planning and design (in accord with the Secretary's Standards for Rehabilitation) after their scope and purpose was determined.

10.1 Site

The site is a critical component of the farm and includes roads, walkways, trails, lawns, shrubs and trees, meadows, cultivated and fallow fields, fencing, riparian vegetation along the creek, and natural vegetation on uncultivated hillsides. The site was not formally evaluated for this project but appears to be in good condition generally, although the FOF expressed concern about the health of the large trees adjacent to the farm buildings. A landscape study and preservation plan is recommended in the future.

10.2 Barn

The barn, both exterior and interior, is generally in good condition, including both the McPolin milk house and the Osguthorpe milking parlor and milk house. Exterior features in fair condition that that should be repaired or maintained within the next two to five years include:

- *Sandstone foundation*: relocate sprinkler heads, repoint, remove/block animal burrows and fill holes
- *Wood walls on the original part of the barn*: reattach loose boards and battens, replace on a limited basis, relocate sprinkler heads
- *Windows on all parts of the barn*: remove boards from openings and restore original windows or replace in kind
- *Doors on the additions*: repair or replace
- *Masonry chimney on the Osguthorpe milk house*: remove incompatible mortar, repoint

Structural upgrades to the barn, which are recommended but considered an optional treatment, are discussed in Chapter 9. Interior features are generally in good condition but deteriorated elements should be repaired or replaced if and when structural upgrades are made (i.e., removing and replacing the cable bracing system, strengthening the floor of the hayloft, modifying the staircase to the hayloft). Recommended treatments include general cleaning, repair or replacement of interior doors, and repair or replacement of interior wall finishes.

10.3 Corral with Animal Shelter

The animal shelter is the one of the few buildings on the farm that has not been repaired or restored in recent years; it is presently in fair condition and requires treatment in the next few years to prevent further deterioration. Exterior and interior features that should be repaired or maintained include:

- *Foundatio*n: lacks one, so repair or replace damaged wood members, add footers
- *Corrugated metal walls*: reattach loose panels, replace short sections if necessary
- *Roof*: repair fascia or replace in kind, reattach loose roof panels
- *Floor*: remove debris from against wood walls

10.4 Granary

The granary is generally in good to excellent condition; other than routine inspection and maintenance, no preservation treatments are recommended within the next five years other than ensuring that the irrigation system does not spray directly against the building. However, to restore the building to a more historic appearance, boarded windows and doors should be repaired or replaced in kind.

10.5 Tool Shed

The tool shed is generally in good to excellent condition; other than routine inspection and maintenance, no preservation treatments are recommended within the next five years other than ensuring that the irrigation system does not spray directly against the building.

10.6 Outhouse

The outhouse is generally in good to excellent condition; other than routine inspection and maintenance, no preservation treatments are recommended within the next five years other than ensuring that the irrigation system does not spray directly against the building.

10.7 Bunkhouse

The bunkhouse is generally in good to excellent condition; other than routine inspection and maintenance, no preservation treatments are recommended within the next five years other than ensuring that the irrigation system does not spray directly against the building.

10.8 Grain Silos

Based upon an inspection from ground level, the exteriors of the two silos are generally in good condition. Neither the upper portions and metal caps nor the interiors could be closely inspected, and detailed condition assessments of both are strongly recommended in the future. Mapping interior signs of leaks and deterioration can help to determine the severity and need for repair of exterior deterioration. A monolithic material like concrete can be difficult to repair without creating a patchwork appearance, and surface repairs should be made only when necessary and by a professional experienced in the treatment of historic concrete. The use of consolidants and water repellents may also be appropriate, but these can sometimes create further problems and should only be applied after testing and careful selection by a historic masonry expert. In the meantime, repair deeper cracks with a carefully selected concrete compatible in color and texture to the original, and monitor areas of spalling and erosion in order to identify advancing deterioration. If improving seismic stability is a priority of the City, also gather more information on the costs associated with installing micro-piles or piers on the silo interiors, as well as the method of attachment and potential damage to historic materials.

10.9 Osguthorpe Shed

The Osguthorpe shed is generally in fair condition. Features that that should be repaired or maintained within the next two to five years include the exterior walls (remove debris from against walls, re-grade around exterior to direct water away from wall bases) and windows (reproduce and replace in kind). BHB's recommendations for improving structural stability should also be carried out. If the shed is rehabilitated for use as a picnic shelter and interpretive pavilion, the preservation treatments can be integrated with this work.

10.10 Farmhouse

The farmhouse is generally in good to excellent condition; other than routine inspection and maintenance, no preservation treatments are recommended within the next five years other than ensuring that the irrigation system does not spray directly against the building.

10.11 Reception Center

The reception center is generally in good to excellent condition; other than routine inspection and maintenance, no preservation treatments are recommended within the next five years other than ensuring that the irrigation system does not spray directly against the building.

CHAPTER 11. PRIORITIZATION AND COST ESTIMATE

A number of projects are recommended to ensure the short-term stabilization, long-term preservation, and continued public enjoyment of the McPolin Farm. Some of these were identified in the most recent strategic plan for the farm (PCMC n.d. [2014]) while additional tasks have been identified as a result of the assessments conducted for this preservation plan. A comprehensive, prioritized list of short-term tasks is provided in Table 18, with cost estimates when available; if possible, these tasks should be implemented in the next 1-3 years. Highest priority is given to tasks that will help ensure the safety of individuals, protect the architectural integrity of the buildings by preventing further deterioration, and solicit public input as part of the decision-making process. Long-term recommendations are presented in Table 19. These should be implemented in the next 3-5 years, and will help to improve the condition of the buildings and site, improve visitor experiences, and encourage public use and community investment.

Table 18. Recommended short-term tasks (1-3 years) to improve life safety, ensure immediate stabilization, and encourage public involvement with the McPolin Farm.

Resource/Area	Task	Description / Comments	Estimated Cost	Priority
Barn	Upgrade water lines in the fire sprinkler system	Work with Water Department to upgrade system	$5,000-$15,000	High
Barn	Implement exterior preservation recommendations	Restore windows and doors, make other repairs as described in Chapter 10.2	$64,000 (windows only) $30,000- $40,000 (all else)	High
Public involvement	Gather additional input on the treatment and use of farm	Continue public outreach and involvement per Council direction to solidify the treatment approach and plan for the future use of farm	Staff time	High
Barn	Remove cable bracing and implement structural stabilization recommendations	Upgrade to “Historic Building Use” OR “Code Level Upgrade”	$885,500 OR $1,024,000*	High
Barn	Install additional electrical service in the barn	Hire an electrical contractor to install additional lighting	$3,000-$6,000	High
Site and all buildings	Correct irrigation issues	Monitor sprinkler system, particularly in windy conditions, and reposition or relocate sprinkler heads to eliminate overspray onto all historic buildings or leakage against foundations	Staff time ($3,000-$6,000?)	High
Corral and Animal Shelter	Implement preservation treatment recommendations	Improve floor and foundation, repair walls and roof as described in Chapter 10.3	$5,000-$7,000	Medium
Osguthorpe Shed	Implement structural stabilization recommendations	Follow recommendations from the 2014 structural assessment (see Appendix H)	xx	Medium
Grain Silos	Implement testing program for concrete repair	To include monitoring of deterioration rates and causes, testing of historic concrete, creating matching repair material, and testing consolidants and/or water repellents	$10,000-$15,000	Medium
Parking Lot	Increase capacity to 50 spaces	Extend parking lot to the south by 25 spaces (public felt parking was usually sufficient but staff is concerned with safety and overflow parking along SR 224)	Unknown	Medium

Public Involvement	Accommodate public interest in making financial and in-kind donation to the farm	Investigate and implement ways for the public to donate to the farm and receive recognition	Staff time	Low
Public Involvement	Plan for the barn's 100 year anniversary	Barn will be 100 years old in c. 2020 – plan for a centennial celebration and use this as the impetus for fundraising or a capital campaign, as needed	Staff time	Low
Maintenance (all buildings and site)	Continue routine maintenance and expand in scope	Implement formal maintenance plan as described in Chapter 12	Staff time	Low

*Cost estimates prepared by BHB; see Appendix G for further details.

Table 19. Recommended long-term tasks (3-5 years) for the preservation, use, and interpretation of the McPolin Farm.

