United States Department of the Interior
National Park Service

NRHP Approved
Date: 11/27/2023

National Register of Historic Places Multiple Property Documentation Form

This form is used for documenting property groups relating to one or several historic contexts. See instructions in National Register Bulletin *How to Complete the Multiple Property Documentation Form* (formerly 16B). Complete each item by entering the requested information.

__X____ New Submission _____ Amended Submission

A. Name of Multiple Property Listing

Historic Mining Resources of Park City, Utah

B. Associated Historic Contexts

(Name each associated historic context, identifying theme, geographical area, and chronological period for each.)

Discovery & Mining Boom Era 1868-1893
Mature Mining Era 1894-1930
Mining Decline 1931-1982

C. Form Prepared by:

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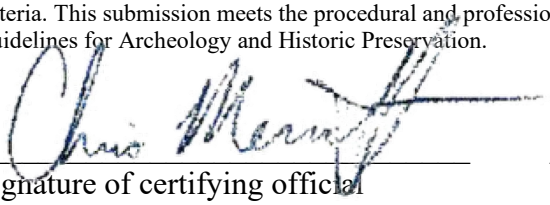
D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.



_____ ___SHPO_____ ___10/12/2023_____
Signature of certifying official Title Date

_Utah State Historic Preservation Office__
State or Federal Agency or Tribal government

I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

_____ _____
Signature of the Keeper Date of Action

E. Statement of Historic Contexts

CONTENTS

E.1: Introduction

> *"Park City is without doubt the most prosperous city in the territory, and for this prosperity is dependent solely on the mining industry. The claim is justly made that is the greatest mining camp in Utah and that in years to come it will stand pre-eminent in the proud phalanx of mining camps in the great west"*
> – J.H. Crockwell.[1]

Park City holds an important place in Utah's precious and base metal mining history with significance for its productivity, endurance, role in technological development and association with people important to the state's history. From 1875 to 1982, the Park City mines reportedly produced 16.7 million tons of ore recovering 1.45 million ounces of gold, 253 million ounces of silver, 2.7 billion pounds of lead, 1.5 billion pounds of zinc, and 129 million pounds of copper.

Yet none of the industrial historic properties associated with Park City's mining industry are currently listed on the National Register of Historic Places (NRHP).[2] While the Victorian architecture of this booming nineteenth-century mining town inspired interest in restoring the community, the industrial sites where the actual mining occurred have been left abandoned. Since reopening these mines is not profitable and with little potential for adaptive reuse of the remaining structures, many of the mine complexes, mills, aerial tramways and other associated mining resources have succumbed to scavenging, vandalism and natural decay, leaving these resources in various states of repair. Many of the mine sites that once dotted the Park City landscape are remembered today only by a single structure or building. It is important to recognize that they were once part of much larger industrial complexes. The Historic Mining Resources of Park City, Utah Multiple Property Documentation Form (MPDF) will provide the basis for evaluating and nominating properties to the NRHP in the future and encourage local efforts to preserve mining resources based on their continuing contribution to a community's identity.

The MPDF provides an overview of the events and physical development of mining in Park City from the discovery of silver in the late 1860s until the closure of Park City's last operating mine in 1982. Although not intended to be a comprehensive history, the MPDF explores the broad patterns of local history, organized into the three periods defined in Park City Municipal Corporation's Historic District Design Guidelines:

- Discovery & Mining Boom Era (1868-1893)
- Mature Mining Era (1894-1930)
- Mining Decline, Consolidation & Diversification (1931-1982)

[1] J.H. Crockwell, Photographer. *Souvenir of Park City: Her Mines, Mining and Pleasure Resorts*. Dec 1891

[2] The former Silver King Ore Loading Station was listed in the National Register until being destroyed by fire on July 23, 1981

E.2: Utah Precious and Base Metal Mining Historic Background

With the arrival of the first company of Church of Jesus Christ of Latter-day Saints (Mormon) migrants in 1847, the Salt Lake Valley transformed into a settlement of permanent residents. Mormons worked to build a remote religious homeland and communitarian society in the arid landscape through irrigation and agriculture. Driven by economic self-sufficiency, they developed only those industries required to survive. After 10 years of church-directed migration and settlement, these "un-American" ideals and the overt religious autonomy brought federal troops, in 1858, to shift the balance of power in the territory by installing a non-Mormon territorial governor and other federal officials. Johnson's Army of 8,000 soldiers and camp followers were stationed at the military base of Camp Floyd, south of Salt Lake City, for the next half decade.

During the Civil War, President Lincoln sent federal troops to Salt Lake City to protect the overland routes and mail. The 3rd California Volunteers, led by Colonel Patrick E. Connor arrived in 1862. Having experienced the excitement of the 1849 California gold rush, Connor's men doubtless needed little encouragement to explore the surrounding mountains for valuable minerals. Connor joined the prospecting and even established an assay office at the troops' base, Camp Douglas. LDS church leader Brigham Young asked on 6 October 1863 "Were they really sent here to protect the mail and telegraph lines, or to discover, if possible, rich diggings in our immediate vicinity, with a view to flood the country with just such a population as they desire, to destroy, if possible, the identity of the "Mormon" community …?"[3]

Discoveries attracted outsiders to Utah's co-operative agrarian Mormon society and mining camps sprang up, populated with ethnically diverse migrants. The arrival of the transcontinental railroad in 1869 ended Utah's isolation and spurred the extraction of precious metals buried in Utah's mountains. Mining had been impractical given the cost of freighting heavy ore by wagon to distant smelters for processing but suddenly the railroad could provide the fast and affordable transportation needed to make the industry profitable while bringing an abundant and experienced labor supply. Across Utah the mining industry exploded. From the summer of 1869 to end of December 1871, Utah's mining operations produced a combined total of 16,200 tons of gold and silver worth $3 million.[4]

E.3 Discovery & Mining Boom Era 1868-1893

Prospectors flocked to the mountains surrounding the Salt Lake Valley, exploring east up Big and Little Cottonwood Canyons and over the passes to the eastern slopes of the Wasatch Mountains. Who first located ore in the Park City District is unknown but local lore is rampant with fascinating stories:

> The discovery of the Walker & Webster claim in 1869 by Rufus Walker and the subsequent find of ore in the summer of the same year by Ephraim Hanks are the earliest notices on record" states Boutwell in his Geology and Ore deposits of the Park City District published in 1912, more than forty years later.[5]
>
> It was on a cold, stormy day late in the fall of 1868 when three of Col. Connor's troops wearily made their way over its jagged crest through the 10,000 foot pass now known as Guardsman Pass …Being

[3] Colleen Whitley, *From the Ground Up*, 2006, page 59
[4] John R. Murphy, *The Mineral Resources of the Territory of Utah*, 1872, page iii
[5] John Mason Boutwell, *Geology and Ore Deposits of the Park City District, Utah*, United States Geological Survey, Professional Paper 77, by 1912, page 19. Boutwell cites as his source the *Park Record* newspaper files from 1877 which have not survived the intervening years.

> experienced prospectors it was inevitable that they should find the [b]lack galena and green copper that stained the rock …"[6] revealed Frasier Buck in his book Treasure Mountain Home.
>
> They broke off some of the ore, which was very heavy, and took it with them. . . The three men left for Mr. Kimball's stage house ten miles down the valley. Two of the men returned to their find the following summer and, noting the red handkerchief and stick still standing, named the claim "Flagstaff" …[7] asserted author Kate Carter in 1964.

With the surge in new mine claims in the late 1860s, the Mountain Lake Mining District, originally established by Col. Conner, was divided into several contiguous but separate districts including Big Cottonwood, Little Cottonwood, American Fork, Uintah, Snake Creek, and Blue Ledge.[8] As the nearby mine camp of Park City grew, the Uintah, Snake Creek and Blue Ledge became known as the Park City Mining District.[9] Other early claims included the Flagstaff, Rocky Bar, Wild Bill, Aetna, Walker & Webster, Pinion, Brigham, Green Monster and Norfolk.[10] Park City's mining boom had begun. By 1917, 845 mine claims patents had been recorded in the district.[11]

"Five men are working the mine" reported a Salt Lake newspaper in 1871. "The new road is finished to the Flagstaff mine, and owners will immediately commence shipping from ten to fifteen tons of ore per day to this city. Col. Wm. Kimball has taken the contract to haul a thousand tons."[12] By April 1875, the company's profit reached $14,860.[13]

Predictably, all of these early claims were consolidated into larger mining operations during the Mining Boom Era 1868-1893 and Mature Mining Era 1894-1930 so few resources from the 1860-1870s remain. William Kimball's stagecoach station still stands at Kimball Junction, north of Park City. Built in 1862, the stagecoach hotel is the area's oldest building and the historic site is listed individually in the NRHP.[14]

Early Industry 1870s

During the 1870s, the wealth of outside investors helped develop the ore bodies by consolidating the mine claims. The industry's rapid growth swelled the small mining camp into a community of 1,581 by 1880.[15] That year, Utah mines produced some $6.2 million in ore, of which Park City's silver contributed $2.1 million, an enormous wealth mainly generated from the development of the Ontario vein. In August, 1872 a Salt Lake newspaper

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[6] Frasier Buck and George Thompson, *Treasure Mountain Home: Park City Revisited*", 1964, page 4. Technically these soldiers could not be Col. Connor's troops since his military service ended in 1866.
[7] Kate C. Carter, *Our Pioneer Heritage*, Daughters of Utah Pioneers 1964, Volume Seven, page 117
[8] Carl L. Ege, *Selected Mining Districts of Utah*, Miscellaneous Publication 05-5, Utah Geological Survey, 2005
[9] Boutwell, *Geology and Ore Deposits of the Park City District*, page 19. Boutwell states the Uintah district was organized on November 18, 1869, and the Snake Creek and Blue Ledge in April or May 1870.
[10] Mineral resources of the Territory of Utah, with mining statistics and maps, 1872 by John R. Murphy page 37-38
[11] B.S. Butler, G.F. Loughlin, V.C. Heikes and others, *Ore Deposits of Utah*, United States Geological Survey Professional paper 111, 1920 page 149
[12] *Salt Lake Herald-Republican* | 1871-08-08 | Page 3
[13] *Salt Lake Herald-Republican* | 1875-04-29 | Page 3
[14] Additional Documentation NRIS ID# 71000855
[15] Samuel A. Smith, *The Wasp in the Beehive: Non-Mormon Presence in 1880s Utah*, Thesis, Pennsylvania State University, 2008. Smith notes this number is possibly undercounted "an 1880 petition for the city's incorporation cited a (likely exaggerated) population of 3,500."

announced the sale, "Yesterday Messrs. Dawell [Gus McDowell], Stein [Rector Steen] and others, owners of the Ontario mine, in Uintah district, … sold and made deed of the mine to George Hearst, of San Francisco, for $27,000, cash …"[16] By October, twenty-two men were working at the Ontario with two shafts sunk 50 feet deep and the ore assaying at a whopping $200 per ton.[17]

Following his success in the California gold rush and Nevada silver mines, George Hearst began investing in Utah mines. He and Robert C. Chambers headed to Utah in 1871 to "examine certain mines in that region."[18] Hearst returned to the Salt Lake Valley in 1872, again considering new discoveries, this time in Park City's mountains. Hearst hired Chambers as mine superintendent and in 1876 the Ontario Silver Mining Company incorporated, offering an astounding $10 million in stock, more than any other mine company in Utah. By then, the Ontario had already yielded $1 million with the highest annual production – extraction of ore for profit-- of all the mines in Utah Territory.[19] The Ontario catapulted the Park City Mining District into national prominence.[20]

By February 1876, 70% of Park City's total extracted ore was coming from the Ontario, earning the company $14,000 per week. High-grade ore from the Ontario could be direct shipped to the smelter, some even to Liverpool, England. To process the low-grade ore, Chambers spent $325,000 constructing a new 40-stamp amalgamation mill. Soon the mine and mill employed 150 men with wages averaging $3.60 a day.[21]

Immigrants from various countries and Americans flocked to Park City for these well-paying mining jobs. Merchants and businessmen followed, building shops, restaurants, saloons, and houses in the narrow canyon. Thriving economically, 15 businesses and professionals were listed for Park City in the 1876 Pacific Coast Business Directory.[22] William Kimball's livery and transportation began offering daily stagecoach service from Park City to Salt Lake City in 1874. [23]

The Michigan Bunch, a loose association of mining entrepreneurs from Grand Haven, MI, arrived in Park City in 1873. Edward P. Ferry, David McLaughlin, James Mason, Fredrick Nims and Colonel William M. Ferry would influence the development of mining and the town for decades. Establishing the Marsac Silver Mining Company, they purchased the Flagstaff mine for $50,000 and in 1874 constructed the Marsac mill near Main Street in the newly named town Park City, to refine the ore.

Mining Boom 1880s

Park City ranked among the leading silver producers in the State of Utah by the 1880s. Although the price of silver declined as the decade progressed, Park City's mining industry remained profitable as it moved toward modernization. The frontier camp grew into a stable community with electricity, modern communications and railroad transportation. This progress is reflected in the population growth that swelled to 2,850 by 1890.[24] The

[16] *Salt Lake Herald-Republican* newspaper | 1872-08-25 | Page 3
[17] *Salt Lake Herald-Republican* | 1872-10-06 | Page 3
[18] *Salt Lake Herald-Republican* | 1871-08-22 | Page 3
[19] Boutwell, *Geology and Ore Deposits of the Park City District*, page 137
[20] Colleen Whitley, *From the Ground Up*, 2006 page 321
[21] "Boutwell, *Geology and Ore Deposits of the Park City District*, page 20
[22] Henry G. Langley, *1876-78 Pacific Coast Business Directory*
[23] *Salt Lake Herald-Republican* | 1874-10-18 | Page 3 | Parley's Park Stage Line. William Kimball's ad offered tri-weekly stage line between Salt Lake City and Parley's Park probably because the mining camp's name Park City was not in general use October 1874.
[24] *Twelfth Census of the United States,* Bulletin No. 50. Population of Utah by Counties and Minor Civil Divisions, 1901.

arrival of new investment capital, industrialization and scientific innovation gave rise to a period of growth and transition.

The dozens of growing mining operations along with numerous new claims pushed Park City's economy to new levels and demanded more supplies, especially cheap fuel in the form of coal. Mining profits also relied upon low-cost transportation to move the heavy ore to smelters in Salt Lake Valley, which by 1890, became the largest smelting center in the West. Railroads provided much cheaper rates and superior reliability, especially during Park City's long, snowy winters, compared to wagon freighting and larger quantities of ore could be shipped. Private investors from Summit County and Salt Lake City joined forces to build a narrow gauge rail line east from the transcontinental railroad in Echo, arriving in Park City in December 1880.[25]

Undaunted by the competition, the Union Pacific Railroad built the parallel Echo & Park City Railway, completing the spur into Park City just a month later and acquiring the start-up a few years later. Moving Park City ore was a lucrative and steady business but in April 1890, the behemoth Union Pacific lost its monopoly. The Utah Central Railway arrived from Salt Lake City to Park City through Parleys Canyon. In the mid-1890s, work began to convert the narrow gauge to standard gauge, allowing heavier trains. Unfortunately, this work coincided with the Panic of 1893 (see below) and the demand for Park City's ore disappeared. Like so many of the western railroads built to serve mining districts, the Utah Central filed for bankruptcy. Purchased by the Denver & Rio Grande in 1897, rebuilding the steep grades and converting the line continued and the first standard gauge D&RG train arrived in Park City from Salt Lake City on July 30, 1900.