Resource/Area	Task	Description / Comments	Estimated Cost	Priority
Barn	Address accessibility issues	Implement PCMC recommendations in Chapter 5, which will facilitate public tours of the barn interior	$1,000-$5000	
Grain Silos	Implement recommendations of trial testing program	Based on results of testing program, monitor the silos, repair concrete, stabilize exposed reinforcing, and/or repair metal roofs. Apply consolidant and/or water repellent only if recommended after testing program.	$3,000- $6,000	High
Barn	Implement interior preservation recommendations	Clean barn interior, improve stairs to hay loft, repair interior walls as described in Chapter 10.2.	$1,000-$4,000 (cleaning only) $10,000-$20,000 (other repairs)	High
Reception Center	Repair heat gradient system in concrete plaza in front of building	Assess problems with system and hire contractor to repair	Unknown	Medium
Grain Silos	Evaluate and/or implement structural stabilization recommendations	Obtain cost estimate and specifications for installing micro-piles or piers on the silo interiors, install if desired to improve seismic stability	Unknown	Medium
Interpretation	Expand interpretation of the barn by providing staff-guided tours to small groups	Develop tour material, train staff or volunteers, design program and schedule, and implement staff-guided tours of barn interior	Staff time and salary, assistance from Park City Historical Society and Museum?	Medium
Interpretation	Create QR codes for the Farm	Install and program QR codes in different locations giving information about the Farm	$5,000 - $8,000	Medium
Site	Create a preservation plan for trees and landscape	Should address roads, walkways, trails, lawns, shrubs, trees, meadows, cultivated and fallow fields, fencing, the creek and riparian areas, any archaeological components, view sheds, and other open space concerns	$15,000 - $25,000	Medium
Planning	Evaluate CUP and revise as necessary	Consider increasing staffing and budget to allow more events; streamlining the process for requesting and holding events; allowing non-profit groups to host community events; and allowing a limited number of private events like weddings	Staff time	Medium
Planning	Evaluate administrative policy	Address present and potential future issues with parking, staff, budget, and site management, especially as impacted by changes to the CUP and active interpretation of the barn interior.	Staff time	Medium
Interpretation	Relocate existing	Reuse existing signs.	$1,000-$2,000	Low

	signs to meet current circulation patterns			
Interpretation	Consider adding interpretive signage and displays to barn interior	Research methods, interpretive materials/objects, and costs associated with adding interpretive signage and permanent displays to supplement public tours of barn interior	Staff time	Low
Osguthorpe Shed	Evaluate options for shed rehabilitation	Consider using shed as a picnic pavilion and/or interpretive center for the later farming period. Perhaps include photos of lost Osguthorpe buildings and also interpret the vista of McPolin Farm across the highway	Staff time	Low
Granary	Implement preservation recommendations	Install doors and windows in place of boarded openings as described in Chapter 10.4	$2,000-$4,000	Low
Barn/Granary	Evaluate options for rehabilitation	Consider upgrading the Osguthorpe milk house or the Granary for use as an on-site office and volunteer coordination center	Staff time, structural engineer input	Low
All buildings	Long-term maintenance planning	Make a long-range plan for relatively high-cost routine maintenance tasks that will prolong both historic and repair materials (e.g., painting exterior siding, oiling wood roofing shingles, and replacing asphalt shingles)	Staff time	Low

CHAPTER 12. MAINTENANCE PLAN

PCMC currently has an effective system of maintenance for most of the buildings and grounds at the McPolin Farm. Tasks are carried out by several city departments and coordinated by the Farm Manager, and include the following:

- lawn mowing and maintenance
- irrigation system maintenance
- snow removal
- garbage removal
- minor repairs to buildings
- frequent cleaning of reception center (public restrooms and event space)
- semi-annual cleaning of farmhouse and interpreted outbuildings (tool shed, outhouse, bunkhouse)
- annual inspection of fire suppression system

Through updates to the strategic plan, the Farm Manager can also plan for larger but less frequent maintenance tasks like exterior painting, typically paid for with asset management funding. Maintenance records are kept by individual departments …? . To supplement the existing maintenance plan, additional weekly, monthly, and yearly inspections and maintenance tasks are outlined below. The creation of treatment plans and permanent preservation files for each historic resource on the farm are also recommended.

12.1 Weekly and Monthly Inspection and Maintenance

Water is the primary agent of deterioration in historic buildings. The lawn irrigation system, while important in maintaining attractive grounds and reducing fire hazard, also poses the greatest immediate threat to the buildings. Over the next two to five years, the sprinkler heads should be moved away from the bases of the buildings, preferably to about three feet, to reduce the potential impact of water on foundations and walls. A gravel border can be installed to facilitate drainage and eliminate the need for maintaining a lawn adjacent to buildings. In the meantime, the most important task to add to the list of routine maintenance items is a monthly inspection of the irrigation system to identify leaks and improper alignment of sprinkler heads. If water is spraying against a building, the head should be adjusted or replaced to direct spray away from the building and/or to reduce the amount of flow and overspray.

Changes in use of the barn and/or Osguthorpe shed will add additional maintenance tasks, which should be incorporated in future plans for staffing and funding. These may include cleaning, garbage removal, minor repairs, maintenance of interpretive displays, and so forth.

12.2 Yearly Inspection and Maintenance

Park City's harsh winters make yearly building inspections important in order to identify and repair any weather-related damage at an early stage. Inspections should occur in late spring, and should include a thorough inspection of the grounds and each building's exterior and interior. If possible, a second brief inspection should occur in the fall, when gutters and downspouts should also be inspected and cleaned.

The Planning Department's "Physical Condition Report," which is typically used in conjunction with historic district or site design review applications, can provide a useful template or serve as a checklist for these inspections, and will contribute to the permanent record for each building. In particular, look for the following items, and be sure to include photographs of any deterioration conditions that appear active and/or require treatment within the year.

- signs of leaks in ceilings and walls
- signs of pooling or poor drainage around building foundations
- vandalism (graffiti, broken or damaged doors or windows, etc.)
- damage to roof framing members from snow and wind load over the winter
- loss or damage to roof shingles
- loose siding and eave elements
- animal and insect activity, both exterior and interior (be sure to conduct inspections prior to cleaning)
- damage to windows and doors, especially vulnerable elements like sills and glazing
- loose attachments or disconnected elements of lightning rods
- properly functioning HVAC and plumbing systems in farmhouse and reception center
- damage to fences throughout the property
- cracked or broken limbs on larger trees that may present a hazard to buildings or the public

12.3 Treatment Plans

For any work beyond the routine maintenance described above, the development of a treatment plan is strongly recommended. Historic architectural materials are normally parts of complex assemblies with perhaps multiple causes of deterioration; therefore treatments must address all causes of deterioration and all elements of the assembly. For example, windows set in concrete block walls require a close look at both the window frame and the adjacent masonry. Deterioration at a wall base may involve not only repairing or replacing boards, but adding or improving a foundation, re-grading to improve drainage, and moving sprinkler heads. The Planning Department's "Historic Preservation Plan," which is typically used in conjunction with historic district or site design review applications, can provide a useful template or serve as a checklist for these treatment plans, and will contribute to the permanent record for each building.

12.4 Maintenance and Treatment Records

It is important to document all maintenance and repair work in order to create a preservation history for each building and structure on the McPolin Farm. Maintenance records can be invaluable in identifying chronic problems, new problems, causes of deterioration that may be a result of past maintenance or repair work, and successful methods and materials for maintenance and repair. All of these can guide future work to arrive at the most effective maintenance and treatment appropriate for the historic resource and the original construction materials. The creation of a digital and physical file for each building, maintained by the Farm Manager, the Planning Department, or the Building Department, will be essential in this process. The file should contain:

- Previous studies
- Detailed condition assessments and accompanying photographs prepared as part of this project (see Appendix D)
- Historic photographs
- Architectural drawings
- Physical Condition Reports with accompanying photographs, or other inspection records
- Historic Preservation Plans, or other treatment planning records
- Annotated as-built drawings
- Requests for proposals and proposed scopes of work for contracted work
- Specifications
- Work orders
- Inventories

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PART III APPENDICES

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Introduction

The priorities, methods, and materials used to maintain and treat historic buildings sometimes differ from those used for non-historic buildings. These guidelines are intended to provide PCMC with a summary of the most appropriate methods and materials for the historic structures at the McPolin Farm. While not comprehensive, the guidelines address the most common historic materials and deterioration conditions identified on the buildings and structures. The guidelines are based on the *Secretary of the Interior's Standards for Rehabilitation: Illustrated Guidelines for Rehabilitating Historic Buildings*, which provides a simple but thorough summary of options. Sources of additional information on the maintenance, repair, and replacement of historic building materials are listed below. Preservation briefs are available on-line at http://www.nps.gov/tps/how-to-preserve/briefs.htm.

- *Preservation Brief 1*: Cleaning and Water-Repellent Treatments for Historic Masonry Buildings
- *Preservation Brief 2*: Repointing Mortar Joints in Historic Masonry Buildings
- *Preservation Brief 4*: Roofing for Historic Buildings
- *Preservation Brief 6*: Dangers of Abrasive Cleaning to Historic Buildings
- *Preservation Brief 9*: The Repair of Historic Wooden Windows
- *Preservation Brief 10*: Exterior Paint Problems on Historic Woodwork
- *Preservation Brief 13*: The Repair and Thermal Upgrading of Historic Steel Windows
- *Preservation Brief 14*: New Exterior Additions to Historic Buildings: Preservation Concerns
- *Preservation Brief 15*: Preservation of Historic Concrete
- *Preservation Brief 16*: The Use of Substitute Materials on Historic Building Exteriors
- *Preservation Brief 17*: Architectural Character – Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character
- *Preservation Brief 19*: The Repair and Replacement of Historic Wooden Shingle Roofs
- *Preservation Brief 20*: The Preservation of Historic Barns
- *Preservation Brief 24*: Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches
- *Preservation Brief 31*: Mothballing Historic Buildings
- *Preservation Brief 32*: Making Historic Properties Accessible
- *Preservation Brief 36*: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes
- *Preservation Brief 39*: Holding the Line: Controlling Unwanted Moisture in Historic Buildings
- *Preservation Brief 41*: The Seismic Retrofit of Historic Buildings: Keeping Preservation in the Forefront
- *Historic Building Facades: The Manual for Maintenance and Rehabilitation* (New York Landmarks Conservancy, 1997)
- John Cullinane, *Maintaining and Repairing Old and Historic Buildings* (Wiley, 2012)
- Jurgen Klemisch, *Maintenance of Historic Buildings* (Routledge, 2013)

Seismic Issues

General guidelines for addressing seismic issues include the following:

- Maintain buildings in good condition. Well-maintained buildings, even without seismic retrofitting, fare better than those in poor condition during and after an earthquake.
- Develop an earthquake hazard reduction plan so that, after an earthquake, historic structures can be stabilized quickly to ensure human safety, prevent further damage, and provide time to plan for sensitive rehabilitation.
- All seismic stabilization should be designed by engineers and architects who specialize in historic buildings and who have a working knowledge of alternative options and expected performance for historic structures. Bear in mind that simple improvements like bracing parapets, tying buildings to foundations, and anchoring masonry walls at the highest, or roof level, are extremely effective.
- In the process of seismic strengthening, preserve and retain historic materials to the greatest extent possible and do not replace entirely in the process of seismic strengthening.
- Design new seismic retrofit systems, whether hidden or exposed, to respect the character and integrity of the historic building and to be visually compatible with it in design.
- Design seismic work to be reversible to the greatest extent possible so that it can be removed for future use of improved systems and traditional repair of remaining historic materials.

Lightning Protection

Lightning protection systems are designed to intercept and transmit to the ground lightning discharges in order to protect buildings, contents of the buildings, and building occupants. Lightning protection systems consist of roof-mounted air terminals, or rods, downleads, conductor cables, bonding devices, holders, splices, grounds, and accessory items. Lightning protection components are usually of copper or aluminum.

The need for lightning protection is dependent the type of construction, type of structure, location, topography, occupancy and contents, and thunderstorm frequency. At the McPolin Farm, most buildings have a lightning protection system, but these must be inspected regularly to ensure that connections are maintained and the system is operable. For further information, training, and consulting, contact the following:

National Lightning Safety Institute
891 N. Hoover Ave.
Louisville, CO 80027
www.lightningsafety.com

Lightning Protection Institute
P.O. Box 6336 St. Joseph, MO 64501

(800) 488-6864
www.lightning.org

Landscaping, Irrigation, and Site Drainage

Landscaping is an important feature of a building's overall character, and historic landscaping around a building is essential to maintaining historic context. As well, attractive plantings are pleasant features that offer a soft and sometimes colorful counterpoint to the architecture. However, trees or ornamental plants that grow too close to a building may trap and hold moisture in foundations or walls, leading to deterioration of masonry and wood elements. Roots, growing laterally from trees, may cause problems with foundations. Of even greater concern is the irrigation required to maintain plantings that are not adapted to a high desert environment. When improperly installed or maintained, irrigation systems can greatly increase the level of moisture in foundations and walls and thus accelerate the rate of deterioration.

Guidelines for landscape maintenance and repair around historic structures include the following:

- Preserve the relationship between buildings, historic landscape elements, and open space.
- Retain furnishings or objects (light fixtures, fences, farm equipment) that remain from the historic period. Remove incompatible items and replace with items matching or compatible with the originals as required.
- To protect historic structures, prune tree branches and shrubs at least one foot from the face of a building.
- Cut tree roots where necessary to prevent structural damage.
- In locations where planting beds or lawns are not historic, maintain a three-foot border of wood chips or gravel against the building to improve drainage and remove the need for irrigation near foundations.
- Where planting beds are historic, prune plants at least one foot from building walls and foundations; replace spray irrigation systems with drip irrigation if possible.
- Where planting beds are not historic but are desired, plant them with drought-tolerant species that are watered, if necessary, with a drip irrigation system.
- Check in-ground spray irrigation systems for leaks. Locate sprinkler heads at least three feet from the building foundation and direct spray patterns away from the face of a building.
- Any plans to recreate the historic landscape should be based upon careful study of the age and location of existing plantings as well as historic maps, photographs, and written documents.

Site drainage is critical in directing both surface water and water collected by a building's roof system away from the base of a building. Water may puddle or pond adjacent to buildings because, over time, the soil tends to compact. Additionally, drainage is often slowed or impeded by sidewalks, flowerbed edging, and other impediments.

Guidelines for the maintenance and repair of site drainage include the following:

- Since the original contours of the site are important to both the overall historic landscape and to the original building, preserve the relationship between the historic structure and its immediate site context to the greatest extent possible.
- Locate and protect existing underground utilities prior to any cutting, tilling, or excavation.
- Remove drainage impediments by cutting trench drains through sidewalks, removing portions of edging, or by other means. Avoid complete removal of historic elements.
- Hand fill low spots adjacent to a building using high quality topsoil to achieve positive drainage away from the building's base.
- Slope the grade at the base of a building a minimum of 1/8" per linear foot away from the building, 1/4" per linear foot if possible.
- Coordinate site drainage with building drainage. Properly turn out downspouts to splash blocks or downspout boots that tie in to subsurface drainage and storm sewer systems.
- Monitor and test any subsurface drainage systems to ensure that drainage lines are clear and free flowing. Install sufficient cleanouts to facilitate maintenance of drainage systems. A garden hose is often useful in flushing out drainage systems.

Exterior Foundations and Walls

The following guidelines address the maintenance and repair of exterior walls and foundations, including any necessary cutting and patching, with sections on specific construction materials including stone, brick, concrete block, mortar, formed concrete, and rough and finish carpentry, as well as a discussion on masonry cleaning.

Cutting and patching

Cutting and patching includes cutting into the existing wall, foundation, porch, or entry to remove deteriorated materials; installing new materials; and subsequently fitting and patching to restore surfaces to their original or desired condition. The cutting and patching of structural elements requires coordination with and the approval of a qualified structural engineer. Do not cut and patch foundations, bearing walls, structural concrete, lintels, rafters, joists, trusses, equipment supports, and stairs without the prior approval of a structural engineer. Also, obtain approval and coordinate cutting and patching operations that may violate fire code separations, alter smoke and air barriers, cut or damage electrical or communication lines, or that will leave the building exposed to the elements.

General guidelines for all cutting and patching operations include the following:

- Perform all cutting and patching in a manner that will not reduce the building's aesthetic qualities or that will not be obvious.
- Use materials that are identical to existing materials or that closely match existing adjacent surfaces.
- Ensure compatibility among the various new materials and existing materials.
- If required, provide temporary support such as bracing and shoring.
- Perform cutting only when requirements for patching are fully understood.