John Daly gained his prospecting experience in Montana and Nevada. After arriving in Park City, he found work at the booming Ontario mine. Believing the Ontario ore bodies extended south into Empire Canyon, Daly acquired 24 nearby claims[26] and in 1885, incorporated the Daly Mining Company. He then sank two shafts; Daly #1 and Daly #2 and by 1886, the company's total production had reached over $1million.[27]

With the boom came litigation, the bane of mining camps. Ownership questions arose regarding some of the earliest ore discoveries along Pioneer ridge and in 1882, these lawsuits were successfully settled with the consolidation of the Walker & Webster, Piñion and other early claims into the Crescent Mining Company. The following year, with its workforce of 60 men producing 40 tons of ore per day, the company paid a massive $150,000 in dividends. Two years later, the Crescent built a concentrating mill near Main Street, ramping production to become Park City's fourth largest producer for the year 1889- 1890.28

While ore was present in much of the Park City Mining District, the cost of transportation to and from the mine sealed their economic fate. Moving the ore from the mountains surrounding Park City was especially challenging during winter and the bottomless 350" annual snowfall. Enticed by the success of the upper Midwest logging industry and their use of narrow-gauge railroads driven by small but powerful Shay engines to move timber, the Crescent Mine developed the Crescent Tramway. The rail line extended from the mine on the upper slopes of Thaynes Canyon down a 6% grade to the Union Pacific railroad and their Crescent Mill, at the bottom of Main Street. By 1885, the Shay engine was hauling ore down the steep slopes, but winters proved difficult. With the mountains denuded of trees, avalanches continually flooded the tracks with each snowstorm, blocking passage and sometimes derailing the trains. Ultimately the narrow gauge was abandoned but the Crescent Tramway grade

[25] *Salt Lake Herald-Republican* | 1880-12-10 | Page 3 | Utah Eastern
[26] Buck and Thompson, "Treasure Mountain Home: Park City Revisited",1964, page 24
[27] Boutwell, *Geology and Ore Deposits of the Park City District*, page 146
[28] Boutwell, Geology and Ore Deposits of the Park City District, page 174

still exists today, incorporated into the town's sidewalks and providing an unlikely hiking trail along the mountain slopes.

Plague of Water

As the Ontario mine extended ever deeper, the abundance of water became a problem. As Boutwell noted in 1912 "The most serious difficulty encountered in developing the mines of this district has been an immense amount of underground water."[29] The Ontario No. 3 shaft was designed in the early 1880s as a comprehensive solution to the water problem. Plans included a pumping system to move water from the 1,500-foot level up 900 feet to a 1.2-mile-long drain tunnel driven along the 600-foot level. David Keith, a water pumping expert from Nevada's silver mines was recruited to move to Park City and install the "Cornish" pump (originally designed by engineers in Cornwall). By 1883, the 30-foot flywheel powered by steam was lifting more than 3.5 million gallons per day from the mine along Ontario Drain Tunnel No. 1. A flume carried the excess water from the tunnel portal near the Ontario mill, down the canyon to where it was readily used in the concentrating process at the Marsac mill. The drain tunnel and portal still stand today, although the tunnel is now dry.

By 1886, Park City's mines accounted for half the entire ore production of Utah. Producing mines had expanded from the Ontario to include the Daly, Crescent, Sampson, Apex, Jupiter, Creole and Woodside.[30] But all Park City mines were plagued by water. As a long-term solution to their continued water problems, the Anchor, Ontario and Alliance mine companies all had committed to driving long underground drain tunnels by the mid-1880s.

Once the Ontario accessed ore bodies below the 1,000-foot level, extending the Cornish pump was impractical. A new solution to the abundant water was needed. In 1888, development began on a second drain tunnel on the 1,500-foot level, driven 3 miles east from Ontario shaft No. 2. Completed in 1894 for a cost of $400,000, reportedly only one miner died during the six-year construction of the Ontario drain tunnel No. 2. However, enormous difficulties were encountered. One five-foot long section of the tunnel took six weeks to dig and costs ran as high as $3,500 per foot.[31] However, the drain tunnel worked and the water problem was again solved. The tunnel drained an impressive 13,000 gallons of water per minute and is still in use today, supplying culinary water to residences surrounding the Jordanelle Reservoir.

The tunnel was nicknamed the Keetley Drain Tunnel after English emigrant John Keetley, an experienced miner hired as the construction foreman. He later served as Superintendent at the Little Bell Consolidated Mining Company and then the Silver King Consolidated Mining Company until his death in 1912.

South of the Ontario, near the head of Empire Canyon, a shaft was sunk on the White Pine mine claim about 1878. The company installed a steam-driven hoisting works and was soon shipping ore. Directly south, the Utah Silver Mining Company sunk a shaft on the Utah claim and by 1883, was also operating a steam-driven hoisting works.[32] Given their remote location, these mining landscapes remain today.

[29] Boutwell, Geology and Ore Deposits of the Park City District, page 24
[30] *Park Record* newspaper | 1887-04-23 | Page 3 | Mining Matters
[31] *Park Record* | 1925-12-18 | Page 1 | History of a Famous Silver-Leading Mining Camp
[32] *Salt Lake Herald-Republican* | 1884-01-01 | Page 5 | Geology of Utah

The Utah Silver Mining Company's success spurred the development in 1883 of the nearby Anchor claim. In March 1885, the White Pine, Utah and Anchor merged to form the Anchor Mining Company, incorporating for $1 million.[33] Appointing David Keith as manager[34], work began immediately on sinking the Anchor shaft but tremendous amounts of water at the 600-foot level proved too difficult to handle, even though an "energetic campaign of pumping with newly installed pumps had been carried on for a year."[35] Work was suspended in the spring of 1887.[36]

The new solution for the excess water, a 1.25-mile-long drain tunnel, started on August 12, 1887. John Daly procured the contract, possibly to continue his efforts exploring the extent of the rich Ontario lode and to find other mineral resources in Empire Canyon. He pushed construction in record time, averaging 15 feet per day. Driven from the portal at the intersection of Empire Canyon and Walker Webster Gulch, the tunnel would intersect the yet-to-be-completed Anchor shaft 1,200 feet below the shaft collar. Although the tunnel was completed in just three years, sinking the Anchor shaft continued until 1892, when it finally reached the depth to connect with the tunnel, a tremendous engineering feat.[37] The Anchor shaft and huge waste rock dump exist today. The connected tunnel, now known as the Judge Tunnel, continues to drain water more than 100 years later and provides a substantial amount of culinary water for the town of Park City.

John Daly drew on his growing knowledge of Empire Canyon and partnered with George Hearst to purchase an additional 40 claims south of his Daly mines, establishing the Daly West Mining Company. In 1900, the Hearst shares were acquired by Simon Bamberger,[38] fourth governor of Utah and his brother Jacob. Although work at the Daly West slowed with falling silver prices during the 1893 Panic, two years later production had increased. The high-grade ore was directly shipped through a cross-cut tunnel linking the Ontario Drain Tunnel No. 1.[39] To reduce wagon freight expensed, hauling the ore to the railroad depot in downtown Park City, Daly garnered support from the Union Pacific to build a spur to the portal of the Ontario Drain Tunnel No. 1. By September 1899, the Union Pacific had a corps of surveyors working on the proposed line,[40] soon known as the Highline. The *Park Record* newspaper estimated "a saving of at least $100 per day in the handling of ore."[41]

With the success of the Anchor and Ontario's drain tunnels, a third massive tunnel was planned. Irish immigrant John Judge worked for John Daly as foreman of the Daly Mining Company. He secured the contract to construct a tunnel to drain the water from the Alliance mine in Walker-Webster Gulch, south-west of Park City near the Anchor tunnel portal. Originally developed in 1883 as the Sampson, the mine was reorganized as the Alliance in 1889. Construction of the nearly one-mile-long drain tunnel lasted from May that year through August 1890. Known as the Alliance tunnel, a support surface plant arose at the portal, including an office/dwelling structure which still stands today.

In the course of constructing the Alliance tunnel under Woodside Gulch, Judge realized the area's underground potential and invested heavily in the new Silver King Mining Company. However, in 1892 he died of silicosis, the bane of miners. He was only 48 years old.

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[33] Harry W. B. Kantner, *A Hand Book on the Mines, Miners, and Minerals of Utah*, 1896
[34] *Salt Lake Mining Review* | 1918-04-30 | Page 25 | Obituary
[35] Boutwell, *Geology and Ore Deposits of the Park City District*, page 25
[36] Boutwell, *Geology and Ore Deposits of the Park City District*, page 155
[37] Boutwell, *Geology and Ore Deposits of the Park City District*, page 25
[38] *Park Record* | 1900-01-06 | Page 3
39 *Salt Lake Mining Review* | 1899-04-15
[40] *Salt Lake Herald-Republican* | 1899-09-23
[41] *Park Record* | 1900-02-03

1893 Panic

The Panic of 1893 was the 11th largest decline in the U.S. stock market and the resulting economic depression that lasted until 1897, deeply affected every sector of the national economy. During the Gilded Era, the country experienced economic growth and expansion. New railroads opened land across the west. Investors flocked to high-dividend-yielding railroad stock, but the influx of cash created a stock market "bubble" and the over-building of railroad spur lines. The number of new farms across the west grew 80% from 1870 through 1890, yielding a huge surplus of crops so agriculture prices fell.

The passage of the Sherman Silver Purchase Act of 1890, which required the federal government to purchase 4.5 million ounces of silver each month, supported the silver market and sustained the price at $1.16 per ounce. Across the west, production increased and new silver mines opened due to the price stability. "The influence of this law brought about an increased tonnage in Utah mines and a general tone of prosperity throughout the [Park City] mining camp." [42]

However, the abundance of new western silver mines created an oversupply and in 1892 silver dropped to 83 cents per ounce, the greatest decline then on record. Newly elected President Grover Cleveland suddenly repealed the Silver Purchase Act in 1893. The government purchased the required large quantities of silver with treasury notes, which were backed by the nation's gold reserves. The rapid increase in circulating notes had caused a run on the gold reserves as the paper notes were swiftly transferred into physical gold. Cleveland's move stopped the outflow of gold. But with the coinciding stock market panic, silver prices plummeted to 60 cents per ounce, a point below the cost of extraction and refining, causing mines across the West to close. At the Ontario, Park City's largest producer and one of the foremost silver mines in the West, production waned. Finally in October 1897, the mine suspended operations entirely.[43]

The crisis and resulting recession slowed growth in Park City's mining operations but galvanizing in the background was one of Park City's largest mines.

E.4 Mature Mining Era 1894-1930

While silver prices crashed, the price of lead actually increased. Ore at the Silver King contained a high percentage of lead. The Silver King Mining Company realized the rise in lead value more than offset the unprofitable silver price and launched during the panic even though many other Park City mines were closing.[44] In 1892, a consortium including David Keith, Thomas Kearns, John Judge and Albion Emery had acquired a number of small claims at the top of Woodside Canyon, forming what was to become the most prosperous mine in Park City's history. The Silver King Mining Company incorporated for $3 million[45] and by 1904, the company comprised of 800 mine claims.[46] Ultimately 34% of all the ore produced from the Park City Mining District would come from the Silver King.[47]

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[42] Boutwell, *Geology and Ore Deposits of the Park City District*, page 21
[43] Boutwell, Geology and Ore Deposits of the Park City District, page 137
[44] Richard P. Rothwell. The Mineral Industry, Its statistics, Technology and Trade in the United States and Other Countries to the end of 1897. Volume 6. Page 425
[45] Buck and Thompson, Treasure Mountain Home, 1964, page 52
[46] Boutwell, Geology and Ore Deposits of the Park City District, page 179
[47] Donovan Symonds. Shiny Rocks to Silver Bars. YouTube presentation. 2020

East Coaster Albion Emery arrived in Park City via Tooele, Utah, where he had served as Tooele County Clerk from 1874 to 1875. He worked as Park City's Postmaster until 1886 when became accountant for the Daly Mining Company. Emery was elected to Utah's 31st - and last - Territorial Legislature in 1893, serving as Speaker of the House. He played a key role in Utah achieving statehood, fostering alliances among the representatives across religious and political perspectives. With his health failing, Albion traveled with his wife Susanna Bransford to San Francisco in the spring of 1894, where he died, only 46 years old. Albion left no will so Susanna found herself in the middle of a well-publicized court battle to inherit her husband's estate.[48]

Having considerable experience in the mines of Nevada, David Keith came to Park City in 1883 to help install the Cornish Pump at the Ontario. After working as foreman at the Ontario mine for eight years, the Anchor Mining Company hired him as mine manager. He and John Judge then partnered in the construction of the Alliance Tunnel.[49]

Thomas Kearns arrived, purportedly penniless, in Park City in 1883 but his mining efforts soon paid off. He married Jennie Judge, the niece of his business partner John Judge. Active in politics, Kearns was elected to Park City Council and even served as a delegate to the 1895 State Constitutional Convention, prior to Utah Statehood. In 1901, the Utah State Legislature sent him to Washington DC as a U.S. Senator. That same year he and David Keith purchased the *Salt Lake Tribune* newspaper and launched the *Salt Lake Telegram* newspaper.[50]

One of the first surface structures built at the Silver King mine was a boarding house, which still stands today. Completed in 1896, the substantial two-story building also included a large dining room, kitchen and mine offices. The local newspaper enthused "It has hot and cold water, electric lights, and every modern improvement and is pronounced by everybody to be the most complete institution of the kind in the world."[51]

With large operations came larger labor issues. The first miners' union thought to be organized in Utah was formed in Park City in early June of 1880. A mass meeting adopted broad though "benevolent character" guidelines: some means to care for sick or injured miners and mine workers; and in case of death to give them a decent and respectable burial.[52] Meanwhile, Butte, Montana, had become the leading stronghold of mine unionism, working to defend wages, hours, working conditions, and other basic concerns for all mine workers. In May 1893, delegates from across the West met in Butte to found the Western Federation of Miners. It quickly became the largest local union in the United States[53] and included Park City Miners Union No. 43.

Miners from the Park City union along with other Utah miners petitioned the 1896 legislature for an eight-hour workday. Lawmakers responded by passing an act covering metal mines and smelters, the first such protection in North American history for male workers in the private sector.[54]

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[48] *Salt Lake Tribune* | 1894-06-14 | page 8 | A.B. Emery Dead
[49] The *Park Record* | 1918-04-19; Allan Kent Powell, Utah History Encyclopedia: David Keith https://www.uen.org/utah_history_encyclopedia/k/KEITH_DAVID.shtml
[50] Miriam B. Murphy, Utah History Encyclopedia: Thomas Kearns. 1994. https://historytogo.utah.gov/thomas-kearns/
[51] *Park Record* | 1896-11-21
[52] *Park Record* | 1880-106-05 | page 4 | Park Float column
[53] Richard E. Lingenfelter, Hardrock Miners, University of Calif. Press, 1974, pages 132, 182-95, 219-228. During their peak, WFM had 50,000 members.
[54] Laurie Caroline Pintar, Law in the Western United States, University of Oklahoma Press, 2000, page 436.

Revival and Prosperity

By 1900, the Park City mining industry showed little resemblance to its 19th century predecessor. Millions of dollars were being spent on the construction of mine shafts, tunnels, modern surface plants, state-of-the-art equipment and new, efficient transportation methods. Technological innovations lowered operating expenses but also eased miners' burdens. Wet power drills, which reduced the incidence of silicosis, came into general use and improved the health of miners. Cages with safety brakes and improved steel cables provided some degree of protection as they traveled underground. With the appearance of new products such as automobiles and electricity and the general expansion of industry across the U.S., markets for Park City's lead, silver and zinc increased.

In an effort to reduce the transportation costs of moving ore from the Silver King shaft to the railroad in downtown Park City, construction began of an aerial tramway in August 1900. A sizeable crew of 50 men, supervised by Silver King mill foreman John Breckenridge Fleming, constructed the Finlayson Patent Aerial Rope Tramway and 39 towers along the one-and-a-half-mile route. These impressive steel towers ranging in height from 16 feet to 85 feet, still stand today. Beset by bad weather and supply shortages, work was suspended until the following spring. Foreman Fleming must have watched with satisfaction as the first loaded bucket headed downhill on June 6. The tramway provided the unmistakable advantage of year-round operation and ran constantly for 50 years until 1951.

In 1901, a rich strike of high-grade ore at the Quincy mine, "quickly placed that property at the head of the list of producers.".[55] But the adjacent Daly West claimed the Quincy was extracting their ore. The following year, the companies settled with an exchange of 30,000 Daly West shares for the Quincy property.[56]

Success at the Quincy caught local entrepreneur Solon Spiro's interest. He bought the nearby Little Bell mine in 1901 and hired John H. Keetley as mine superintendent. Quickly caught up in the Daly-West / Quincy lawsuit,[57] the settlement included the Daly West purchasing a one-fifth interest in the Little Bell. Spiro invested the much Fneeded funds in developing his mine. By 1905, the Little Bell production had surged so the superintendent ordered construction of 500-ton capacity ore bins,[58] one of which remains on site today.

At 11:20pm on July 15, 1902, an explosion on the 1,200-foot level of the Daly West killed 25 men working underground—Park City's largest mine disaster. The resulting poisonous gas quickly spread through the underground tunnels connecting to the Ontario Mine, killing nine miners there. In response to the tragedy, the State of Utah adopted legislation that outlawed the routine practice of storing explosives underground.

After John Judge died, his wife Mary Harney Judge undertook his mining interests in the Anchor and Silver King mining companies. A capable businesswoman, Mary expanded the business to include mining interests in Nevada and real estate in Salt Lake City. In 1901, Mary joined John Daly to form the Daly Judge Mining Company which soon encompassed 1,100 acres in Empire Canyon. The company enlarged and remodeled the Daly Judge mill, located in Empire Canyon just below the portal of the Anchor drain tunnel, into the largest mill in Park City, with capacity to process 450 tons of ore per day from both the Anchor and Daly West mines. "The Daly Judge shows what the application of modern milling methods can do for low-grade propositions" noted a mining journal. [59]

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[55] Boutwell, Geology and Ore Deposits of the Park City District, page 22
[56] Boutwell, Geology and Ore Deposits of the Park City District, page 149
[57] *Salt Lake Telegram* / 1902-03-13 / page 6
[58] *Deseret Evening News* / 1905-12-15/ page 6
[59] *Salt Lake Mining Review* | 1903-04-15 | Page 4 | The Daly-Judge Mill

The mill closed in 1931, and later sold and dismantled.[60] Only the concrete foundations of the huge structure and vast tailings dump remain today.[61]

Another early Park City mining company, the Comstock had incorporated in London, England in 1882. Productive in the 1890s, construction began on a new mill in upper Thaynes Canyon in 1902. The local newspaper reported "The foundation for the Comstock new mill is well-nigh completed with a good force of men pushing the work as fast as possible."[62] Equipment included a wet crusher, 3 jigs, 1 fine crusher and 6 Wilfley tables.[63] The huge wood mill still stands today. Mineral disputes with the nearby California mine resulted in the two mining companies merging into the California Comstock Consolidated Mine Company. In 1918 Silver King Consolidated acquired the property and upgraded the mill to process 150 tons of ore per day.

The Silver King continued improvements across all their holdings. The hoisting works at the Silver King consisted of a steel 62-foot-tall headframe to serve the 1,300-foot-deep shaft. Steam from six boilers powered the hoisting works consisting of two double-deck cages.[64] By 1913, the company upgraded the surface plant to include machine and carpenter shops so mine equipment could be fabricated and repaired. Electricity, from the mine's new substation, replaced steam power. A two-story concrete change house built in 1915 served the growing workforce. Many of these surface plant buildings, structures and equipment remain today.

David Keith and Thomas Kearns consolidated the Crescent mine and properties south of the Silver King mine under the name Kearns-Keith in 1903 and began exploring for new ore bodies through the Alliance Tunnel. Ore produced from the upper levels was removed through the Hanauer Tunnel and processed at their newly erected 100-ton concentrator, the Kearns-Keith mill.[65] The surface plant at the mill included workshops, assay office and living quarters for the mill workers. The remains of the wood mill was dismantled for safety reasons in 1998 but much of the equipment remains on site in upper Walker Webster Gulch.

Since 1872, Utah mine owners had withheld one dollar per each miner's paycheck to cover "free" medical care at Salt Lake City hospitals. But treatment required Park City miners to suffer a long, often fatal, wagon or train ride before receiving any treatment. Often in the winter, deep snow blocked roads and rail lines, so a trip to Salt Lake was not possible. Park City miners complained that "the Salt Lake hospitals were so crowded men could not get proper care and attention"[66] so they took matters into their own hands and requested the deducted paycheck funds be used to build a medical facility in Park City.[67] Kearns however objected, stating that the Salt Lake hospitals should not be deprived of the revenue.[68] None the less, the Park City union formed a nonprofit hospital corporation, offering stock at $10 per share. Individual miners, businessmen and locals bought shares and, after

[60] *Park Record* | 1943-11-25 | Page 1 | Historic Judge Mill to be Dismantled.
[61] Boutwell, Geology and Ore Deposits of the Park City District, page 31
[62] *Park Record* | 1902-10-04 | Page 3 | Comstock Mill
[63] Boutwell, Geology and Ore Deposits of the Park City District, page 216
[64] *Salt Lake Mining Review* | 1913-11-30| page 1 |The Silver King Coalition Mines. In 1936, a specially designed 400-hp electric hoist was installed at the main shaft of the Silver King, replacing the steam plant. (*Park Record* | 1936-06-05 | Page 1 | Silver King to Install Electric Hoist)
[65] Boutwell, *Geology and Ore Deposits of the Park City District*, 30
[66] *Park Record* | 1903-12-19 | Page 2
[67] In 1897, the local miner's union in Aldridge, Montana built the first hospital, known as "Miners' Hospital." It was the first of twenty-five hospitals built in the United States and British Columbia, Canada, under the Western Federation of Miners umbrella, between 1893 and 1918.
[68] *Park Record* | 1903-11-14 | *Park Record* | 1903-12-19. Kearns apparently stated St. Mark's was running a deficit and Holy Cross was "not paying interest on the money invested."

Eliza Nelson donated an acre of land, construction of Park City Miners' Hospital began on April 28, 1904. The Miners' Hospital still stands today in City Park.[69]

The price of silver slowly eroded and by December 1907, the price of less than 70 cents per ounce hit Park City's mining companies hard. The managers of three largest companies; Thomas Kearns of the Silver King, Ernest Bamberger of the Daly West, Ontario and Daly mines, and George Lambourne of the Daly-Judge, all announced temporary closures beginning the first of the year –1908-- and soon over 1,000 Park City miners were out of work.

In an effort to control their costs, raise capital and check pending litigation, Keith and Kearns merged all their holdings, including the Alliance and Kearns-Keith, with their Silver King Mining Company. The new Silver King Coalition Mines Company incorporated in 1907 for $6.25 million, encompassed 2,400 acres and quickly became Park City's largest mining company. [70]

South of the Silver King, near the top of Thaynes Canyon, A.W. Street had patented the Jupiter mine claim back in 1880.[71] Modest results persuaded the Jupiter Mine Company give a two-year lease on the mine to Oscar E. Lawrence in the fall 1905[72]. Lawrence constructed a 30' x 30' two-story boarding house with running water for his workforce of ten men. The crew used recycled lumber to erect other mine structures,[73] possibly including the ore bin that still stands on the site today. With work planned to continue throughout the winter, the bin provided store for high-grade ore until the access road thawed in the spring. [74] "For more than twenty years, the Jupiter … has been producing rich ore in small quantities, but never, until a short time ago, did it attain sufficient importance to justify building the modern ore-loading bins" noted a Salt Lake City newspaper.[75] With Lawrence's lease expired and silver prices low, Street sold the Jupiter holdings of 113 acres to the Silver King Coalition Mines Company in 1908.[76]

As metal prices recovered, construction began in 1913 of the Silver Hill station, two huge underground "rooms" each 42' x 30' at the farthest end of the Alliance Tunnel. Designed to relieve congestion at the Silver King main hoisting shaft, ore was removed through the Alliance Tunnel with an electric haulage system, further reducing operating costs. The surface plant was upgraded to include a well-equipped machine shop and modern electric water-pumping station. The vast quantities of water drained by the Alliance tunnel were piped over the hill for use in the Silver King Mill. The machine shop and pump station still stand today.

Tragedy struck the Daly West again on December 28, 1913, when the entire surface plant, including the hoist and mill, was destroyed by fire, promptly throwing nearly 300 men out of work.[77] The company anticipated the new plant back operating within the year. The existing steel headframe, hoisting machinery and small fire hydrant shacks date from this time, 1914.

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[69] Additional information NRIS#78002697
[70] *Salt Lake Mining Review* | 1907-05-30 | page 8 | The Big Merger at Park City
[71] *Park Record* | 1880-06-05 | Page 1
[72] *Salt Lake Mining Review* dated September 30, 1905 (Page 22
[73] *Salt Lake Mining Review* | 1905-10-15
[74] *Salt Lake Mining Review* | 1906-09-15
[75] *Salt Lake Herald-Republican* | 1906-07-29 | Page 19 | Some Facts About a Few Big Mines
[76] *The Park Record* | 1908-06-13
[77] *Salt Lake Mining Review* | 1914-01-15 | page 2, Engineering and Mining Journal, Vol 98, no. 8

Born in Germany, Solon Spiro came to Park City in 1881 to join his uncle M.S. Ascheim in his mercantile business. In 1900, he left the mercantile business to pursue the development of small local mining properties.[78] In addition to his investment in the Little Bell Consolidated Mining Company, Spiro secured controlling interest in the Bogan Silver Mining Company, located west of the Silver King Coalition's main shaft[79] and formed the Silver King Consolidated Mining Company or "King Con". Surface improvements at the King Con soon included a shaft house, hoisting plant and a two-story boarding house that could accommodate 200 men.[80] In 1906, Salt Lake businessman and millionaire Samuel Newhouse purchased 100,000 shares in the King Con and became Vice President of the company.[81]

The King Con struck a rich ore body in 1914, but with the silver market depressed with the onset of WWI, the company purposely limited production, conserving the metal for the return of higher prices --given the enormous quantity of ore, a few cents variation in price could result in a large difference in net profit. Hauling ore from the mine and supplies back up hill proved difficult. The King Con used the old Crescent Tramway's 6% railroad grade but was hampered by the road's condition, especially in winter. In 1916, a modern new aerial tramway was constructed. The tramway's 52 buckets delivered high-grade ore to the railroad and low-grade ore to the King Con's new 50-ton mill, saving an estimated 75% on transportation costs down the mountainside. Two of the wooden towers along with a larger tensioner tower survive today. Spiro also began construction of a three-mile-long tunnel that would not only drain the mine workings but also simplify underground access.[82] But costs soared with wartime inflation. Through 1922, the King Con charged stockholders multiple assessments of 10 cents per share to cover operating costs and bank loan interest payments.[83] Finally in May 1924, neighboring Silver King Coalition Mines Company announced they had acquired the company and, with ample resources, quickly completed the tunnel. The Spiro drain tunnel remains in use today and supplies much of Park City's culinary water.

Post WWI Impacts

When the United States joined the Great War, the cost of mining supplies spiraled upward whilst local companies lost their skilled workers as Park City miners left to serve in Europe. Financial problems were complicated further in Utah with the state legislature imposing a new 3% tax on mining companies' net earnings.[84] Park City's mining companies attempted to control soaring operating costs by cutting wages 75 cents per day. In May 1919, more than 800 mill and mine workers walked off the job forcing a complete shutdown of the Park City mines, which, per the *Salt Lake Tribune* newspaper, was the first walkout in 50 years. The men demanded a six-hour workday and a raise in pay from $4.50 to $5.50 per day.[85] The owners blamed the strike on the "Wobblies" – the International Workers of the World.[86] After nearly six weeks the strike collapsed and miners returned to work, settling for reinstatement of the original 75 cent wage cut.[87]

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[78] *Park Record* | 1929-08-02
[79] *Salt Lake Mining Review* | 1901-03-15 | Page 17 | Dips, Spurs and Angles
[80] *Salt Lake Mining Review* | 1905-10-30
[81] *Park Record* | 1906-07-14
[82] *Salt Lake Mining Review* | 1916-10-30
[83] *Salt Lake Mining Review* | 1922-03-30
[84] *Salt Lake Tribune* | 1918-12-14 | Page 16 | Mines will Resist Net Earnings Tax
[85] *Park Record* | 1919-05-09
[86] *Salt Lake Mining Review* | 1919-05-15
[87] *Park Record* | 1919-07-18 | Page 1 | 75c Raise Posted at Mines This Week

After Congress passed the Pittman Act in April 1918, silver prices began climbing. With the Act, 350,000 silver dollars were melted into bullion and sold to Britain at $1 per fine ounce. Then between 1920 and 1935, the federal government purchased silver at $1 per ounce for re-coining, effectively creating a federal subsidy.

The Daly-Judge reorganized into the Judge Mining & Smelting Company in 1916 to increase its capitalization from $3 million to $5 million[88] and provide the funds necessary to build a new zinc electrolytic processing plant. The company prospered and was soon employing 400 miners to work at the mine, mill and zinc plant.[89] In 1920, the company built a new concrete office building and change rooms at the portal of the Judge (Anchor) tunnel. This 1 ½ story utilitarian building still stands today.

On January 21, 1921, Silver King Coalition Mines Company's mill burned to the ground. Miners, living on site, battled the blaze so no other surface plant buildings were lost.[90] The following year, a new $200,000 steel concentration mill was in service, operating 24-hours per day with modern equipment.[91] The mill still stands today, with much of the equipment remaining inside.

As the twentieth century progressed, mining technology improved and companies embraced new methods. In 1916, the newly incorporated Park Utah Mining Company acquired claims adjoining Ontario to the east. Instead of building a surface plant, the company explored their claims from inside the Ontario mine's Keetley (Ontario No. 2) drain tunnel. By 1921, they had opened a "great ore body rivaling in size and richness that of the Ontario".[92] Two years later, the Park Utah had become Park City's leading silver producer yielding more than three million ounces per year.[93] In order to supply the booming mine and gain additional ore freighting business, the Union Pacific constructed a 5.3-mile spur, from the Park City Branch east of Park City, to the portal of the Keetley Drain Tunnel. Built of standard gauge, the spur line allowed for larger locomotives and other rolling stock appropriate for heavy traffic.

In May 1920, George Lambourne, President of the Judge Mining & Smelting Company and of the Daly West,[94] announced the two companies had joined with the Park Utah Mining Company to purchase controlling interest in the Daly Mining Company. A sensible decision given that the property was located between the Ontario and the Daly West mines.[95] Then, in 1925, the three companies merged with the Ontario to form the Park Utah Consolidated Mining Company. The local newspaper described the move as one of the largest mergers in the metal mining industry.[96] The new Park Utah Consolidated held 4,500 acres of patented mining claims with underground workings of 160 miles of drifts, tunnels and crosscuts reached by five shafts and three crucial drain tunnels. Almost immediately the venture found a huge new ore body and heralded as the largest single silver producer in the United States.[97]

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[88] *Salt Lake Mining Review* | 1916-04-30 | Page 35 | General Items
[89] *Park Record* | 1919-02-28 | Page 1 | Mining Companies' Annual Reports
[90] *Park Record* | 1921-01-28 | Page 1 | A $100,000 Fire
[91] *Salt Lake Mining Review* | 1922-03-30 | Page 17 | Around the State
[92] *Park Record* | 1925-12-18 | Page 1 | History of a Famous Silver-Leading Mining Camp
[93] *Salt Lake Tribune* | 1923-06-01 |
[94] When John Daly retired in 1907, George Lambourne replaced him as manager of the Daly West. In 1916, the Daly-Judge reorganized as the Judge Mining and Smelting Company, with Lambourne as President. *Park Record* | 1919-02-28 | Page 1 | Mining Companies' Annual Reports
[95] *Park Record* | 1920-05-14 | Page 1 | Judge M. & S. Company Secures Old Daly Mine
[96] *Park Record* | 1925-05-22 | Page 1 | To be Park Utah Consolidated Mines Co.
[97] David Hampshire, Martha Bradley and Alan Roberts, *A History of Summit County*, page 300

The Park Utah began construction in June 1925 for an aerial tramway to operate between the Daly-Judge mill in Empire Canyon and the Union Pacific's Highline terminal on Rossi Hill where a downhill loading station (tipple) was built. The Union Pacific spent $10,000.00 in new track and other improvements to facilitate the increased tonnage anticipated to be shipped daily from the new loading station. In January 1926, officials of the Park Utah announced that the aerial tramway was successfully in operation and working without a "hitch," carrying an average of 310 tons every day. For safety reasons, the four-story loading station, straddling the Highline spur, was demolished in 1976 after sitting idle for 25 years. However, the tramway towers remain today.

E.5 Mining Decline 1931-1982

Great Depression and WWII

As the Great Depression swept the county, industrial production slowed and the demand for metals dropped. Silver and lead prices fell significantly causing mining activities across the nation to decline sharply and mines reduced their workforce. In Park City, this erosion of the town's economic foundation caused many businesses to close. Unemployment grew, wages plummeted and the ensuing bitter labor disputes caused many mines to falter even further.