- Perform cutting using methods least likely to damage adjacent materials to be retained.
- Use small power tools or hand tools and cut holes neatly and to the size required.
- Avoid damage to finished surfaces and select inconspicuous locations for cutting if possible.
- Patch with durable seams that are as invisible as possible and closely match adjacent construction.
- Perform a follow-up visit to verify that patching has settled and is stable.

Stone

Locally quarried sandstone was used for the foundation of the McPolin barn. It is relatively durable, although susceptible to damage due to water-related deterioration mechanisms like erosion, freeze-thaw cycling, salt efflorescence, and biological growth. The stone was originally pointed with a lime-based mortar that has performed well, although many of the more recent cement-based repairs are materially incompatible. Potential signs of deterioration include structural or surface cracks; erosion or abrasion; spalls; granular disintegration (sugaring); delamination; detachment; displacement; and damaged mortar joints. The stone was originally unpainted, but has been painted white for a number of years. The paint may be accelerating deterioration because it creates a barrier that traps moisture in the stone.

Guidelines for the maintenance and repair of sandstone include the following:

- Eliminate or minimize causes of deterioration, like faulty roof drainage, misplaced or misaligned sprinkler heads, inadequate grade or surface drainage at the foundation, open cracks and mortar joints, painted finishes, etc.
- For minor mortar deterioration, remove deteriorated mortar and/or damaging repair mortar, and repoint with mortar compatible in material composition, color, texture, and joint profile. See the subsequent section on mortar for further discussion.
- For minor stone deterioration, remove the damaged surface to expose the sound stone surface. If necessary, patch with a composite mixture in the following general ratios, by volume:

  1 part white portland cement
  2 parts white hydrated lime
  6 to 9 parts crushed stone (of the same type as that being repaired, washed to remove salts)
  acrylic binder, volume as recommended by manufacturer
  very small amounts of dry, inorganic, non-reactive pigments (add to other dry components and mix well)

  Manufacture sample mixtures of varying composition, allow to dry, and then compare with the stone to be repaired in order to match the color and texture. Record the composition of the repair mixture for future repairs.
- Consult with a masonry restoration specialist, preservation architect, or architectural conservator for major interventions. These include repairing, retooling and replacing large areas of moderately to severely damaged stone, as well as comprehensive repointing.

Brick

Historic brick construction at the McPolin Farm is limited to the chimney of the Osguthorpe milk house. Potential causes of deterioration include normal weathering; inherent design defects; foundation or wall movement; moisture infiltration and associated freeze-thaw and soluble salt cycling; corrosion of embedded reinforcing materials; and the use of incompatible mortar. Signs of deterioration include structural or surface cracks; erosion or abrasion; spalls; granular disintegration (sugaring); delamination; detachment; displacement; corrosion stains from anchoring materials; salt efflorescence; biological growth; and damaged mortar joints.

General guidelines for the maintenance and repair of historic brickwork include the following:

- Reduce or eliminate all sources of moisture affecting brickwork by promptly repairing chimney caps and flashing. Repair deteriorated mortar.
- Repair cracks in bricks that are wider than 1⁄16" with a tinted grout that matches the color of the brick. Do not repair small hairline cracks that do not extend through the brick.
- Where brick spalling or deterioration is severe or extensive, consult with a masonry restoration specialist, preservation architect, or architectural conservator. In some cases, individual bricks may be removed from the chimney, cleaned, and reinstalled with the damaged face to the inside of the stack. Where spalling is severe and/or extensive and reversing the bricks is not possible, protective coatings may be applied to the bricks. Coatings are not generally recommended for masonry and require professional evaluation and testing, but may include a consolidant and/or water-repellent coating or application of vapor-permeable paint that matches the original color of the substrate. Protective coatings will be selected to minimize any change in surface appearance and will allow the masonry to breathe.
- Repoint brick mortar joints by carefully removing deteriorated or inappropriate mortar, cleaning the joint, and installing new mortar. Match the character-defining features of the original mortar as closely as possible, including the color of the binder; the color, size, and shape of the aggregate; and the profile of the joint. Further discussion of mortar composition and other characteristics is provided below.

Concrete block

Structural concrete block is a modular, hollow product used extensively for the load-bearing walls of the Osguthorpe addition to the barn. Concrete block is a hard product divided into interior cells that are placed either parallel or perpendicular to the direction of lading forces. It is inert, fireproof, and, due to contained cells, has insulating properties that exceed solid masonry. At the barn, concrete block has experienced little deterioration and remains in excellent condition aside from cracking associated with structural movement.

Causes of deterioration are limited and can be attributed to structural movement and moisture infiltration. Structural movement can cause the modular units to crack due to either compressive or shearing forces. Moisture infiltration—through a breach in the exterior, a leak in the roofing system, or from a repair-related penetration—can cause deterioration in mortar joints. Signs of deterioration may include structural or surface cracks; erosion or abrasion; spalls; granular disintegration (sugaring); delamination; detachment; displacement; exposed anchors or reinforcing; corrosion stains from anchoring or reinforcing materials; salt efflorescence; biological growth; and damaged mortar joints.

Guidelines for the maintenance and repair of concrete block include the following:

- Identify and minimize or eliminate causes of deterioration.
- Structural cracks that extend through a number of blocks require professional evaluation by a structural engineer. If the structure is stabilized and movement is not active, cracked blocks or tiles probably do not require repair. If repair is required, carefully remove any interior or exterior plaster or stucco to expose the damaged unit, remove it, and replace it (see the section on "Cutting and patching").
- When the interior cells of a broken block are exposed, they may be filled with a standard mortar mix to restore the wall plane.
- Repair mortar joints by carefully raking joints and replacing with new mortar. Type "N" (normal) mortar is recommended, and is composed of (by volume), 1 part portland cement, 1 part hydrated lime, and 6 parts sand. Do not used premixed masonry cement due to variations in quality and quantity of lime components.

Mortar

Mortar is used in all unit masonry construction, including stone, brick, and concrete block, and can vary widely in composition, color, texture, strength, and character. Mortar is used in both original construction and in maintenance and repair, and functions equally to bind masonry units together and to hold masonry units apart and in alignment. As a bedding material, mortar allows structural loading to be evenly distributed; it also provides a migration path for moisture inside the wall to move to the wall's exterior surface, where it evaporates.

Mortar is composed of a binding material and an aggregate. Lime was used extensively as a binding material until the early twentieth century, when portland cement became commonly available and was added to the lime to improve its curing time and water resistance. The aggregate was, and is, clean sharp sand. The aggregate imparts much of the character, color, and texture of mortar, while the binder imparts color and strength. The width and the profile of the mortar joints are also important character–defining features of historic buildings, and it is important to identify and maintain these original characteristics in any repair work. Mortar joints used to construct walls of manufactured masonry products, such as brick and concrete block, are more precise and regular than mortar joints used for irregular stonework, which can vary greatly in width and depth and correspond to irregularities in the stones. Joint profiles can be flush, rodded, raked, struck, raised, beaded, and so forth. In almost no instance were original mortar joints extended over the faces of the masonry units; this is unfortunately a common repair practice that detracts from the appearance of the walls and may ultimately damage the historic masonry by allowing water to penetrate into the mortar joints.

Mortar weathers and deteriorates naturally and intentionally, and is meant to act as a sacrificial material that can be easily repaired. The degree and rate of deterioration depend on the quality of the mortar mix, the quality of craftsmanship in its installation, and the exposure of the mortar to environmental and climatic factors. Moisture inside a masonry wall will migrate to the surface, where it evaporates. The moisture leaches binder from the masonry materials and allows for freeze-thaw cycling and salt cycling, which exert destructive forces as water or salts expand and contract. If the masonry unit is more permeable and weaker than the mortar, then the destructive mechanical actions take place on the face of the stone, brick or adobe and causes permanent damage. If, however, the mortar is more permeable and weaker, the mechanical actions occur on the face of the mortar joint and deterioration is easily addressed through mortar maintenance and repair.

In dealing with historic mortars, it is important to perform mortar testing and analysis before attempting repairs. The testing should identify the constituent materials, their proportions, and their origins, and this work can be contracted to a preservation architect, historic masonry specialist, or architectural conservator. Different types of mortar can be found on different types of masonry. Mortars used for sandstone or soft, historic brick are generally softer and have a lower cement content than those mortars used for concrete block or hard, modern brick. But the trend in both new masonry work and in repointing has been to use mortars that are harder and higher in cement content, and this often results in extensive damage to historic masonry materials, often exceeding normal deterioration. But it is also important to determine that the original mortar was appropriate: if it was too soft, deterioration in the mortar joints may be too rapid, while if it was too hard, the adjacent masonry may have been damaged. As well, the original masonry units may have become weakened as they have aged, in which case a softer mortar than the original may be required.

Guidelines for the maintenance and repair of mortar include the following:

- Identify and minimize or eliminate causes of deterioration when possible.
- Identify the original mortar, take small samples, and submit for professional testing and analysis. Develop a repointing mortar that matches the original in color and texture. Also match the original composition and strength, if appropriate, or correct the mixture to create a mortar compatible with adjacent masonry materials and conditions.
- Usually the ratio of cement-lime binder to aggregate is 1:3 (e.g., one part white portland cement and one part lime to six parts sand). The ratio is a reasonable general guide to all masonry construction, but the cement-to-lime ratio may be adjusted to approximate or correct the original mix. As a general rule, cement should never exceed the amount of lime, by volume. Sand, by volume, may vary according to dampness, weight, and density. Do not use premixed masonry cement. Use pigments to color mortar only when pigments were used historically in the mortar mix.
- Recommended materials for new mortar include cement (white or gray Portland, ASTM C-150, Type I or Type III); lime (white, hydrated mason's lime, ASTM C–207, Type S); sand (clean, sharp, locally obtained and color-matched to the original, ASTM C-144); water (clean and potable); and inorganic, natural, non-reactive pigments (if present in the original).
- Limited mortar repair can be conducted using the following guidelines. However, for extensive or comprehensive mortar repair or replacement on a historic structure, the work should be conducted under the supervision of a professional mason or contracted to a professional masonry restoration firm.
    - For limited mortar repair, remove all loose and deteriorated mortar from the joints to be repaired to a depth of at least ¾ inch. Remove sound mortar if necessary to achieve the required depth. Use small hand tools and protect adjacent masonry surfaces. When hard portland cement mortar must be removed, it may be necessary to use small pneumatic tools or a small power saw with a thin diamond blade. This work must be conducted by a skilled craftsperson.
    - Clean out dust, loose material, dirt, or other materials from the joints. Use a soft bristle brush, compressed air, and/or low-pressure water spray to clean the joint.
    - Mix mortar fresh in a paddle-type mixer or by hand in a wheelbarrow using clean water and materials. When matching original mortars to new wet mortars, it is important to wet the sample of older mortar. This wet-to-wet visual comparison will improve dry-to-dry matching.
    - Wet the joint prior to work, and then repoint using pointing trowels. Perform work in stages, gradually building up joint material.

This allows for layered curing, reduces cracking, and improves dimensional stability. Completely fill all cavities.

- Note the original join width, depth and profile. New joints should be finished to match the original and can be done when the mortar is "thumbprint" hard. Joint texture can be achieved through wiping or brushing with various implements such as brushes, brooms, or fabrics such as burlap.
- Clean masonry surfaces after repointing. Use water and/or a soft bristle brush before considering cleaning agents. Never sandblast or use high-pressure water blasting.
- Do not perform repointing work when the temperature is below 40°F (4°C). Avoid working mortar in extreme weather conditions. Keep new mortar damp and protect from direct sunlight for several days.

Formed concrete

Historic formed concrete is found primarily on the additions to the barn and on the silos. In general, the concrete elements are in stable condition with isolated instances of spalling, cracking, loss of material, and discoloration.

Although considered a very durable construction material, formed concrete is subject to deterioration caused by a number of factors. These include improper materials or workmanship (most commonly placing reinforcing steel too close to the surface, improper handling of cold joints, and inadequate curing); mechanical stress induced by the expansion and contraction of water, salt, or corrosion products; structural design defects; inadequate or improper maintenance (unrepaired leaks, unrepaired cracks or other damage, mechanical penetrations through structural members, repeated exposure to de-icing salts, and application of improper surface sealers and coatings); and improperly installed irrigation systems. Signs of deterioration may include erosion; cracks; spalls; deflection in structural members; corrosion stains; salt efflorescence; and exposed and/or corroded reinforcing.

All concrete deterioration requires careful analysis by experienced architects and structural engineers, particularly structural deterioration, which can have life and safety implications. Procedures may involve document review, field observation and documentation, onsite and laboratory testing, analysis, and monitoring. But general guidelines for the temporary stabilization of non-structural deterioration conditions in historic poured concrete include the following:

- Identify and then minimize or eliminate causes of deterioration.
- Repair narrow, non-structural, inactive cracks with a mixture of water and neat cement. Add fine sand in small quantities to reduce shrinkage when repairing slightly larger, non-structural cracks.
- For wider, non-structural, inactive cracks, thoroughly clean and roughen the surface. Remove loose materials and deteriorated concrete. If necessary, widen and deepen the opening to achieve adequate penetration and bonding of new material. Build up layers of patching materials and allow time for curing before application of additional layers.
- Where severe cracking has occurred that extends through a structural member that is over 1⁄2" wide, and that shows signs of movement, consult with appropriate professionals who can design more extensive treatments. These may include inserting dowels, adding structural supports, or injecting epoxy under pressure.

- Prior to patching spalls, take small samples of the original concrete and submit for professional testing and analysis. Develop a patching material that matches the original in composition, strength, color and texture (use pigments to color the concrete only when pigments were used historically). This may require the preparation of numerous trial samples.
- To patch spalls, clean surface using wire brushes, compressed air, low-pressure water, and even light sandblasting. If embedded metal elements are exposed, either remove non-structural metal or remove all surface corrosion and coat with a rust-inhibiting primer. Remove all loose materials with hand tools.
- Moisten cleaned surfaces and apply a slurry coat of cement past to increase bonding. For deeper patches, apply patch material in successive layers. The top layer or surface should match the surrounding original concrete in texture and color. Where wood graining, knots, joints, and nail marks remain as impressions on the concrete surface, tool or texture the patch to blend with adjacent finishes. Wire brushes, plastic forks, and an assortment of unusual tools are useful in achieving historic material finishes. Experiment with test patches to develop a good match for color and texture.
- Do not perform patching when the temperature is below 40°F (4°C) and avoid working in extreme weather conditions. Keep new material damp and protect from direct sunlight for several days.

Masonry cleaning

Masonry cleaning involves the removal of stains, mildew, dirt, grime, efflorescence, paint, or other substances from the surface of stone, brick, and concrete. At the McPolin Farm, masonry soiling ranges from normal grime and dirt to biological stains and efflorescence, while paint has been applied to sandstone, concrete block, and poured concrete on the barn. Cleaning techniques and products vary widely depending on the type of masonry material and the type of paint or soiling involved. Because of this, masonry cleaning should be undertaken only when necessary and accomplished only by experienced specialists and based on a comprehensive building cleaning program.

But in all cases, approach cleaning (including paint removal) in a graduated manner, beginning with the mildest cleaning methods and proceeding to stronger methods only if necessary. In every situation, use the least amount of chemicals and force to clean the material, and always remember that it is better to have a dirty building than one that is permanently damaged through improper cleaning. Most cleaning can be accomplished with low-pressure water misting and a soft bristle brush. Isolated areas that retain staining after initial cleaning may require the application of stronger measures. Under no circumstances should masonry be sandblasted.

Rough and finish carpentry

Rough carpentry includes general carpentry work associated with structural wood framing, blocking, braces, nailers, and other unfinished or unexposed wood-building elements. Rough carpentry, due to the fact that it is not often exposed, usually presents difficulties in the determination of condition, but inspection of secondary or covering materials can assist in determining the condition of covered items. For example, deflection or displacement of the wall plane, or perhaps paint failure on a wood surface, is an indication of possible wood deterioration. Fortunately at the McPolin Farm, much of the rough carpentry is exposed on the unfinished interior walls and ceilings of the barn and outbuildings.

Finish carpentry in exterior walls, porches, and entries includes siding, trim, facings, brackets, flooring, columns, railings, stairs, fascias, ceilings, and other exposed wood elements. On the McPolin Farm buildings, these wood elements are almost always painted. On interiors, finish carpentry may include floors, baseboards, doors, trim, fireplace mantels, cabinetry and other built-in furnishings, and ceiling elements.