The price of silver reached its all-time low of 25 cents per ounce in late 1932. The following year, President Roosevelt announced the government would purchase domestically mined silver at 64.5 cents per ounce. "Boom in Mining Industry of State is Forecast by President's Move" one newspaper headline predicted.[98] The Silver King Coalition Mines Company welcomed the news as they struggled to keep 450 miners on the payroll. Managing Director Mont Ferry revealed that he'd run operations at a loss for some time.[99]

The news prompted the Silver King Coalition to dig a new three-compartment shaft -- near today's loading station of the Thaynes ski lift -- to access the Spiro Tunnel 1,800 feet below and explore for ore. None was found. Sinking the deep shaft had created vast quantities of waste rock. The Thaynes shaft also permitted hoisting of waste rock from throughout the Silver King's extensive underground workings, freeing the bottleneck at the Silver King's main shaft. Needing to remove this worthless material quickly and inexpensively, a long wooden conveyor was installed to automatically carry the rock away from the Thaynes shaft, creating the huge waste dump that still exists today. At the Thaynes shaft, the Silver King also constructed a modern surface plant including boarding house, outbuildings and fire hydrant shacks. The large Hoist House, a steel structure with concrete floors, contains the hoisting works, engine room, coal bin, change room, showers, and ore storage towers with truck loading chutes. Although the mining operations ceased in 1948, most of the complex remains.

Miner's pay had been cut considerably from the high in 1928 and the small concessions of 50 cents per day in 1934 and 25 cents in 1935 did not sit well with workers.[100] The miners' union alleged that, during the same period, dividends to stockholders had increased 40%.[101] On October 9, 1936, the miners went out on strike and this time, negotiations included other Utah mining districts. Mine companies elsewhere agreed to the demanded 50 cent per day increase but Park City's companies only offered a 25-cent increase, so Park City miners voted to stay out. Two days later the local companies brought 100 non-union strike breakers from Heber and other

[98] *Salt Lake Telegram* | 1933-12-22 | Page 1 | Silver Booms Utah Stocks
[99] *Park Record* | 1933-01-06 | Page 1 | A God-Send to Park City Has Been the Silver King Coalition
[100] *Salt Lake Telegram* | 1936-10-10 | Page 2 | Metal Miners in Park City District Go on Strike
[101] *Park Record* | 1936-10-15 | Page 1 | Facts and Figures

neighboring communities. "Heber City men rolled up in automobiles and trucks to a crowd of more than 400 persons, massed in the street." The battle raged for 40 minutes, with cars overturned and fist fights leaving bruised and bleeding union men and strikebreakers.[102] The strike collapsed.

World War II production intensified, requiring 9 million ounces of silver per month[103] But local production couldn't keep pace with the new demand as Park City's miners were rapidly drafted to serve in the military. In 1943, the United States Employment Service estimated a critical shortage of 1,000 miners in Utah even though 300 soldiers had recently been released from the army to work in Utah's metal mining jobs.[104] Locally, the Silver King Coalition and Park Utah estimated 100 to 150 additional miners were needed at both mines just to maintain production.[105] The following year, the two companies announced that with so few experienced miners, they were both eliminating the night shift and moving to a one-shift work day. Unlike other Utah industries, neither company ever considered replacing the labor shortage by hiring local women to work underground.

Post War Decline and Consolidation

While the rest of the nation experienced a post war economic boom, Park City's mining future seemed quite bleak. A significant drop in metal prices after WWII, especially for lead and zinc, caused mining activities to decline precipitously. Since lead and zinc ores were generating almost 80% of income at the Silver King and Park Utah, profits evaporated. Local mines curtailed production and began laying off the last few workers. Miners and their families were forced to leave Park City and seek employment elsewhere.

Ten years after George Lambourne died, the nationally known Anaconda Copper Mining Company purchased Lambourne's large block of Park Utah Consolidated Mines Company shares, giving them controlling interest.[106] However, the Park Utah was in financial difficulties. Even the constant pumping of water from the 2,200-foot level required a large financial outlay. With no production income, the Park Utah's debt mounted. By mid-1952, the Park Utah had shut entirely except for the pumps.

By 1954, Park City's population had dropped from 4,281 in 1930 to about 2,000 and school enrollment had dropped in half.[107] The merger that year of Park City's two largest companies, Park Utah Consolidated Mines Company and Silver King Coalition Mines Company, to form United Park City Mines Company, generated new optimism.[108] However, more bad news was coming. Utah's Congressional representatives had supported protecting domestic mines from low-cost imported metals, but President Eisenhower refused to increase tariffs on imported lead and zinc.[109] While the rest of the nation experienced an economic boom, by the late 1950s, fewer than two hundred men worked in Park City's mines and hundreds of homes and businesses had been abandoned. With the future of mining in Park City uncertain, United Park City Mines Company began investigating diversification and other ventures that would make its large acreage profitable.

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[102] *Salt Lake Telegram* | 1936-12-12 | Page 1 | Miners Battle at Park City
[103] *Park Record* | 1943-05-13 | Page 1 | Silver Has Become Important War Metal-Stock Sales
[104] *Park Record* | 1943-10-21 | Page 1 | Critical Shortage of Miners Still Exists
[105] *Park Record* | 1944-06-15 | Page 1 | Silver King and Park Utah Now Operating One Shift
[106] *Salt Lake Telegram* | 1942-04-07 | Page 13 | Big Share Unit of Park Utah Taken by ACM; *Park Record* | 1942-04-09 | Page 1 | Park City Property to be under New Management
[107] Whitley, *From the Ground Up*, 2006, page 339
[108] *Park Record* | 1953-03-05 | Page 1 | "United Park City Mines Co." Results In Silver King-Park Utah Mines Merger
[109] *Salt Lake Tribune* | 1954-08-21 | Page 1 Ike Withholds Lead, Zinc Tariff Boost

By the early 1960s, Park City's mines had produced 250 million ounces of silver, 900,000 ounces of gold, 1.3 million tons of lead, 600,000 tons of zinc with a value of almost $500 million.[110]
Percentage produced from 1875 to 1967:

Silver	43%	Lead	23%	Gold	18%
Zinc	9%	Copper	3%		

Manufacturing demand rose sharply in the early 1970s, but silver supplies fell short. The shortage caused silver prices to rise steadily, from less than $2 per ounce to $6 per ounce by the mid-1970s. Two major shareholders of United Park City Mines Company, the Anaconda Copper Company and American Smelting and Refining Company (ASARCO), formed a 60-40 partnership in 1970. The two U.S. mining giants called their new company Park City Ventures and leased the Ontario mine for 25 years--until 1995. Quickly investing $25 million, the renewal efforts included a brand new $17 million mill and rehabilitation of the underground workings and shaft No.3. A new 80-foot-tall head frame was constructed over shaft No.3 in anticipation of hauling ore.[111] After hiring 300 employees, production began in the spring of 1975. But only three years later, production was suspended. The crew of 350 miners was reduced to a 13-man maintenance crew, keeping the mine ready for reopening and more importantly keeping the mine from flooding. Powerful pumps constantly removed the underground water which would otherwise quickly flood the mine's lower levels.[112] Production never resumed, with Park City Ventures citing that "unstable ground and persistent water problems had made mining the property an unprofitable venture."[113]

With the price of silver dramatically doubling in price to over $15 per ounce in the late 1970s, Noranda Mining Company from Canada jumped in and acquired the mining lease from Park City Ventures for $3.5 million.[114] Noranda re-hired miners and re-opened the Ontario mine, estimating the Ontario still held eight million tons of ore, about half of the amount that had been extracted since the mine first opened in 1874.[115] However, when prices had risen sharply, manufacturers began searching for ways to reduce their need to use silver. Demand declined and with it, prices fell. Noranda's mining operations slowed to a standstill and in 1982 the Ontario.[116] Park City's mining era had ended.

[110] Hampshire, Bradley and Roberts, *A History of Summit County*, page 298
[111] *Park Record* | 1970-09-24 | Page 1 | Ontario to Become Production Shaft for Ventures
[112] *Park Record* | 1978-08-31 | Page 4 | Skeleton Maintenance Crew Keeps Ontario's Head above Water
[113] *Park Record* | 1979-04-26 | Page 4
[114] *Park Record* | 1979-08-23 | Page 4
[115] *Park Record* | 1979-08-30 | Page 4
[116] *The Newspaper* | 1979-08-23 | 1980-09-11 | 1981-05-28 | 1982-02-04 | 1982-03-11

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Historic Mining Resources of Park City, Utah
Name of multiple listing

Summit County, Utah
County and State

Section number F Page 1

F. Associated Property Types

CONTENTS

ILLUSTRATIONS

TABLES

F.1 Introduction

This section provides categories of Property Types, from landscape features and individual buildings to large complexes. The design and materials of the Property Types may vary widely based on their intended function, construction resources, landscape, environment and time period. A list of examples for these property types that were identified during research is provided in Tables 1-4. The boundary area covered by this MPDF consists of the Park City mining district area in the mountains surrounding the community of Park City, Summit County. The MDPF general boundary area extends from Clayton Peak and the ridgeline between Bonanza Flat and Big Cottonwood Canyon, north along the ridge with Salt Lake County to Scott's Hill, northeast along White Pine and Thaynes Canyon to Park City, following Deer Valley Drive to Hilltop Peak (7698'), southeast toward Jordanelle Reservoir and southwest up Big Dutch Hollow to Bonanza Flat. See Map #2 for boundary detail.

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National Register of Historic Places Continuation Sheet

Historic Mining Resources of Park City, Utah
Name of multiple listing

Summit County, Utah
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F.2 Name of Property Type: Prospect/Mine Exploration Sites

Description

Contrary to common lore, Prospectors did not wander around the mountains hoping to encounter valuable minerals. Instead prospecting requires knowledge of mineral formations and geology, hard work, patience and planning. In the Park City area, prospectors likely worked in groups for safety and to share in the physically hard work required to expose hard-rock outcroppings for inspection and sampling.

> The general geological structure is quartzite and calcareous shale of the carboniferous age, and in all probability, overlying the granite which appears in the southern and south-eastern part of the [Park City Mining] district. The veins appear, first, as true fissure veins cutting through the strata; second as bed or strata veins, lying between the strata, and conforming to the course, foldings and dislocations of the same.[1]

In general, the ore formations were a function of hot fluids, rich in dissolved minerals, intruding upward through faults and fissures in the native rock, sedimentary Quartz-rich sandstone, crystalizing and forming veins and bedded placements. These formations ranged from microscopic to several feet wide, with veins orienting vertically. Park City ore contained the precious metal silver and industrial metals lead and zinc. Since silver was the most sought-after metal, the mines of Park City are simply known as silver mines. Locally, lead is present as the mineral galena or lead sulfide (PbS). Silver is closely associated with galena but also found in tetrahedrite (copper sulfides containing antimony $Cu_{12}Sb_4S_{13}$) with silver often substituting for the copper or the antimony and also in Sphalerite (ZnS), a compound of zinc and sulfur.

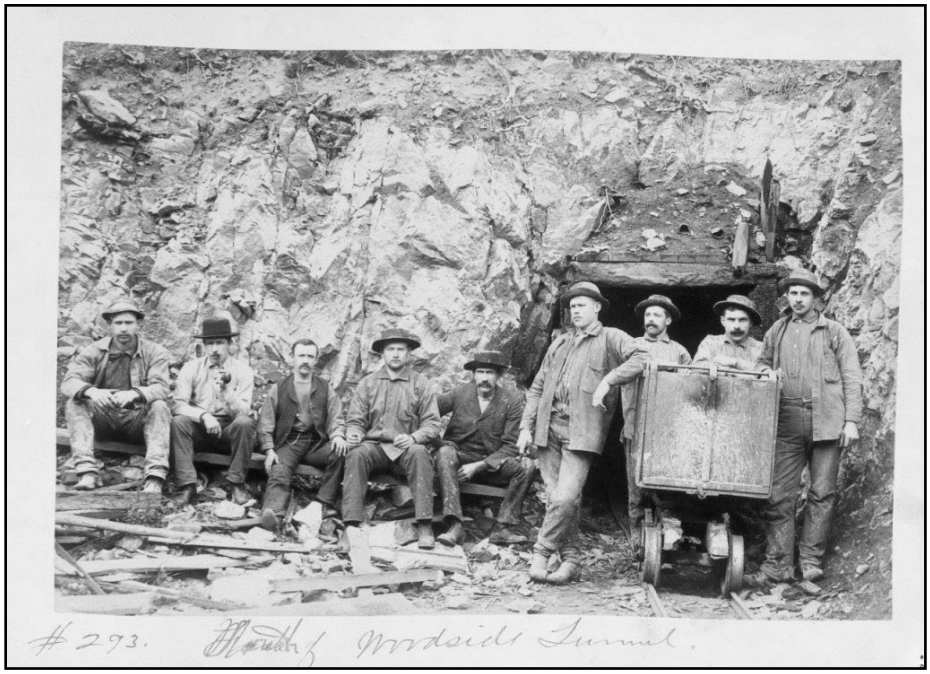


Fig. 1. Original Woodside Mine prospect, Park City, Utah. Photo by James H. Crockwell, circa late 1880s. Photo courtesy of: Park City Historical Society.

[1] *Salt Lake Herald-Republican* | 1884-01-01 | Page 5 | Geology of Utah

Subtype: Prospect

Upon finding indications of "promising" ore, prospectors drove adits (horizontal tunnel) or sunk shafts (vertical hole) to further confirm the ore body's continuation, sample the mineralization and begin to quantify how much ore might exist. Collectively, these shallow pits, trenches, adits or shafts, created during the search for ore, are called prospects. Clearing the prospect from vegetation and loose rock could simply require picks and shovels, but deeper exploration could necessitate boring drill holes, with hammer and drill-steels (single jacking), that were then packed with blasting powder, or by the 1890s dynamite, and exploded.

Subtype: Mine Exploration site

Ultimately every prospector dreamed their efforts would be rewarded with sale of their claim. However, the local Uinta Mining District bylaws and the 1872 Mining Law obliged those holding unpatented mine claims to perform annual assessment work. If a sale took a period of time, prospectors often continued exploration of the claim and added other infrastructure to the site to support their work such as pitching a tent or building a log cabin. As the adit grew in length, ore cars rolling on rail aided in removing waste rock. Mechanical hoisting apparatus were useful in sinking a shaft and hauling waste rock from below. Hoisting systems ranged from a manually operated windlass (a wooden spool with a crank handle set in a frame over the shaft collar) to small, mechanized units. The most frequent source of power was steam, generated in a boiler with coal or wood. By the 1900s, petroleum-powered portable hoisting systems were in use.

Some miners erected one or two buildings of vernacular construction that provided for all facilities, such as housing and equipment repair, under one roof. Vernacular buildings are defined as adaptions of conventional construction methods using materials available locally such as logs, milled lumber and corrugate metal. Not formally designed by architects, they were instead erected inexpensively and planned in the field.

Since most structures and equipment were removed when the prospect was sold, developed or abandoned, typically these were low cost and portable. Claim size at the surface of a maximum 1,500 feet long and 600 feet wide gave limited space to install surface equipment and pursue development of deep ore bodies.

Table 1: ***Prospect/Mine Exploration Sites List of Potential Resources***

Site	Resources	Significant Date(s)
Flagstaff	Shaft	1870s
	waste rock dump	1870s
White Pine	Log cabin	c.1878
	waste rock dump	c.1878
Apex	adit	1870s
	waste rock dump	1870s

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Historic Mining Resources of Park City, Utah
Name of multiple listing

Summit County, Utah
County and State

Section number F Page 4

Significance

The majority of the Prospect /Mine Exploration sites will be significant under National Register Criterion A and possibly under Criterion D. The earliest prospectors, seeking their fortunes, underpin Park City's history. These sites provide the best physical evidence of the mining camp's origins. The town and its booming mining industry were founded due to the countless discoveries of silver and lead. During the 1870s, prospectors arrived in significant numbers, explored the area's geography, defined areas of mineralization and found many of the significant ore veins. Their informal camp in the canyon below Park City's mountains became a booming mining town and the area's principal settlement. Their discoveries quickly drew outside investment, speculation and migration. Later prospecting was significant because it discovered additional ore locations that allowed the area's mining industry to remain viable while revealing the extent of the ore bodies in the district.

Archaeological deposits can potentially reveal historic material that reflects daily life, social structures and demographics of prospectors, as well as the possible presence of families or women. Such information has not been extensively documented. Buried deposits often accumulated in privy pits and in refuse layers of waste rock dumps, where miners threw trash and unwanted items.