Moisture is the primary cause of wood deterioration, and it may provide a suitable habitat for the fungi that cause soft rot and brown rot. In roof and floor structures, excessive loading (e.g., from roof-mounted equipment, snow, vehicles, heavy equipment) can cause deflection that can weaken structural wood elements. Also, loose connections can develop around nails, bolts, and screws as a result of wind loading, structural loading, or wood shrinkage. Improper coatings that seal moisture into the wood, as well as unventilated spaces (e.g., in attics or under modern metal coverings on finish carpentry), can also lead to deterioration. Excessive paint buildup can mask deterioration and obscure or blur the edges of articulated detailing in finish carpentry. Impact and general wear, particularly on floors, baseboards, and trim, can also cause deterioration.

Signs of deterioration in rough and finish carpentry include the presence of moisture, mildew, fungi, soft rot or brown rot; staining or discoloration; soft or spongy wood; loss of wood material; sawdust-like debris and insect droppings; structural deflection; non-structural sagging, buckling or bowing; loose joinery; and deterioration of paint or varnish.

General guidelines for maintenance and repair of rough and finish carpentry include the following:

- Eliminate sources of moisture infiltration such as roof leaks, gutter and downspout leaks, flashing leaks, coating failure, and plumbing/condensate leaks. Install adequate ventilation in attics and in any metal covering system.
- Repair rather than replace historic materials by scabbing onto existing deteriorated wood elements, adding blocking or additional nailers, piecing-in, or letting-in. If possible, use new wood elements to bridge across deteriorated members in order to distribute structural loads.
- Repair individual deteriorated members by removing the deteriorated portion and repairing with a filler such as epoxy. Deteriorated wood should be carefully removed and the area to receive patching material cleaned and dried. A variety of epoxy repair products exists, ranging from putties to low-viscosity penetrating consolidants. Epoxy resins can be mixed with fillers such as pea-gravel, sand, or sawdust and used to fill voids in original wood. In some applications, forms or dams may need to be built to retain the epoxy until it sets up.
- Remove and replace deteriorated historic wood elements only if severe damage or loss of structural integrity is present. Replace original historic materials only if other means have been exhausted.
- Paint provides a good protective coating for exposed exterior and interior elements. However, only paint surfaces that were historically painted and use historically appropriate colors. A qualified professional can research and identify historic finishes.
- Apply protective coatings, other than paint, to deteriorated wood elements only after careful consideration. Although the application of such coatings may prevent moisture penetration, it may also trap moisture within the wood. Select products that are “breathable” and follow manufacturer’s written instructions.
- Although it is best to replace deteriorated materials with materials that match, it may not be possible to obtain exact matching materials. Substitute materials should be carefully evaluated and selected on the basis of closeness of match, durability, and structural requirements. New materials should match original materials to the greatest extent possible, and should comply with existing standards for new wood materials.

- For finish carpentry, trim or moldings that match the historic materials and profiles may not be commercially available. If commercial sources have been exhausted, a carpentry shop may need to fabricate custom replacements.

Roof System

The following guidelines address the maintenance and repair of historic roof systems, including specific materials like rough and finish carpentry, wooden shingles, asphalt shingles, metal roofing, flashing and sheet metal, and gutters and downspouts. Information on maintaining masonry elements of roof systems, such as chimneys, can be found under guidelines for brick, mortar, and concrete.

Rough and finish carpentry

Rough carpentry in roofs includes general carpentry work associated with structural framing. Structural framing in attics can often be visually inspected, but the inspection of secondary or covering materials can assist in determining the condition of the framing. For example, looking along the ridgeline of a roof can detect sagging rafters, while inspecting interior ceilings can detect sagging joists. Finish carpentry in the roof system includes soffits, fascias, exposed rafter ends, trim, brackets, and other exposed wood elements. At the McPolin Farm, these wood elements are usually painted.

Moisture is the primary cause of wood deterioration; it may provide a suitable habitat for the fungi that cause soft rot and brown rot. In roof structures, excessive loading (e.g., from roof-mounted equipment or snow) can cause deflection that can weaken structural wood elements. Also, loose connections can develop around nails, bolts, and screws as a result of wind loading, structural loading, or wood shrinkage. Improper coatings that seal moisture into the wood, as well as unventilated spaces (e.g., in attics or under modern metal coverings on finish carpentry), can also lead to deterioration. Excessive paint buildup can mask deterioration and obscure or blur the edges of articulated detailing in finish carpentry.

Signs of deterioration and guidelines for maintenance and repair of rough and finish carpentry in the roof system are the same as those for walls; see the preceding section for a full discussion.

Wood shingles

Wood shingles were probably the original roof covering on all of the McPolin-period buildings at the farm. Today, asphalt shingles have replaced the wood shingles on the barn. The wood shingles on the other buildings, although not historic, probably represent the original roof covering material and add to their historic character.

Causes of deterioration may include the physical properties of the shingle (thickness, wood species, installation method); exposure to sun and rain; roof slope; presence of lichen, moss, or overhanging tree limbs; poor ventilation; and atmospheric pollution. Signs of deterioration may include erosion, cracking, cupping, splitting, presence of moss or lichen, and moisture damage on the interior.

Guidelines for the maintenance and repair of wood shingle roofs include the following:

- Maintain the existing roof by regularly inspecting, removing debris, and trimming adjacent tree branches. Scrape moss and lichens from the shingles and remove residue with a diluted bleach solution, taking care to protect adjacent materials and landscaping.
- Recoat shingles treated with a fungicide, stain, or oil every four to five years.
- Repair localized deterioration as necessary. If, however, over 20% of the shingles exhibit advanced deterioration, consider replacement.
- When replacing shingles, do not replace the underlying sheathing or shingle lath unless it is deteriorated. If the sheathing or lath is historic, document its size, placement, location of early nail holes, and water stain marks to learn more about the earlier roofing system prior to replacing the shingles or removing deteriorated historic materials.
- When replacing shingles, use existing historic materials or historic documentation (written records, photographs) to determine, if possible, the original shingle wood type; size; exposure length and nailing pattern; type of fabrication; distinctive details; decorative elements; and type of substrate. Specify new shingles to match the historic as closely as possible.
- Shingles may be treated to add a fire-retardant rating; to add a fungicide preservative; to revitalize the wood with a penetrating stain; and to give color where appropriate. Never coat shingles with vapor impermeable solutions, which will trap moisture in the shingles and accelerate deterioration.
- When replacing shingles, avoid skimpy shingle coverage (where more than about 1/3 of the shingle is exposed) and heavy building papers. Also maintain good attic ventilation and avoid the use of solid sheathing and heavy attic insulation between the rafters.

Asphalt shingles

Asphalt shingles (used for more steeply pitched roofs) are composed of asphalt-impregnated felts or fiberglass mats that have been surfaced with a finely ground mineral mixture. The shingles were and are manufactured in a variety of styles, weights, colors, and shapes. Causes of deterioration can include natural wear, resulting in loss of the mineral surface; wind damage; improper installation (slope too shallow or steep, inadequate lapping, inadequate nailing, installed over damaged deck, installed over too many earlier layers); and improper cut (too little overlap at ridges, hips and valleys). Signs of deterioration include eroded mineral surface; the presence of mineral grains around the base of the building; curling, loose, or missing shingles; and leaks or watermarks in the roof deck or the building interior.

Guidelines for maintenance and repair of asphalt shingles include the following:

- When individual shingles are damaged by wind, impact, etc., piece-in individual shingles of matching color and dimensions and attach so that nail is covered by the above shingle.
- Usually, when an asphalt shingle has exceeded its normal useful life (20 to 30 years), it must be replaced. When replacing, remove existing deteriorated shingles, repair the roof deck, repair and/or replace flashing, install a base sheet, and perform other associated work.
- Where historic asphalt shingles are present or of known appearance, replace with shingles that match the tab arrangement, color, and texture of the original. Avoid using shingles that have been designed to approximate other materials such as wooden shingles or slate.

- Install new shingles according to the manufacturer's written instructions and meeting the appropriate requirements for weight, tear strength, fire resistance, and wind resistance.

Corrugated metal roofing and siding

Metal roofing and siding at the McPolin Farm consists mainly of corrugated metal on utilitarian buildings; standing-seam and flat-seam metal roofing was not observed. Deterioration in corrugated metal roofing is caused by wind, which loosens connections and can cause warping or bending, and aging and loss of the galvanized coating, which exposes the metal to rust. Cut edges of the corrugated metal are vulnerable because galvanizing is removed in the cutting process. Signs of deterioration may include corrosion (rust); bent panels or curled panel edges; loose panels; deteriorated decking or framing; and watermarks or leaks on the building interior.