Few prospects and early mine development properties remain in Park City. These property types are defined by their lack of significant production and minimal property development. Some were abandoned but most evolved into Mine Development sites property types.
Potential areas of Significance include:

- Industry: Prospect and mine exploration shafts and adits were the first chapter of Park City's mining history. They represent the comprehension of local mineralogy, the evolution to work underground and the investment of time and labor, important initial phases in mining. Later sites are important on the local level for their role in sustaining and prolonging the viability of the area's mining industry.
- Exploration Settlement: Sites that date from the 1870s represent early exploration and depict the prospectors who opened the Park City area to settlement, while proving the presence of ore. The settlement of the town of Park City is strongly associated with silver mining discovery in the surrounding mountains.

Registration Requirements

A property in this category should meet the following criteria to be considered eligible under the Prospect/Mine Exploration sites property type:

- Sites must be discovered between 1868 and 1982.[2] The site must be linked with the development and history of Park City's silver mining industry.
- A prospect or mine is not inherently movable so will retain its imprint on the landscape and integrity of location.
- The overall scale of the site must be maintained and the function of ore exploration apparent to retain integrity of design.

[2] Resources nominated under this MPS that are less that fifty years old will need to meet the requirements for exceptional significance under Criteria Consideration G—properties that have achieved significance within the past fifty years.

- Changes or minor intrusions to the site must not detract from the historic character and are acceptable if they do not overwhelm the historic prospecting or exploration processes.
- The site should contain a set of mining related features that functioned together, typically an adit or shaft and associated waste rock dump, providing integrity of association. Shafts usually manifest as areas of subsidence, created as the underground support timbering decays. Decay of support timbering can also cause adit portals to collapse, often leaving linear areas of subsidence that can appear similar to lengthy trenches. In both cases, the volume of waste rock should exceed the subsidence area. Intact shaft collars are rare, so they are important examples in Park City's mining development. This industrial impact also represents the mining aspects important to integrity of setting.
- Realizing some exploration efforts failed, some Prospect/Mine Exploration sites are small and reveal minimal above-ground property development. This deserted aspect reflects Park City's boom and bust mining cycles and reinforces the integrity of feeling at the site.
- Although equipment of value was usually removed for reuse upon the mine's sale or abandonment, other common features include machinery foundations, ruins or decayed timbering. The absence of structures and machinery should in no way equate to poor integrity. However, their presence will enhance historical integrity.
- It is understood that because of long-term abandonment these resources will lack some aspects of integrity in design, materials and workmanship and will need to be evaluated on a case-by-case basis.
- Many of Park City's adits have been sealed and waste rock dumps cleaned-up for safety reasons by the Utah Division of Natural Resources Abandoned Mine Claim Reclamation program. The impacts of this work may be acceptable if the site retains good historical integrity and the work is distinguishable from the historic exploration efforts.
- Prospect and Mine Development Sites may be represented by buried features and artifacts. Individual nominations may be developed under Criterion D if they hold a high likelihood of yielding important information upon further archaeological study.
- Most likely, Prospect and Mine Development sites will be nominated individually and not considered part of a district unless there are potentially other resources nearby that share a similar history.

F.3 Name of Property Type: Mine Development Sites

Description

Whereas prospecting is exploration, a mine or mining consists of the extraction of the ore for profit, called production, typically undertaken by a company. These mines can range in size from small, labor-intensive ventures to massive, mechanized operations. In contrast to a shallow prospect or exploration, a mine consists of at least several hundred yards of underground workings on a proven ore body. Success was not guaranteed, and mines failed due to high operating overhead, fluctuating metal prices, over capitalization and debt.

Small operations were labor-intensive, produced ore in limited tonnages with facilities expediently built as needed using locally available materials. Large productive mines differed from small mines in the scale of the surface plant. Substantial mining companies, such as the Ontario, erected formally engineered structures and relied on machinery to increase production and decrease operating costs.

Extraction methods are comparable across the West and Park City's methods were no different. A crew of miners worked to enlarge the access, either an adit or shaft, and at the point where the adit or shaft met the ore formation, miners dug drifts (horizontal tunnels) and internal vertical shafts known as raises. Drifts explored the width of the ore body and raises explored the height.

Subtype: Tunnel Mine

Park City's smaller mines were usually accessed by adits since they were cheaper and faster to drive so required less capital than sinking a shaft. These tunnels required no hoisting equipment so transporting rock out and supplies into the mine was easier. Adits built on an angle were self-draining so quickly carrying away Park City's abundant underground water. An outcrop of ore located high on a hillside could be intersected from an adit driven considerably further down the slope and gravity used to extract the ore through the raises.

Figure 2. Spiro Tunnel, Park City, Utah. The last remaining mining company in Park City turned to skiing to diversify its income and opened a ski area in 1963. Miners worked loading chairs, maintaining lifts and, astonishingly, guiding skiers through an operating mine tunnel and shaft to the slopes.
Photo courtesy of: Park City Historical Society, c.1960s

Subtype: Shaft Mine

Adits, however, were not well suited to access deep ore bodies. Shafts could be sunk alongside a long vein of ore and a latticework of drifts at various levels extended to intersect the shaft. Ore and waste rock were moved efficiently in ore cars that traveled on narrow gauge rail. Underground stations, expanded at

the intersection of drifts on each level of the shaft, provided ample working space to transfer ore cars from the drift onto the cage, to be elevated to the shaft collar by the hoisting works. Double cages were employed for hoisting multiple ore cars at a time. The two-compartment shaft doubled the capacity. The third compartment of a three-compartment shaft held the manway, a series of ladders that provided emergency access and internal access for miners from one level to another.

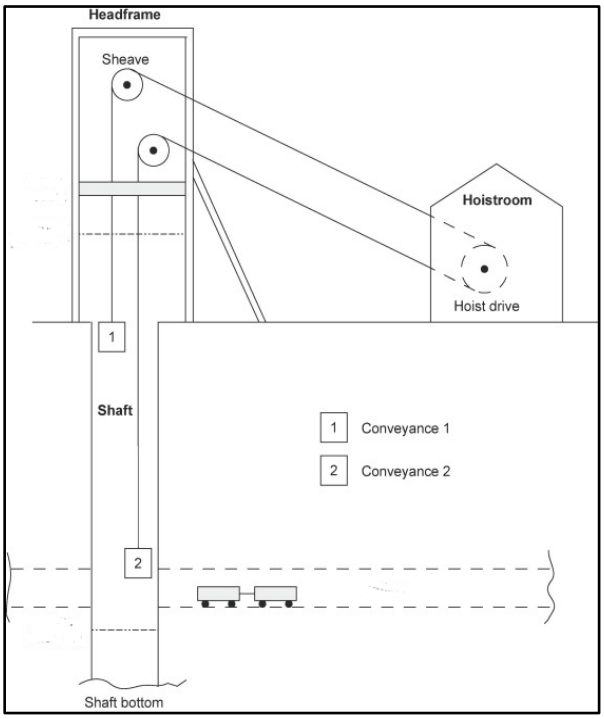


Figure 3. Mine shaft diagram.
Laurent Giraud & Bertrand Galy, 2018.

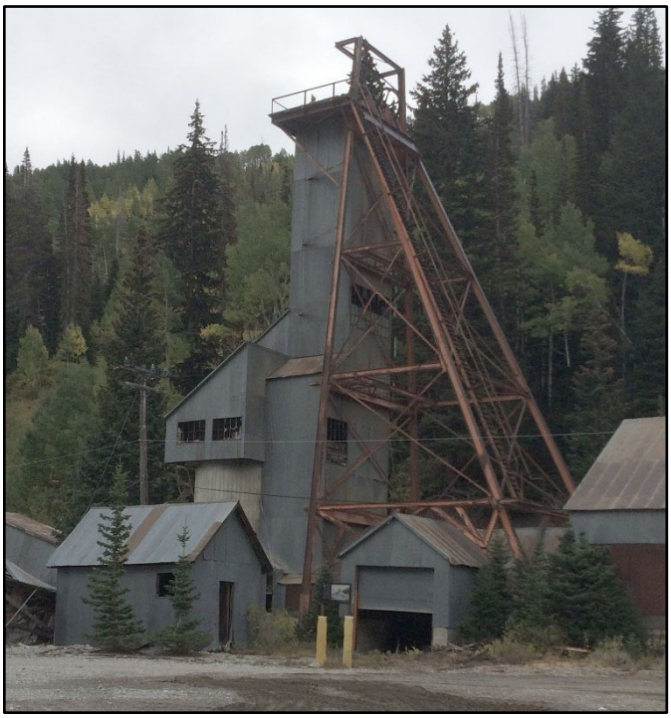


Figure 4. Thaynes Shaft, Park City, Utah.
Source: Sandra Morrison, 2023

Underground working required support facilities on the surface that are not found at prospects:

1. stable entry (via adit portal or shaft collar),
2. tool and equipment maintenance and fabrication facilities (blacksmith shop, machine and carpentry shops)
3. transportation into the mine and waste rock/ore out (via rail and ore cars and hoisting systems designed to raise high tonnages from deep workings)
4. storage for the thousands of tons of waste rock generated during the underground development and for the ore awaiting shipment, particularly during Park City's long winters when transportation was impossible.

Often, waste rock was first dumped at the access tunnel portal or shaft collar to create a level earthen platform where these facilities could be built. The surface plant's physical size and amount of mechanization indicates the extent of the workings underground. Until significant ore had been discovered, mine companies minimized their capital outlay by installing inexpensive or portable machinery and equipment. Large mines, however, often feature a network of roads, aerial tramways, power systems (such as steam plants or electric substations), drainage

systems (pumps and drain tunnels), water storage and delivery systems, administrative facilities (assay laboratories, samplers, offices) and workers' housing.

Park City's mine development properties commonly underwent an evolution. Temporary equipment and facilities, used to drive a shaft or adit and exploration phase, were upgraded for heavy use during production. Merging or uniting smaller mines through underground connections led to the abandonment of the smaller mine's surface plants.

Table 2: Mine Development Sites List of Potential Resources

General Site	Resource Name	Date of Construction
Ontario	shaft (#3)	1870s
	Headframe and hoisting works	1970s
	surface plant	1970s
	waste rock dump	1870s
	drain tunnel	1888
	water tank	TBD
Anchor	waste dump	c.1883
Little Bell	ore bin	c.1905
	waste dump	c.1880
Quincy	surface machinery	c.1901
	waste dump	c.1901
Judge	Portal and drain tunnel	1887-1889
	J.M.&S. Co. building	1920
	explosives bunker	c.1922
	mill foundation & remains	c.1903
	superintendent's house	c.1900
	waste dump	c.1885
Silver King Coalition	shaft	c.1895
	water tanks A & B	c.1894-1906
	aerial tramway	1901
	transformer building	c.1905
	sampler foundation	c.1901
	water tanks D & E	c.1906
	headframe building and hoist	c.1910
	boarding house	c.1895
	stores building	c.1910
	boarding house vault	c.1895
	change house	c.1913

	waste rock dumps	c.1895- 1951
	fire shacks	c.1900
Jupiter	ore bin	c.1900
	adit portal	c. 1900
	waste dump	c.1900
Daly West	shaft	c.1895
	headframe	c.1914
	hoisting machinery	c.1914
	three fire shacks	c.1914
Alliance	maintenance shop	1913
	pump house	1913
	waste dump	c. 1895
	office/dwelling	c.1895
Silver King Consolidated	ore bin	c.1915
	shaft	c.1900
	water tank	c.1900
Spiro	drain tunnel and portal	c.1916-1929
	sawmill building	c.1924
	machine shop	c.1924
	coal hopper & boiler plant	c.1924
	Ivers Tunnel	c.1929
Thaynes	surface plant buildings	c.1937
	waste rock conveyor	c.1937
	waste rock dump	c.1937
	boarding house foundation & ruins	c.1937

Significance

The majority of the Mine Development sites will be significant under National Register Criterion A and possibly under Criterion D. For more than 100 years, mining supported Park City and the local mining industry is associated with the events that contributed to the broad pattern of Park City's history. From the development of the Ontario mine in the mid-1870s to its closure in 1982, Park City's mining industry survived boom and bust metal prices, national recessions and world wars. Mining fostered a local economy paying high wages and drawing migrants both American and foreign. This population growth consumed food and domestic goods, supporting local sources and the development of farming and ranching in Summit County. Mining companies turned ore into wealth and infused the local and state economies with fresh capital. Political movements influenced local mining, supporting the value of silver and influencing local production. A social structure developed as local mine owners became wealthy while working class miners, dependent upon wages, formed fraternal groups and unions.

Buried archaeological deposits, such as privy pits, thick boiler clinker dumps, and refuse layers in waste rock dumps may be present. These deposits can be expected to reveal historic material that enhances current understanding of Park City workers' daily life, social structures, workplace behaviors, material-use and aspects of mining operations, topics not heavily documented in the past. Less visible physical remains may also answer questions regarding changing mining technology and its impact on the workplace. Ruins or areas where structures, such as storage sheds, change rooms or boarding houses, once stood have the potential to yield important information on the health, dietary preferences, economic status or ethnic diversity of workers and the origins of the commercial sources of consumer supplies.

Potential areas of significance include:

- Industry: Park City's mining industry was a significant force that shaped local and statewide history. The industry was a major employer, fostered commerce on a broad scale, was a magnet for Euro-American settlement and produced an enormous amount of silver and industrial metals.
- Economics: The accumulation of wealth from the Ontario and Silver King Coalition mines led to speculation and investment in Park City's smaller mines or individually held mining claims. Park City's mining history abounds with examples of captains of industry and Gilded Era Bonanza Kings whose outside capital or spectacular local success built huge companies that supported Utah and the national economy. The vast quantities of silver, lead, gold and zinc extracted from Park City's mines contributed to the development of local and national manufacturing firms and the growth of big business.
- Commerce: Local mine's well-paying jobs and demand for local supplies supported local businesses, creating a thriving downtown commercial district. This diversification eliminated the opportunity for a single mining company to dominate local commerce and, unusual for Western mining towns, Park City was not a company town. Mine Development sites may be related to mine accidents, such as the tragic Daly West Mine disaster of 1902.

Park City mining history demonstrates technological and engineering development with adoption of early improvements in ore extraction, low-grade ore concentration and efficient ore transportation. A few of these resources may have significance under Criterion C for the following:

- Engineering: Mining engineering progressed rapidly during Park City's Discovery & Mining Boom Era 1868-1893 and Mature Mining Era 1894-1930. Structures, components and equipment moved from fabrication by skilled crafts persons to designs by mining engineers. Mine Development properties provide excellent illustrations of the innovative or adapted methods in mining technology, in surface plants and underground workings.

Registration Requirements

The following criteria must be met for a site to be considered under the Mine Development Sites property type.

- The site must have been developed between 1968 and 1982.[3] The site must be linked to the history of the Park City Mining District and development of Park City's silver mining industry.

[3] Resources nominated under this MPS that are less that fifty years old will need to meet the requirements for exceptional significance under Criteria Consideration G—properties that have achieved significance within the past fifty years.

- Since a mine is not inherently movable, the site will retain integrity of location and feeling due to the sites imprint on the landscape.
- Sites may contain a set of mining related features that functioned together (such as shaft, headframe and hoisting machinery). Basic characteristics may include ore storage facilities, substantial waste rock dumps and roads or other methods used in the transportation of materials and ore. Not all the components of a typical mine development site need to be extant for the site to be eligible. Deteriorated, collapsed or missing buildings and structures do not diminish the site's integrity and individual resources need not be complete. However, there must be enough features or key components remaining to reveal the overall operation of the surface plant and the collective image of a historic mining operation.
- It is understood that because of neglect and long-term abandonment the resources will lack some aspects of integrity.
- Intact buildings, engineered structures and machinery are rare and important examples of Park City's extensive mining industry. These resources reveal how miners adapted conventional mining architecture or engineering to local conditions and provide integrity of workmanship.
- Park City's large productive mines were worked throughout different periods of time. As production increased and technology improved, surface plants were modified and altered. Given the harsh environmental conditions, surface plants underwent continual repair and replacement. These alterations do not diminish the overall historic character and integrity. Moving and reuse of resources at Park City's mines was common so relocated structures and machinery are acceptable and retain integrity.
- Much of Park City's mine surface plant structures were built of wood so decay and fire played an important role during Park City's Mining Decline era 1931-1982. Mine Development sites are still acceptable with missing buildings and structures if there are enough extant buildings, structures, ruins or remnants to provide an understanding of the site's use.
- Maintaining the overall form and massing of the historic resource is the most important factor when evaluating the impact of non-historic intrusions, changes and additions which are acceptable if they do not overwhelm the original resource.
- Accessible underground workings are an important source of information because few formal studies have been carried out regarding mining's underground work environment, engineering, equipment and practices.
- Many of Park City's adits have been sealed and waste rock dumps cleaned-up for safety reasons by the Utah Division of Natural Resources Abandoned Mine Claim Reclamation program. This work is acceptable if it is distinguishable from the historic exploration efforts.
- Mine Development Sites may be represented by buried features and artifacts. Individual nominations may be developed under Criterion D if they hold a potential of yielding important information upon further archaeological study.
- Since large Mine Development Sites can include other property types (Beneficiation, Transportation and Mine Housing) these sites may also be considered as part of a historic district.

F.4 Property Type: Beneficiation (Ore Concentration) Structures

Description

On average Park City Mining District ore contained 166 pounds of lead, 90 pounds of zinc and about one troy pound of silver per ton. Some ore from the Silver King Coalition mine assayed at 390 troy ounces of silver per

ton. Park City's earliest mines, such as the Ontario and Daly, contained very small quantities of lead.[4] This high-grade ore, also known as smelting ore, could be shipped directly to smelters. The low-grade or milling ore required reduction at local mills to produce concentrates, which were then shipped to the smelters.

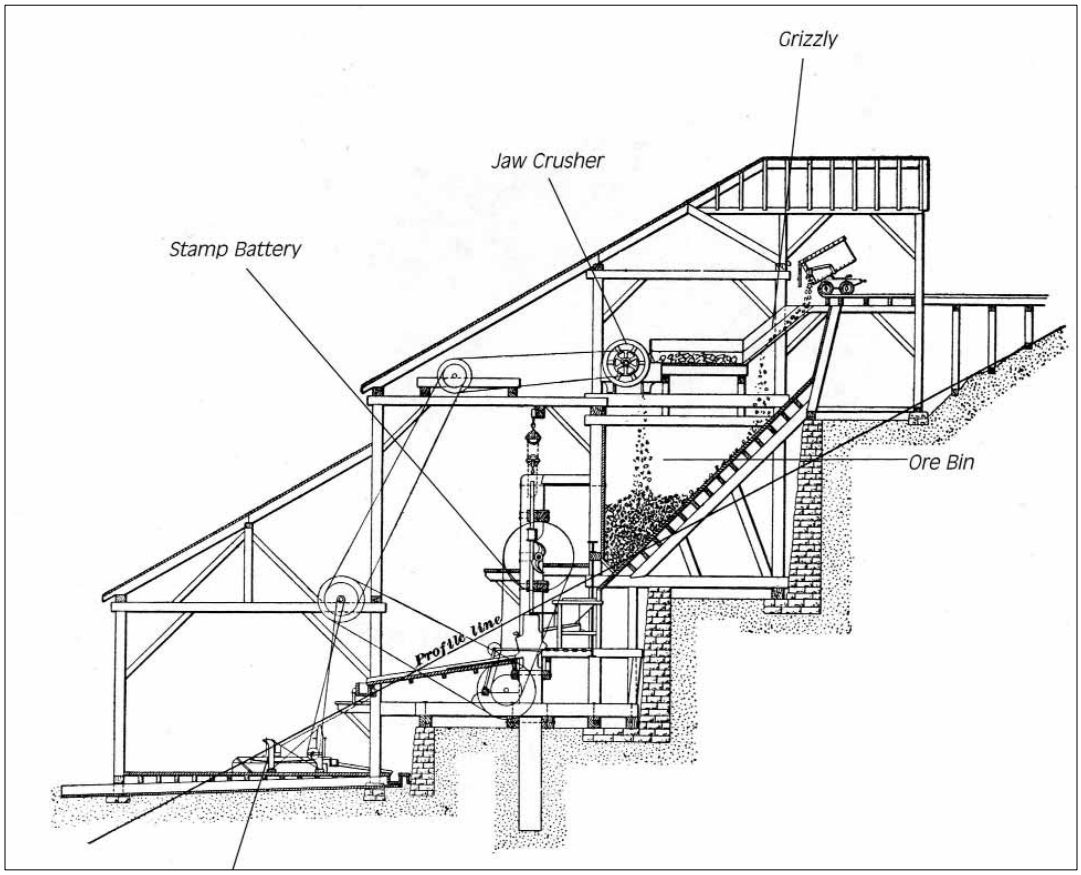


Figure 5. Cross-section of a Mill diagram.
Source: The Mining Camps Speak.

[4] Boutwell, Geology and Ore Deposits of the Park City District, page 37

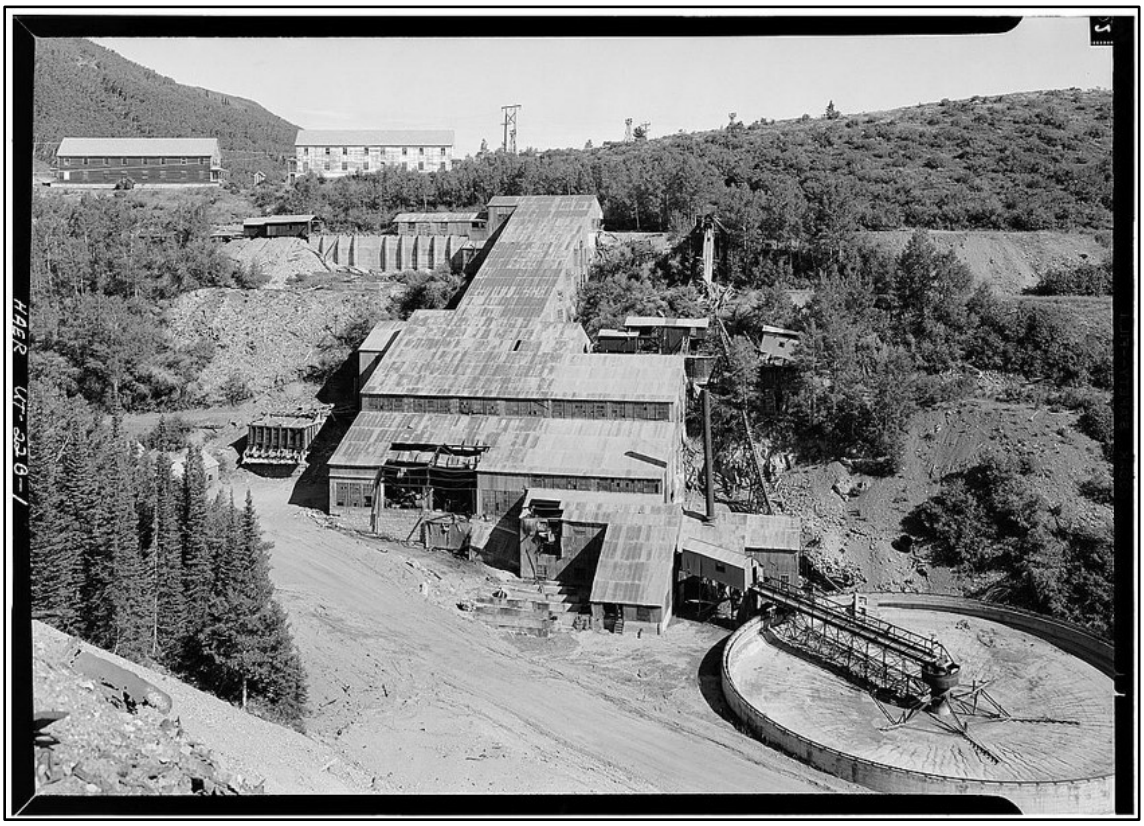


Figure 6. Silver King Mining Co. Ore Mill Beneficiation Structure, Park City, Utah.
Source: Historic American Engineering Record (UT-22-B), 8/1971.

Milling (concentrating) is a physical process which does not chemically alter the minerals present in the ore but instead increases the concentration of metals by removing waste rock. This process has a direct effect on the profitability of a mine since transporting a few tons of concentrate is much cheaper than moving several hundred tons of ore.

The first mills built in the Park City Mining District were constructed in the 1870s. Most were built on hillsides, such as the Silver King Coalition mill, and utilized gravity to aid the flow of ore through the processing equipment. These can be recognized by their stepped concrete foundations and long sloping roofline. Corrugated siding became common around 1900. Although quite simple by today's standards, Park City's mills used many of the same basic principles as today's more complex mills. As Park City's mines expanded, their production produced more milling ore. By 1904, only one-third of the Park City Mining district's ore was high grade or smelting ore, the remainder was milling ore.[5] Mills began to be built as close as possible to the mine so the heavy material did not have to be transported very far.

[5] Boutwell, Geology and Ore Deposits of the Park City District, page 27

Subtype: Ore Concentration Mill

Concentrating involves size reduction until the valuable minerals are liberated from the waste rock and the two materials are distinct from each other. Then separation can occur based on the specific gravity difference between the waste rock and the heaver minerals. Waste rock from the milling process is referred to as tailings and is usually disposed of near the mill site.

Typically, ore entering the mill was as large as ten inches and passed over a grizzly before entering a jaw crusher. A grizzly is simply a screen with a series of metal bars placed several inches apart. Smaller ore falls through the grizzly and bypasses the crusher. Jaw crushers reduce large ore pieces to less than two inches. The ore then enters a surge bin and is fed into the stamp mill**,** basically a large mortar and pestle.

Many of Park City's mills used gravity stamps. The mortar is attached to a massive concrete foundation. The pestle is attached to a stem and lifted by means of a cam shaft. Ore is crushed when the pestle (the stamping mechanism) free falls. A stamp battery typically contains five pestles.

The pestle is lifted six to eight inches at a rate of 100 drops per minute and weighs 1,250 to 1,500 pounds. The valuable minerals and waste rock are reduced in size to the consistency of sand), a point where they are distinctly different. Water is added to aid with flow through the stamp mill.

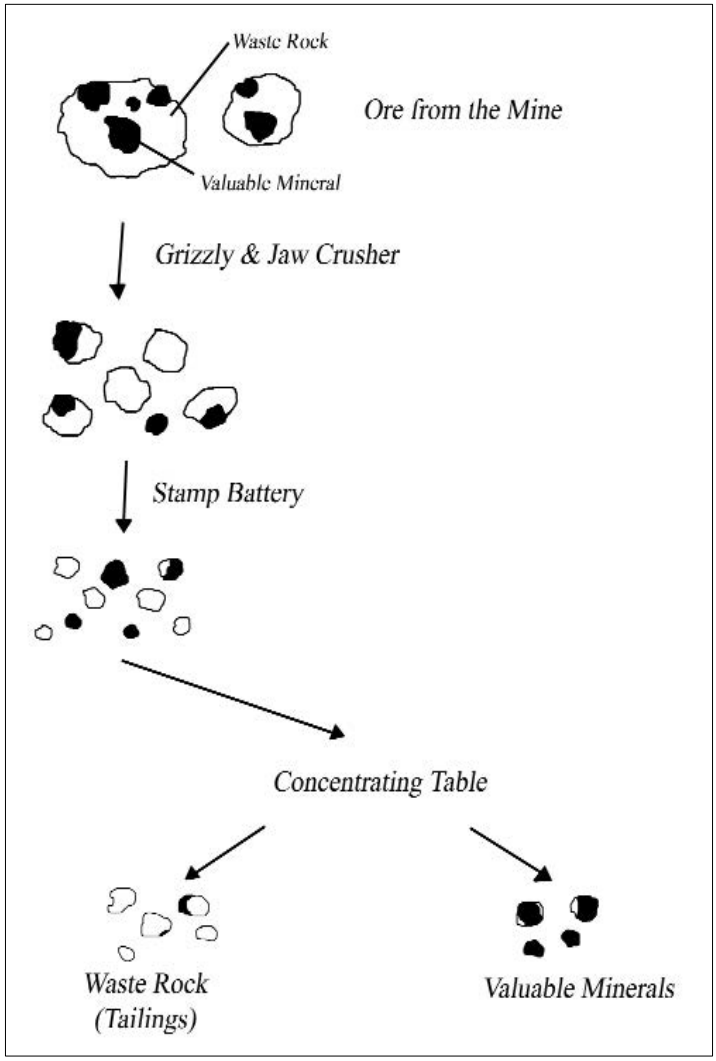


Figure 7. The process for separating valuable minerals and waste rock as the ore travels through the mill.
Source: Mining & Milling Science Curriculum

Since the valuable minerals are heavier than the host rock, they can be separated based on specific gravity differences. Gravity separation occurred on concentrating tables, which worked like gold pans. When particles of valuable minerals and waste rock are continually agitated in a pan of water, the heavier minerals will accelerate faster and fall further than the lighter waste rock and collect at the bottom. Tables

were normally rectangular and have riffles parallel to the long side. Slightly sloped, the tables shook in the direction of the long axis while a stream of water washed over them. As the feed flowed down the table, the combination of forces stratified the ore behind the riffles. The wash water carried the waste rock particles over the riffles to the end of the table to be collected as tailings, while the valuable minerals collected on the riffles as concentrate. The mill tailings were stacked near the mill site, and the concentrate sent to the smelter for recovery of the metals.

In the 1920s, froth flotation cells replaced the concentrating tables. Froth flotation cells exploited the difference in surface properties of the valuable minerals and the waste rock. The valuable minerals were hydrophobic and could be removed from the waste rock by introducing fine bubbles into a dilute solution of water and ore. The valuable minerals would "float" to the surface attached to the bubbles and be skimmed off the top. Oil and various chemicals were added to the slurry to make the bubbles stable and to improve recovery of the valuable minerals. Depending on the chemicals used, different minerals could even be separated from each other. This produced several concentrates, each rich in a different valuable mineral.

Although stamps were the most common way to crush ore, by the early 1900s, ball mills such as the California Comstock began operating.

Subtype: Amalgamation Mill

Park City's earliest mills, the Marsac, Ontario and McHenry used mercury (known as quicksilver) to separate the minerals, a technique developed in Mexico in the 16th century and refined in the 1860s during the Comstock mining in Nevada. After the ore was crushed to a fine power, it was mixed in heated tanks with salt, mercury and copper sulphate. The mercury attracted silver to form an amalgamation. This was heated so the mercury boiled off (and recaptured for re-use) while the silver formed a sponge that could be melted into silver bars. Tobacco and sagebrush were often added to improve performance. This process was expensive since it required considerable fuel to produce the intense heat and was adverse to both workers' health and the environment.

By 1888 the more cost-effective Lixiviation Russel process had been developed by E.H. Russel, with much of the research carried out in Park City. During experiments on Ontario ore, the Russell process yielded $3.50 savings per ton which, over the year 1891 and 25,650 tons of ore milled, provided a savings of more than $91,000.[6] The process slowly phased out the use of mercury and amalgamation mills, with the Ontario mill converting to the Russel process and the Marsac closing in 1904.

Table 3: Beneficiation Structures List of Potential Resources

General Site	Resource Name	Date of Construction
Marsac Mill	retaining wall	c.1874

[6] James Douglas, Recent American Methods and Appliances Employed in the Metallurgy of Copper, Lead, Gold and Silver, Journal of the Society for Arts, Vol. 43, no. 2230, page 825.

Ontario Mill	chimney base	c.1877
	underground flue	c.1877
	foundation and wall	c.1877
	tailings dump	c.1877
Judge Mill	mill foundation & remains	c.1903
	dwelling	c.1900
	drain tunnel and portal	1887-1889
	tailings dump	c.1885
Silver King Coalition Mill	mill	c.1921
	tailings thickener	c.1921
	waste rock dump	c.1900
	water tanks D & E	c.1906
California Comstock Mill	mill	c.1900
	equipment	c.1900
	boarding house foundations	c.1900
	cabin ruin	c.1900
	tailings dump	c.1900
Keith-Kearns Mill	water tank	c.1882
	mill remains and equipment	c.1903

Significance:

The Beneficiation Structures property types of the Park City Mining district are historically and technologically significant under Criterion A for their association with metal mining in the area. Ore concentration mills offered initial success to early mining with the construction of two mills in the 1870s. Later, mills were a key solution for Park City's mining companies as production moved from high-grade ore to lower-value grades which were not profitable enough to bear the shipping cost to distant smelters. From the first mills constructed in the 1870s, engineering and technology for recovering minerals from Park City's abundant galena advanced, making concentrating more profitable and prolonging local mining efforts for decades. These improvements led to the re-milling of waste rock and tailings, often by smaller companies, adding to Park City's commerce and economics.