Guidelines for the maintenance and repair of corrugated metal roofing include the following:

- Reattach if bending or warping can be corrected. Use hex-head, gasketed, sheet metal screws that allow at least 3⁄4" penetration into the deck or purlin. Install screws at the top of the corrugation in an arrangement that matches the existing attachment pattern.
- In corroded areas, prepare the surface by sanding and spot paint with a galvanizing paint or rust-inhibiting exterior paint.

Windows and Doors

Wood windows

Windows are dominant elements in architectural configurations and are of critical importance as character-defining features of historic architecture. Important features include their placement in a building's elevations as well as their material composition, sash pattern, glazing, trim, color, and condition. Historic wood windows were present in the original McPolin barn (since removed) and remain in many of the outbuildings.

Causes of deterioration include exposure to the elements; deterioration of protective coatings like paints; condensation arising from interior/exterior temperature differences, which are caused by heating and cooling systems; broken or cracked glass that allows moisture penetration; normal wear from opening and closing windows; excessive paint coatings that mask architectural detail and/or seal windows shut; and normal degradation of glazing compounds. Original windows are missing in a number of buildings, most notably the barn and the Osguthorpe shed.

Signs of deterioration in wooden windows include condensation; paint detachment or loss; rot in the frame, sill, and/or sash; broken or cracked glass; cracking, detachment, or loss of glazing compound; and checked, split, or broken wooden elements.

Guidelines for the maintenance and repair of wood windows include the following:

- Identify and eliminate or minimize causes of deterioration through environmental modification or redesign of window system (e.g., repair gutters, increase slope on sill, ventilate storm windows).
- If the historic paint colors and composition are not known, consider contracting for paint sampling and analysis. New paint colors should match historic paint colors.
- If testing determines the presence of lead-based paint, any paint removal process must comply with hazardous materials regulations. Strictly adhere to paint removal procedures in all matters, including abatement of the hazardous condition and protection of workers and the public. Prior to paint removal, record paint stratigraphies and preserve intact sections of paint layering for the historic record.
- Determine whether the most effective treatment involves the repair of individual window components or the removal and comprehensive repair of the entire window. (Moderate to severe deterioration and/or the removal of lead-based paint may require a comprehensive approach.)
- For comprehensive repair, carefully remove the existing wooden sash from the window frame by removing the vertical window guides or stops at the jambs.
- Inspect the window frame and sill for rot, mildew, insect damage, excessive paint layers, or other signs of deterioration. If the window has sash weights, removing jambs or knockout panels may be required; replace sash weight cords at this time. Repair and/or replace individual window frame components as necessary and in-kind or with like material. Where replacement or reinstallation of frame components is required, prime and back-paint these elements before reinstallation. Seal joints between the frame and adjacent walls. Sills that are not sloped should be slightly sloped to drain water.
- After removal, carefully inspect the window sash for rot, splinters, checking, termite damage, and other conditions of deterioration. Inspect glass and glazing compound for condition and integrity. Carefully remove glass and glazing compound, clean muntins, and reinstall. When replacing broken glass, take care to match the appearance (color, texture, and translucence/opacity) of the original.
- Completely prime, paint, and dry the window frame before reinstalling the sash. Completely prime the sash before glazing and completely primed and paint all before reinstallation into the frame.
- To improve the performance of a historic window without using storm windows, install weather-stripping on the bottom of the sash, on the face of the jambs in the areas covered by the sash, and between the meeting rails of the upper and lower sash. A wide range of weather-stripping products is available, from traditional felts and spring metal strips to rubber, plastic, vinyl, and foam materials.
- Some window screens, or at least the wooden frames of the screens, may also be historic. Maintain and treat these using the same types of procedures described above. Construct replacement screens to match the originals in design and materials.
- If a window is completely missing or so deteriorated that it must be replaced, the replacement window should match the original window to the greatest degree possible in terms of size; proportions of the frame and sash; configuration of windowpanes; muntin profiles; type of wood; paint color; characteristics of the glass; and any other associated details.

Metal windows

Steel windows were used extensively on the McPolin barn additions. Many have been removed, although the frames and guides remain in place, but important features include their placement in a building's elevations as well as their method of operation, material composition, sash pattern, glazing, trim, color, and condition.

Causes of deterioration may include corrosion (rust) due to exposure to moisture; deterioration of protective coatings like primer, paint, or sealants; bowing, bending, or deformation of metal sash or frame; loss of hardware or fittings; deteriorated glazing or glazing compound; and deteriorated anchorage into masonry. Signs of deterioration include condensation; corrosion (rust); paint deterioration or loss; bowed, bent, or deformed sashes or frames; cracked or broken glass; cracking, detachment, or loss of glazing compound; and iron staining in adjacent masonry.

Guidelines for the maintenance and repair of metal windows include the following:

- Identify and eliminate or minimize causes of deterioration.
- If the historic paint colors and composition are not known, consider contracting for paint sampling and analysis. New paint colors should match historic paint colors, and should be composed of high gloss, alkyd, exterior enamel formulated for metal.
- If testing determines the presence of lead-based paint, any removal process must comply with hazardous materials regulations. Strictly adhere to paint removal procedures in all matters, including abatement of the hazardous condition and protection of workers and the public. Prior to paint removal, record paint stratigraphies and preserve intact sections of paint layering for the historic record.
- Clean window sash, metal frames, and any associated metal screens. Remove dirt, loose paint, and surface rust using sandpaper or a wire brush.
- Determine the level of deterioration in the window and/or screen, which will determine the level of maintenance or repair required. If only surface corrosion is present, then routine maintenance procedures will suffice. Wipe bare metal with an evaporative solvent and spot prime with a zinc-rich, rust-inhibiting primer.
- If reglazing is required, remove glass and glazing compound. Scrape metal to solid paint layer or bare metal. Prime metal and paint with one coat of paint before reglazing. Reuse the original glass if possible, placing it in its original orientation. Otherwise replace with glass matching the appearance of the original in color, texture, and translucence/opacity.
- Replace any missing hardware, screws, bolts, or other fittings, and make window operational so that it opens and closes and swings freely on hinges.
- Seal joints between metal frame and adjacent masonry with an elastomeric caulking compound.
- If corrosion is moderate and only penetrates into the metal enough to distort the metal's surface, then repair in-place is possible. At this point, special tools and procedures may be required and a skilled contractor should be consulted.
- If corrosion permeates the metal and causes delamination, extensive repairs in-place and possible removal to a shop may be required (but steel window frames are usually set into the adjacent masonry or concrete and are difficult to remove). Metal elements that have lost at least 50 percent of their thickness due to rust will probably require replacement or major repair. Other considerations, including method of attachment or anchoring in the masonry wall, may determine the extent to which steel windows can be repaired in-place. If metal is bent, bowed, or misaligned metal can be reformed or realigned using pressure or heat and pressure. Severely deteriorated sections of the sash may be removed and newly fabricated elements welded in place. Again, employ a skilled contractor to make these decisions and perform this work.
- Steel windows can be thermally upgraded through the use of caulking, weather-stripping, and/or an additional layer of glazing, like storm windows.

Wood doors

Exterior and interior wood doors at the McPolin Farm consist of a variety of simple, paneled or board doors, with and without glazing. These doors range in condition from fair to good. Because doors are subjected to continual use and exposure they require constant maintenance and repair.

Causes of deterioration include wear or loss of surface coatings, exposure, use, loose hinges or hardware, improper hardware (e.g., locks, closers, stops, and weather-stripping), impact, and lack of maintenance. Signs of deterioration include paint detachment or loss; rot in the frame, sill, and/or door; broken or cracked glass; cracking, detachment, or loss of glazing compound; checked, split, or broken wooden elements; and cracking, curling, or delamination of plywood panels.