Concentration mills may be eligible under Criterion D, especially in the following cases. Buried archaeological deposits such as privy pits, thick boiler clinker dumps, and refuse layers in tailings dumps may include artifacts capable of yielding information that enhances current understanding of Park City workers' daily life, social structures, workplace behavior, material-use and aspects of mining operations, topics not heavily documented in the past. If workers lived on site, residential deposits may further illuminate Park City's social history. Ruins, foundations, areas where beneficiation structures once stood or buried infrastructure may reveal local ore treatment processes and how metallurgists designed or chose concentration processes for Park City's complex ore.

Under Criterion C, these properties may be eligible in the area of engineering, if they are relatively intact and contain features that illustrate the evolution of milling techniques and technology.

Potential areas of Significance include:

- Industry: Concentration mills played a fundamental role in the success of Park City's mining industry especially as the mines began to produce low-grade ore. Mining remained profitable as mills could provide effective low-cost processing. In the 1870s, amalgamation mills brought mining into its initial boom. The local facilities converted ore into silver bullion which energized the investors and industrialists who provided the capital necessary to propel Park City's infant industry forward.
- Engineering: The ideal mine was the bonanza mine – in Park City's case, the Silver King. The integrated engineer-designed surface plant included a concentration mill on site and aerial tramway haulage system. After the 1890s, mining engineers developed standard systems for mine operations. Every component worked to reduce costs, increase production and maximize profits. This system of integrating technology to produce economies of scale corresponded with the rise of big business in America where massive operations created phenomenal profits.

Registration Requirements

The following criteria must be met for a property to be considered eligible under the Beneficiation Structures property type:

- Resources must have been constructed between 1868 and 1982[7] and must be significant in their role of processing of Park City ore and the development of Park City's silver mining industry.
- The resource must retain sufficient integrity to depict the era in which it is associated. However, it is understood that because of neglect and long-term abandonment the resources will lack some aspects of integrity of design and workmanship.
- The resources should convey the sense of historic ore treatment operations to retain integrity of feeling.
- A mill is not inherently movable so will retain its imprint on the landscape and integrity of location.
- The general ore flow-path through the mill should be identifiable to retain integrity of design.
- Integrity of association is strengthened by proximity and perceived relationship with a surface plant (Mine Development site property type).
- Integrity of workmanship and material are demonstrated through the majority of the materials present dating from the period of significance. Due to harsh environmental conditions, mills underwent continual repair. Repairs or more recent restoration efforts if carried out sympathetically with regard to historic materials and methods will not have a negative impact on the resource.
- Historic Integrity will also be expected with any underground processing features including engineer designed water, power, ore input or tailings disposal systems.
- Beneficiation Structures may be represented by buried features and artifacts. Individual nominations may be developed under Criterion D if they hold a potential of yielding important information upon further archaeological study.
- Park City's early Beneficiation Structures were built distant from mine sites so are mostly likely to meet the requirements for individual nomination. However, some Beneficiation Structures that are integrated and associated with a Mine Development Property Type might better be considered as part of a historic district.

[7] Resources nominated under this MPS that are less that fifty years old will need to meet the requirements for exceptional significance under Criteria Consideration G—properties that have achieved significance within the past fifty years.

F.5. Property Type: Mine Transportation Resources

Description

Mechanized transportation allowed mining companies to increase profitability in Park City's difficult climate and remote, mountainous environment. Park City's long and snowy winters proved challenging to move ore to local mills or distant smelters. Although extraction could occur year-round, with temperature underground a cold but stable average of 45 degrees, overcoming the 350" average annual snowfall proved daunting for early miners. Ore bins stored ore until spring when wagons could slowly climb uphill and reach the mine surface plant. Initial shipments by wagon to distant smelters were small so the arrival of the Union Pacific railroad in 1880 and the D&RG railroad a decade later, created capacity for increased production. To reach the rails in downtown Park City, local companies tried various mechanical methods from narrow gauge railroads to aerial tramways. Although large initial investments in capital and labor were required to build these systems, ultimately they lowered transportation costs and increased profit margins.

Figures 8A and 8B. Crescent Tramway, Park City's first narrow gauge railroad.
Photos courtesy of: Park City Historical Society, both images c.1890

Subtype: Narrow Gauge Railway

In the late nineteenth-century, mining companies across the west embraced rail lines to handle the demands of ore transportation in mountainous terrain. Known as Tramways, narrow gauge track was favored for managing the steep grades and abundant curves. Construction of the Crescent Tramway began in 1884. At first, gravity was used to move ore cars downhill to the mill in Park City. Horses pulled the empty cars or loads of coal and supplies back to the mine. But the grades on the 4.8-mile-long Crescent Tramway were extremely steep, at one point gaining 460 feet per mile. In 1885, the Crescent Mine upgraded the rail line by adding a Shay geared steam locomotive, probably the first ever delivered west of the Rocky Mountains.

Subtype: Aerial Tramway

Aerial tramways, a transportation system unique to mining, operated over difficult terrain and all weather, proving especially suitable during snowstorms and years of high snow accumulation. Ultimately three aerial tramways served Park City's largest operations, Silver King Coalition, Silver King Consolidated and the Park Utah Consolidated from 1901 until the 1950s.

With John A. Roebling's development of twisted wire rope in the 1840s, some of the most important technological achievements of the Industrial Age were possible. Feats such as the Brooklyn Bridge stunned the nation and Roebling's company became a world leader in wire rope, setting the stage for aerial tramways.

Single rope aerial tramway systems were developed from the 1870s through the 1890s by the California Wire Works and by Charles Huson in St. Louis, Missouri. Adolph Bleichert and Theodore Otto, who had founded a wire rope manufacturing company in 1874 in Germany, championed the double rope systems of 1900 through the 1920s. Starting in 1888, Adolf Bleichert & Co expanded into the North American market through a license agreement with the American company Trenton Iron Inc. which constructed and sold many material wire ropeways based on the Bleichert system.

Although expensive, Bleichert systems became the most widely used mechanical tramways in the country. Park City's mining industry favored the Bleichert double-rope aerial tramway system. Tram buckets rode cables between an upper terminal near the mine or mill and a lower terminal near a rail line. Empty buckets sometimes returned to the mine with supplies such as coal or lumber.

The Bleichert system used two sets of wire rope cable extending between the upper and lower terminals. A stationary cable, called the carrying rope, linked the top and bottom terminals and buckets were suspended from this cable by wheels. The second lighter wire rope, known as the traction rope, formed a continuous loop which pulled the attached buckets along the carrying rope. Since most of the weight was downhill, gravity kept the buckets constantly moving. The buckets featured a releasable grip that detached at the terminals for ease of loading or unloading.

A series of towers supported the system, with the spacing governed by the contour of the ground. In Park City, these towers are either steel or wood and the distance between towers varies from 200 to 300 feet, with the distance closer on the ridges and steeper mountainous terrain. To offer additional support, as a tramway passed over the crest of a ridge, an intermediate tension station was constructed consisting of two or more towers coupled together.

For example, the Silver King Coalition system spanned 6,625 feet in length with an average 14% grade over 1,220-foot elevation gain, requiring 39 steel towers and one tensioning station. The much less steep Park Utah system spans 4,380 feet and averages only 8% grade over total 340-foot elevation gain. Spans between towers are as long as 1,300 feet and the system features only five towers but includes three tensioning stations.

Figure 9. Park Utah (Judge) Aerial Tramway, Park City, Utah. Source: Sandra Morrison, 2023

Table 4: Mine Transportation Resources List of Potential Resources

Site	Resources	Significant Date(s)
Silver King Coalition	Aerial tramway	1901
	Tensioner station	1901
Park Utah (Judge)	Aerial tramway	1927
	Tensioner stations	1927
	Loading station foundation	1927
Silver King Consolidated	Aerial tramway	1916
	Tensioner station	1916
Crescent	Narrow gauge tramway rail road grade	1885-1901

Significance

In order to qualify for nomination, a Mine Transportation Resources property type must have been used during the described context era for the movement of people and goods to the mines or the ore from the mines to other

locations such as mills, railroads or other transportation systems. Park City's aerial tramway and narrow gauge rail systems were used through the Mature Mining period when the production of low grade ore increased and supported the economies of scale in the mining industry. They indicate the critical link of transportation for the input of supplies and output of ore. As a resource type, Bleichert aerial tramways will not be in potential mining districts and will be significant for their impact on economics, engineering and industry.

Mine Transportation Resources properties may be eligible under Criterion A and possibly Criterion D, in association with the mining industry of the Park City Mining District and under Criterion C in the area of engineering if they are a good example of an engineering type.

Potential Areas of Significance include:

- Economics: Even as truck transportation became efficient, Park City's aerial tramways remained in operation. The Daly Mine's quest in the late 1890s to build an aerial tramway to the Ontario Drain Tunnel #1 portal indicates the efficiency of these systems.
- Engineering: After 1890, many mining complexes featured components designed by mining engineers. Park City's transportation systems may provide information about small-scale ad hoc engineering and the skills of untrained but experienced miners. Large systems may provide general information regarding the adaptation of professional engineering to local operations and enhance current understanding of operations in high-altitude and mountainous conditions.
- Industry: Mining properties may be related to the technology and process of hauling and transporting materials, labor and equipment to produce ore. Park City's mine transportation resources served as important links to the local road and railroad networks that transported goods, raw materials and people.

Registration Requirements

A resource in this category should meet the following criteria in order to be considered eligible under the Mine Transportation Resources property type:

- Resources must be significant for their direct service to Park City's mining industry between 1868 and 1982.[8] The resource must be linked with the development and history of Park City's silver mining industry.
- The resource must retain sufficient integrity to depict the era in which it is associated. However, it is understood that because of neglect and long-term abandonment the resources will lack some aspects of integrity. It is not necessary for railroad grades retain ties or rails to have historic integrity.
- Narrow gauge railway grades or the associated structures of an aerial tramway are not inherently movable so will retain their imprint on the landscape and integrity of location and setting. However, the aerial tramway or railway grade should keep its original alignment to retain integrity of design.
- Changes or intrusions to the site must not detract from the historic character and are acceptable if they do not overwhelm the historic characteristics of the resource.
- Integrity of association exists where extant structures, machinery, ruins, landscape elements or other mine transportation features convey a sense of connectedness. The integrity is strengthened by proximity and

[8] Resources nominated under this MPS that are less that fifty years old will need to meet the requirements for exceptional significance under Criteria Consideration G—properties that have achieved significance within the past fifty years.

perceived relationship of the mine transportation resource with a surface plant (Mine Development site property type).

- Integrity of workmanship and materials are demonstrated through the majority of the materials present dating from the period of significance. Due to harsh environmental conditions, aerial tramways underwent continual repairs. More recent restoration efforts should use sympathetic materials and methods for the resource to retain historical integrity.
- Mine Transportation Resources may be represented by buried features and artifacts. Individual nominations may be developed under Criterion D if they hold a potential of yielding important information upon further study.
- Most likely Mine Transportation Resources could be individually nominated but when they are associated and integrated into Mine Development Sites, they might better be considered as part of a historic district.

F.6. Property Type: Mine Housing Buildings

Description

Miner's housing in the Park City Mining District consists of various types of buildings where industry workers lived. Buildings range from primitive log or lumber cabins, such as at the White Pine mine, to single family homes, such as the dwelling at the Alliance, to boarding houses at the Silver King Coalition, Thaynes and other mines. They are a scarce and disappearing resource in Park City. Only a few of these buildings have survived the intervening years since abandonment, suffering decay and vandalism.

Subtype: Workers' Housing

Located near the mines, these structures were built by the mining companies who often required single miners to live on site.[9] Boarding houses provided year-round accommodations for unmarried men who dined and spent their leisure time in a communal setting. Isolated mines commonly featured boarding houses for workers that included office space.

Construction materials were either logs or lumber frame and siding. Large structures often had a rectangular footprint and usually two stories. The lower story would contain the kitchen, dining room, offices with the living quarters on the upper story. Occasionally, porches were attached to the exterior. Simple gable roofs with corrugated metal were typical.

Some workers' housing still exists as standing buildings, but these are uncommon resources as most miners lived in Park City. Other features that still exist today such as building platforms, foundations, collapsed buildings and ruins represent residential buildings and permit virtual reconstruction of the locations, general use and lifestyles of the residents.

[9] In 1901, the Utah State Legislature passed a boarding house act that prevented an employer or company from compelling an employee to shop at a particular store or live at a particular boarding house.

Figure 10. Alliance Mine Office/Dwelling, Park City, Utah. Source: Sandra Morrison, 2023

Table 5: Mine Housing Properties List of Potential Resources

Site	Resources	Significant Date(s)
Silver King Coalition	Boarding house	1896
White Pine	Log cabin	c.1878
		c.1878
Alliance	Office/dwelling	c.1895
Judge	Dwelling foundations	c.1900

Significance

Mine Housing Properties are historically significant at the local level because they represent the sheltering of miners which was essential to mining in Park City in the late nineteenth- and early twentieth-centuries. These residences provided shelter and served as a base for leisure, socializing, education and cultural diffusion among employees of various ethnicities, significant in understanding local social history. Workers' housing is also associated with trends on the statewide level. The Boarding House Act of 1901 reflects mine company politics and state government influence on worker housing in Utah. Mine

Housing properties may be eligible for listing in the National Register under Criterion A in the area of industry for their association with mining activities, indicating, by location and size, the extent of nearby mining activity. Properties may be eligible under Criterion C in the area of architecture if they represent a specific type of habitation such as the Silver King boarding house. Properties may also be eligible under Criterion D in the area of industry and social history for their potential for physical remains from privy pits and trash dumps that may yield further information about mining society and culture, commercial sources of supplies, domestic arrangements, gender, ethnicity and social structure. How residents inhabited Mine Housing properties and conducted domestic activities are additional topics not well documented in Park City's history.

Potential Areas of Significance include:

- Architecture: Well-capitalized mining companies adapted architectural practices to the needs of the mining industry and erected handsomely appointed accommodations, often to attract skilled workers and, after 1901, entice them to live in a company atmosphere. Small houses and cabins reveal the simple and austere architecture reflective of prospectors' and miners' lives. Typically, these buildings will be significant if they represent a rare or unique type of local vernacular architecture.
- Exploration Settlement: Mine workers' housing mining represents exploration and early Park City settlement. The log cabin located at the remote White Pine mine offers a glimpse of early miner's living conditions in Park City's high mountains.
- Industry: Park City's Mine Housing properties are company-provided accommodations and demonstrate local mine companies' process of managing labor. This support of the workforce in turn made the local mining industry function.
- Social History: Boarding houses are the physical manifestation of the day-to-day needs of miners, not just the necessities of life such as food or rest, but for human association and entertainment. Typically, single residences and cabins are found at remote mine sites, built for one or two miners. These buildings were especially important shelters during the long harsh winters when transportation was extremely limited or non-existent so travel into town was not feasible. Communal boarding houses were the places of cultural practices and traditions and fostered the diffusion of cultures.

Registration Requirements

A resource in this category should meet the following criteria in order to be considered eligible under the Mine Housing property type:

- Resources must have been constructed between 1868 and 1982[10] and must be significant in their role housing Park City's miners and the development of Park City's silver mining industry.
- Mine housing buildings were often located in remote and isolated mining sites. Changes or minor intrusions to the site are acceptable if they do not detract or overwhelm the historic character of the resource or setting. As long as notable characteristics of the structure are retained, minor additions and alterations are acceptable. Potential changes that may be considered acceptable are:
    - Window openings may be covered or bricked in. Window sash replaced with non-historic windows or glass replaced with multi-panes.
    - Painting of previously unpainted surfaces.