Guidelines for the maintenance and repair of wood doors include the following:

- Identify and eliminate or reduce causes of deterioration.
- If the door is loose or sagging, tighten the hinges. Check door for plumbness with frame and facing.
- If the door binds, plane the edges and reseal them.
- If the door is warped, remove the door and lay it flat and apply weight to the door. If this does not correct the warping, install eye-screws, wire, and a turnbuckle. Tighten the turnbuckle until warping is corrected and reinstall the door.
- When a door must be replaced, match the original door in all details. Fabricate the new door using the deteriorated door as a model. Match stiles, rails, panels, muntins, and trim. artial repair should also be considered when parts of the doors are in good condition. New doors should be fully mortised and glued.
- If the color and composition of the original surface finish (paint, stain, varnish, etc.) are not known, consider contracting for sampling and analysis. New finishes should match historic finishes.
- If testing determines the presence of lead-based paint, the paint removal process must comply with hazardous materials abatement regulations. Strictly adhere to paint removal procedures in all matters, including abatement of the hazardous condition and protection of workers and the public. Prior to paint removal, record paint or surface finish stratigraphies and preserve intact sections of paint layering for the historic record.
- Finishes for exterior doors should consider the door’s exposure. Exterior wooden doors that are painted should be painted with one prime coat and two finish coats of exterior enamel. For doors that have clear finishes, apply additional coats of polyurethane clear sealer for interior use. Use spar varnish for exterior applications. Doors should be painted on the bottoms and edges.
- Coordinate door repairs with hardware and glazing requirements.
- Some screen doors, or at least their wooden frames, may also be historic. Maintain and treat these using the same types of procedures described above. Construct replacement screen doors to match the originals in design and materials, if possible.
- Select new storm/screen doors that are simple and unobtrusive, of one panel or with glazing/screening divisions that are aligned with the doors they protect.

Hardware

Hardware includes hinges, locks, latches, bolts, exit devices, closers, thresholds, protection plates, and weather-stripping. The hardware on doors and windows is often the most visible and can be important in establishing the character of a historic building. The historic hardware on the McPolin Farm buildings reflects period designs and materials.

Causes of deterioration include wear, inadequate maintenance, loose fittings, broken mechanical parts, failure to operate due to lack of cleaning and lubrication, and excessive paint buildup. Mismatched or historically inaccurate hardware (in both design and material) is often used to replace damaged or lost original hardware.

Guidelines for the maintenance and repair of hardware include the following:

- Tighten hinges and all fasteners attaching hardware to doors. Make sure that all hinge pins are in place.
- Clean and lubricate locking devices.
- Consider replacing lock cylinders rather than the entire original hardware unit.
- As a remedial measure, consider replacing all non-historic hardware with hardware of an appropriate style and finish.
- When original hardware must be replaced due to severe deterioration or loss, match the original style and finish; do not use hardware that is obviously not of the style of the building. Matching hardware is readily available from many hardware manufacturers.
- With any code upgrades, non-historic exit devices may be required by life safety codes, handicapped access, and fire codes, but compatible exit devices are available that are appropriate for a particular building style. Additional hardware required by code can be added to the original hardware in matching finishes and styles. Custom hardware, or special fabrications, can be ordered from a number of sources.

Interiors

Historic interior elements in the McPolin buildings include floors, walls, ceilings, trim, windows, doors, hardware, dairy equipment, wood stanchions and dividers, cabinets, light fixtures, and other fittings. The interiors have been modified over their long life and intensive use, but all retain many original elements and the modifications date to the historic period.

Guidelines for maintaining and repairing specific interior materials are contained in other sections of the appendix, including those for mortar, rough and finish carpentry, windows, doors, hardware, and paints and coatings. But general guidelines for the maintenance and repair of historic interiors include the following:

- To the greatest extent possible, retain the original use of the structure.
- To the greatest extent possible, retain the character-defining interior features of the building. These may include flooring, trim, plaster, tile,

interior doors, stairways, stanchions, dairy equipment and fixtures, lights, and hardware.
- Carefully consider the impact of new mechanical and electrical installations on the character of the interior spaces and finishes.
- Always consider maintenance and repair before outright replacement.
- Avoid cutting through floors, lowering ceilings (e.g., to install modular ceiling and lighting systems or disguise modern ductwork), adding partitions, removing walls, or furring out walls (e.g., to accommodate insulation).

Paints and Coatings

On buildings, paints and coatings are used as sacrificial layers to protect architectural materials and are also a major contributor to architectural character. Exterior surfaces commonly painted at the McPolin Farm include wood, concrete, and stone. Interior surfaces include plaster, concrete, wood, and metal.

Common causes of paint and coating deterioration include improper or inadequate surface preparation; exposure; moisture infiltration behind the paint layers; incompatibility between the primer and finish coats; improper paint application; improper paint selection; use of poor quality paint materials; uneven paint coverage; paint application during adverse weather conditions; and overpainting. Signs of paint and coating deterioration may include mildew; chalking; crazing; cracking; delamination between paint layers; solvent blistering; wrinkling; peeling; flaking; alligatoring; fading; and nailhead rusting and staining.

Guidelines for the maintenance and repair of paints and coatings include the following:

- The cyclical maintenance schedule for painting should be timed to roughly coincide with the service life of the paint. This gives maximum economy for the paint material and appropriate frequency of repair. Maintenance will, in most cases, involve the cleaning of the painted surface and whole or partial removal of any deteriorated coating.
- Painting may also be initiated for aesthetic purposes where testing and investigation have determined appropriate historically accurate colors and materials.
- When deterioration is evident, identify and eliminate or reduce the causes of deterioration as possible and select appropriate repair procedures. With historic structures, this process may be complicated by the need to match historic paint colors, the need to preserve historic painted surfaces, and the requirement to do no harm to the substrate, which may be a historic material. Further complication is associated with the abatement of lead-containing paints, many of which are early or original painted surfaces.
- If possible, contract a qualified professional to sample and analyze paint layers to determine a paint chronology, including original colors and types of paint as well as the presence of lead-based materials. Historic colors should be matched to paint chips in a recognized manufacturer’s color identification system. Historic records, photographs, and maintenance data should also be analyzed to assist in determining the original painting scheme.
- Surface preparation, in the form of cleaning and/or paint removal, is required in various degrees before the application of new paint. Of all aspects of painting, surface preparation is the most crucial to long-term performance. The extent of surface preparation depends upon the

degree and type of deterioration in the existing paint. Select the appropriate cleaning or paint removal method based on a thorough investigation of the causes of paint deterioration, the condition of the substrate, and the requirements for repainting.

- For dirty or chalky surfaces in otherwise sound condition, clean using regular household detergent in water and a soft bristle brush; rinse with a garden hose. Allow the surface to dry before final inspection; repeat the process for harder-to-remove dirt.
- To remove mildew, apply a mixture of one cup of detergent, one quart of bleach, and one gallon of water and scrub with a soft bristle brush. Rinse with a garden hose and allow the surface to dry thoroughly before applying new paint.
- Paint removal should be accomplished by the least destructive method possible. Paint removal methods include abrasion (hand and mechanical sanding, scraping, water blasting, and sandblasting – sandblasting should be used only for metals and some concrete substrates); thermal methods (including the use of heat guns or irons to soften paint for removal by scraping - never use in association with or near wood); and chemical methods (which soften paint layers for removal with a scraper - evaluate carefully with regard to chemical residues and their disposal).
- To remove cracked and crazed paint, sand to remove loose material. Also sand subsequent coats of paint to minimize visual telegraphing of the cracks through new paint layers.
- Delamination between paint layers, blistering, wrinkling, and peeling are the result of improper surface preparation, incompatibility between paint types, rapid drying, and so forth. To correct these problems, first wash and dry the surface, then sand and scrape until a stable layer is reached.

General guidelines for applying new paintings and coatings include the following:

- Use primers and paints from a single manufacturer for each paint application. Do not use a primer from one manufacturer and finish paints from a different manufacturer. Use only the best grade of material provided by reputable manufacturers. Use pure, non-fading pigments.
- Prepare surfaces of concrete, masonry, stucco, or cement plaster by removing efflorescence, chalk, dust, dirt, grease, oils, and glazes. Determine alkalinity and moisture content of surfaces to be painted. If surfaces are found to be sufficiently alkaline to cause blistering and burning of the finish paint, perform appropriate surface preparation.
- Prepare wood surfaces by cleaning dirt, oil, or other foreign substances using approved means such as scraping, sanding, or other methods. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac before the application of the prime coat. After priming, fill all holes and surface imperfections with putty or plastic wood filler. Sand the primer coat.
- Prepare ferrous metals by cleaning oil, dirt, loose mill scale, rust, or corrosion using solvent or approved mechanical abrasive methods.
- Use barrier coats over incompatible primers or existing paint that is to remain.
- Apply paints only within the temperature ranges recommended by the manufacturer. Do not paint in snow, rain, fog, mist, or when the relative humidity exceeds 85 percent. Do not apply paint to wet or damp surfaces. Do not paint in extreme heat or cold. Follow manufacturer’s written instructions with regard to paint coat thickness and drying time between coats.