[10] Resources nominated under this MPS that are less that fifty years old will need to meet the requirements for exceptional significance under Criteria Consideration G—properties that have achieved significance within the past fifty years

- Replacement of doors with non-historic doors
- New roofs of various materials that do not alter the roofline
- Replacement of the porch due to deterioration with an out-of-period porch congruent with the historic porch.
- Easily removable non-historic features such as canopies

- Integrity of association exists where extant buildings or ruins convey a sense of connectedness with the mining landscape. The integrity is strengthened by proximity and perceived relationship with a mine, typically with a Prospect or Mine Development site property type.
- Integrity of workmanship and material are demonstrated through the majority of the materials present dating from the period of significance. Due to harsh environmental conditions, buildings underwent continual repair. More recent restoration efforts should use historically sympathetic materials and methods for the resource to retain historical integrity. It is understood that because of neglect and long-term abandonment these resources will lack some aspects of integrity in design, material and workmanship.
- Overall, because of their utilitarian and expedient nature, some worker housing buildings were moved. These buildings may be nominated under Criterion C and Criteria Consideration B for a moved property, if they retain a similar setting, the majority of their historic materials, good historical integrity and requisite historical features to convey their architectural intent and original design.
- Worker Housing sites may have unique construction features and the sites may contain buried historical features and artifacts. Individual nominations may be developed under Criterion D if they hold a potential of yielding important information upon further study.
- Mine Housing buildings may be individually nominated or, when integrated and associated with a Mine Development Site, could be considered as part of a historic district.

F.7. Property Type: Mine Historic District

Description

A few of Park City's mine companies acquired adjacent ventures and became vast, mechanized "Bonanza" operations. These highly productive mega-corporations extracted and handled high tonnages of ore that required substantial surface plants. A bonanza mine's extensive connections between multiple underground workings often led to an elaborate, integrated above ground complex, designed by mining engineers, with shops and ancillary facilities clustered around a primary hub. The single vast surface plant located on substantial acreage permitted future expansion and facilitated technology upgrades. Determined to maximize profit by producing ore in economies of scale, while reducing labor costs and minimizing energy consumption, these companies relied on advanced modern machinery and efficient ore handling systems. In response to the extreme environment, engineers structurally designed buildings capable of withstanding tremendous natural forces, such as snow load, gale-force winds, and avalanches. Relying heavily on profits from low-grade ore, some surface plants featured their own ore concentration mills, separating valuable minerals from waste rock on site. Handling costs for the heavy material were minimized by locating these structures adjacent to the hoisting systems. Needing economical, year-round transportation, companies invested in aerial tramways to quickly and efficiently transport ore to shipping points in Park City. These large-scale industrial mining and milling complexes encompass many of the Property Types (surface plants, beneficiation structures, worker housing and transportation resources) that combined could be a potential historic district. The Silver King Coalition Mine (see Table 6) is the most likely eligible historic district. However, there may be other areas with a combination of resources that could qualify.

Table 6: Mine Historic District List of Potential Resources

Site	Resources	Significant Date(s)
Silver King Coalition	shaft	c.1895
	water tanks A & B	c.1894-1906
	transformer building	c.1905
	sampler foundation	c.1901
	water tanks D & E	c.1906
	headframe building and hoist	c.1910
	boarding house	c.1895
	stores building	c.1910
	boarding house vault	c.1895
	change house	c.1913
	waste rock dumps	c.1895- 1951
	fire shacks	c.1900
	mill	c.1921
	Tailings Thickener	c. 1921
	Aerial tramway	1901

Significance

Park City's mining industry not only supported the local economy but had an astounding impact on Utah's economy. For example, in 1882, Park City's mines accounted for 78 percent of the state's total exports. Mining was far and away Utah's most significant industry in the late-nineteenth- and early twentieth-centuries; and from 1870 until 1904, silver was the leading metal produced. Silver, more than any other metal, was the foundation on which family fortunes, employment and the state's economy was based. Park City's mega-corporation mining companies produced this wealth that fueled the engine of Utah's economy well into the twentieth century.

Mine Historic Districts will be significant under National Register Criterion A and possibly Criterion D, in association with the mining industry of the Park City Mining District and under Criterion C in the area of engineering if features in the district are good or rare examples of an engineering type.

Potential Areas of Significance include:

- Industry: Park City's mega-corporations shaped the local and statewide mining industry. These bonanza mines produced enormous amounts of silver and other industrial metals, making a small, elite class of local miners and businessmen incredibly rich. Massive operations created phenomenal profits, which were often invested into the purchase of adjacent smaller mines, creating even bigger plants.

- Economics: The vast quantities of silver, lead, gold and zinc extracted from Park City's mines contributed to the development of local, state and even national firms and corresponded with the rise of big business in America. Park City's largest mine companies were all major employers but the local mining industry is characterized by economic growth for the wealthy and relative poverty and dangerous conditions for the working miners. This noticeable inequality spurred the beginning of organized labor in Park City's working-class miners.
- Commerce: Park City mine company's comparatively well-paying jobs and demand for local supplies supported local businesses, creating a thriving downtown commercial district. The relatively high number of bonanza mine companies encouraged competition and eliminated dominance of local commerce. Park City was not a company town, an unusual situation for a Western mining town.
- Engineering: Mine Historic Districts provide excellent illustrations of the vast, mechanized operations featuring advanced modern machinery and engineer designed surface plants. Detailed examination may reveal how mining companies adapted conventional mining architecture and engineering to high-altitude conditions.

Registration Requirements

A resource in this category should meet the following criteria in order to be considered eligible under the Mine Historic District property type:

- The site must have been developed between 1968 and 1982.[11] The site must be linked to the history of the Park City Mining District and development of Park City's silver mining industry.
- Since a mine is not inherently movable, the site will retain integrity of location and feeling due to the sites imprint on the landscape.
- It is understood that because of neglect and long-term abandonment the resources will lack some aspects of integrity.
- Integrity of design, feeling and association is particularly crucial to the eligibility as a Mine Historic District. Sites should contain a set of mining related buildings, structures, machinery and other features that convey a strong sense of connectedness and ability to discern the historic mining operation. Sites are still acceptable with missing buildings and structures if there are enough extant buildings, structures, ruins or remnants to provide an understanding of the site's use.
- Often, mines developed over time, modernizing surface facilities. In such cases the site will reflect the evolution of the surface plant over time. Moving and reuse of resources at Park City's mines was common so relocated structures and machinery are acceptable and retain integrity.
- Given the harsh environmental conditions, surface plants underwent continual repair and replacement. These alterations do not diminish the overall historic character and integrity.
- Maintaining the overall form and massing of the historic resource is the most important factor when evaluating the impact of non-historic intrusions which are acceptable if they do not overwhelm the original resource.
- Deposits amid the Mine Historic District may include artifacts capable of enhancing current understanding of mining society and culture and the daily mine workers' behavior, diet, and residence. Nominations may be developed under Criterion D if they hold a potential of yielding important information upon further archaeological study.

[11] Resources nominated under this MPS that are less that fifty years old will need to meet the requirements for exceptional significance under Criteria Consideration G—properties that have achieved significance within the past fifty years.

Table 7: Areas of Significance Compatible with NRHP Criteria

Area of Significance	Compatible Criteria	Definition	Relation to Park City
Architecture	Criterion C	The practical art of designing and construction of buildings to serve human needs	Park City's mines had their own regional historic architecture, influenced heavily by timeframe, needs, remoteness and the success of the mine. Local mines generally adapted or incorporated the construction practices universal in mines elsewhere across the American West that met their immediate needs but within their financial constraints.
Archaeology	Criterion D	The study of historic cultures through excavation and analysis of physical remains	There is potential for important information to be found through archaeological survey and excavation of former locations of privies, waste dumps, housing and camp locations, and processing areas. Also, underground mine workings are an important component of a mine. However, these workings are perhaps one of the least understood aspects of mine sites and can contain internal structures, features, machinery, and artifacts found nowhere else.
Commerce	Criterion A	The business of trading goods, services and commodities	By purchasing food and domestic goods from a variety of sources, mining companies supported farming and ranching in Summit County and a complex transportation network. The exact recipients of the silver, lead, gold and zinc generated by Park City's productive companies are difficult to trace. However, these commodities became direct contributions to American manufacturing firms, the United States Mint, and European governments.
Economics	Criterion A	The study of the production, distribution and consumption of wealth; the management	Mining companies diverted money into the local economy by paying wages to workers and consultants and by purchasing supplies locally. Larger mine companies acquired

		of monetary and other assets	large machinery and other industrial goods from manufacturers in Utah and across the west.
Engineering	Criterion C	The practical application of scientific principles to design, construct and operate equipment, machinery and structures that contributed to the development and application of engineering in the mining industry	Park City's larger mines employed trained engineers in both underground operations and surface plants. By planning efficient workings using available machinery and custom building, companies could successfully produce higher tonnages of low-grade ore.
Exploration/ Settlement	Criterion A	The establishment and earliest development of new settlements and communities	Prospectors brought mining to Park City's mountains. Through searching, sampling and staking claims, they defined the areas of hard-rock ore bodies, providing investors willing to risk capital with sound local knowledge. Settlement quickly followed.
Industry	Criterion A Criterion B	The technology and processes of managing materials, labor and equipment to produce goods and services	Investors organized companies to purchase and develop claims. With increased outside capital, growing work force and improved transportation, Park City became widely known as a major silver producer.
Social History	Criterion A Criterion D	The history of society and lifeways of its social groups.	Some prospectors and investors, through their company profits, began to ascend to Utah's upper classes. However, laborers, many of whom were immigrants, formed the local working-class dependent upon wages. These workers needed to be mobile and resourceful to cope with local mine's boom and bust cycles.
Transportation	Criterion A	The process and technology of conveying passengers or materials.	Park City's mines installed and used innovative transportation technology as production of low-grade ore became predominant in the local mining economy.

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Historic Mining Resources of Park City, Utah
Name of multiple listing

Summit County, Utah
County and State

Section number G & H Page 1

G. Geographical Data

The geographical area covered by the MPDF consists of the Park City Mining District in the mountains surrounding the city of Park City, Utah. The approximate area extends from Clayton Peak and the ridge line between Bonanza Flat and Big Cottonwood Canyon, north along the ridge with Salt Lake County to Scott's Hill, northeast along White Pine and Thaynes Canyon to Park City, following Deer Valley Drive to Hilltop (7698') Peak, southeast toward Jordanelle Reservoir and southwest up Big Dutch Hollow to Bonanza Flat. See Map #2 for detailed boundary.

H. Summary of Identification and Evaluation Methods

The key events, trends, and themes of the district were gathered from a wide variety of materials. The most important were historic publications, historic newspapers, mine engineers' reports, manuscript collections, and other archival materials.

The Periods of Significance were gathered from Park City Municipal Corporation's Historic District Design Guidelines and expanded using the materials identified above. NRHP Multiple Property Documentation Forms have been produced for mining areas elsewhere in the western United States at the time of this writing and many were used as models in completing the Historic Mining Resources of Park City, Utah Multiple Property Documentation Form.

Park City is home to more than 400 historic sites, including two National Register Historic Districts. The Main Street Historic District was listed on the National Register of Historic Places in 1979 and updated and increased in 2020.[1] The Residences of Mining Boom Era Park City Thematic Nomination, comprised of historically significant residential structures built during the mining boom period of 1872 - 1929 was approved in 1984.[2] Surveys and studies that include Park City's mining resources are the 1999-2000 Reconnaissance Level Survey: Unincorporated Areas of Summit County and two cultural resource inventories and condition assessments prepared by SWCA, Inc. Environmental Consultants: the 2000 Historic Preservation Plan for Flagstaff Mountain Resort Summit County, Utah and the 2015 Preservation Plan for Selected Historic Mining Resources at the Park City Mountain Resort. Many of the historic mining structures are included on the Park City Municipal Corporation Historic Site Inventory prepared by Preservation Solutions in 2009-2010. The Historic American Engineer Record was completed for the Silver King Coalition mine and California Comstock mill in 1971.[3]

These cultural resource surveys along with the National Register Bulletin: Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties, mining related MPDFs from other states and the author's personal informal field investigations in Park City, conducted over the past 20+ years, constituted the resources used to identify Property Types. With the author's local knowledge, the Property Types were then refined to reflect Park City's resources commonly associated with western mining history and descriptions added to create a better understanding of each property type. The author personally conducted the 1999-2000 Reconnaissance Level Survey: *Unincorporated Areas of Summit County*, which made the first attempt to quantify Park City's potentially significant mining resources.

[1] Additional Documentation NRIS #AD79002511. Boundary Increase NRIS #RS100004484
[2] NRIS #64500669
[3] HAER UTAH,22-PARK

United States Department of the Interior
National Park Service

Historic Mining Resources of Park City, Utah
Name of Multiple Property Listing
Summit, Utah
County and State

National Register of Historic Places Continuation Sheet

Section number MAPS Page 1

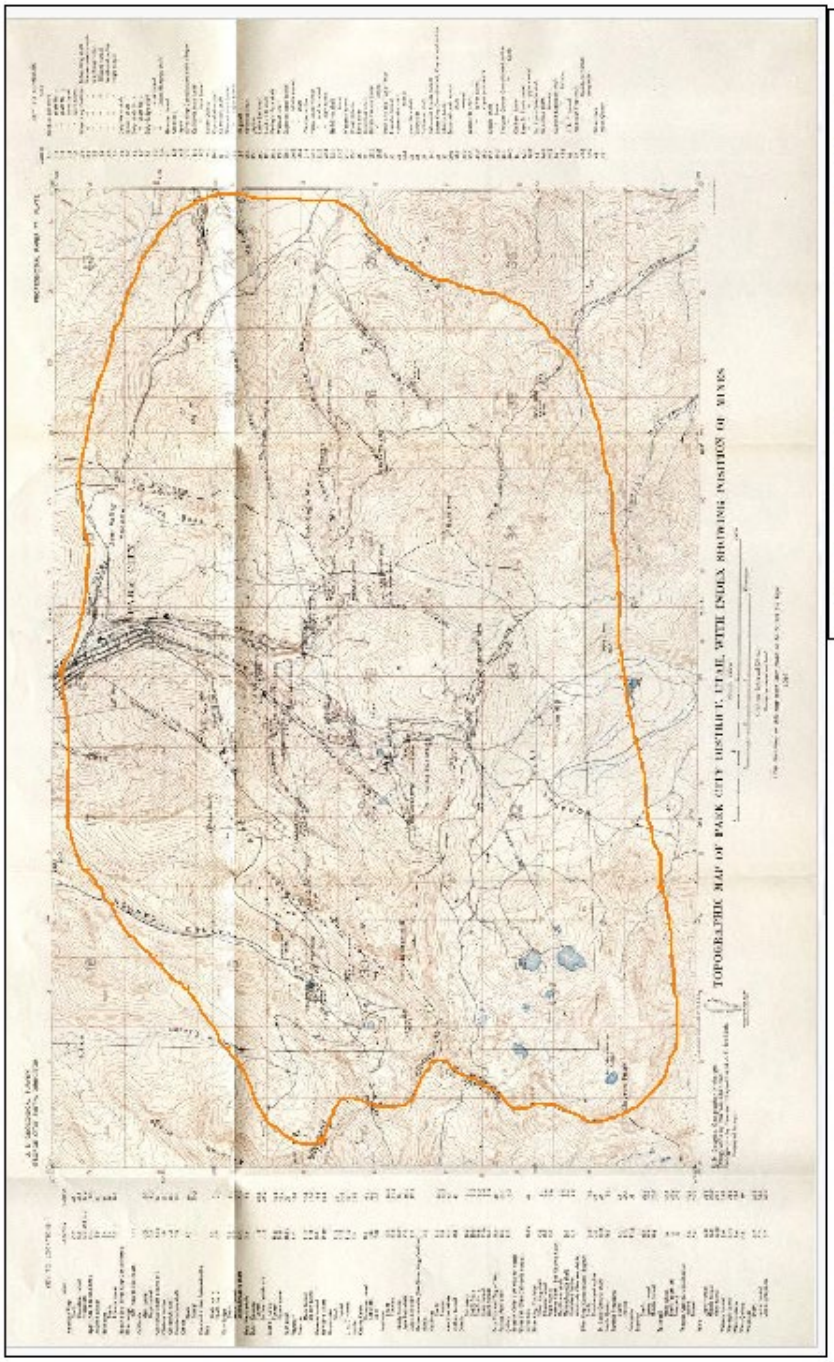
Map #1

United States Department of the Interior
National Park Service

Historic Mining Resources of Park City, Utah
Name of Multiple Property Listing
Summit, Utah
County and State

National Register of Historic Places Continuation Sheet

Section number MAPS Page 2



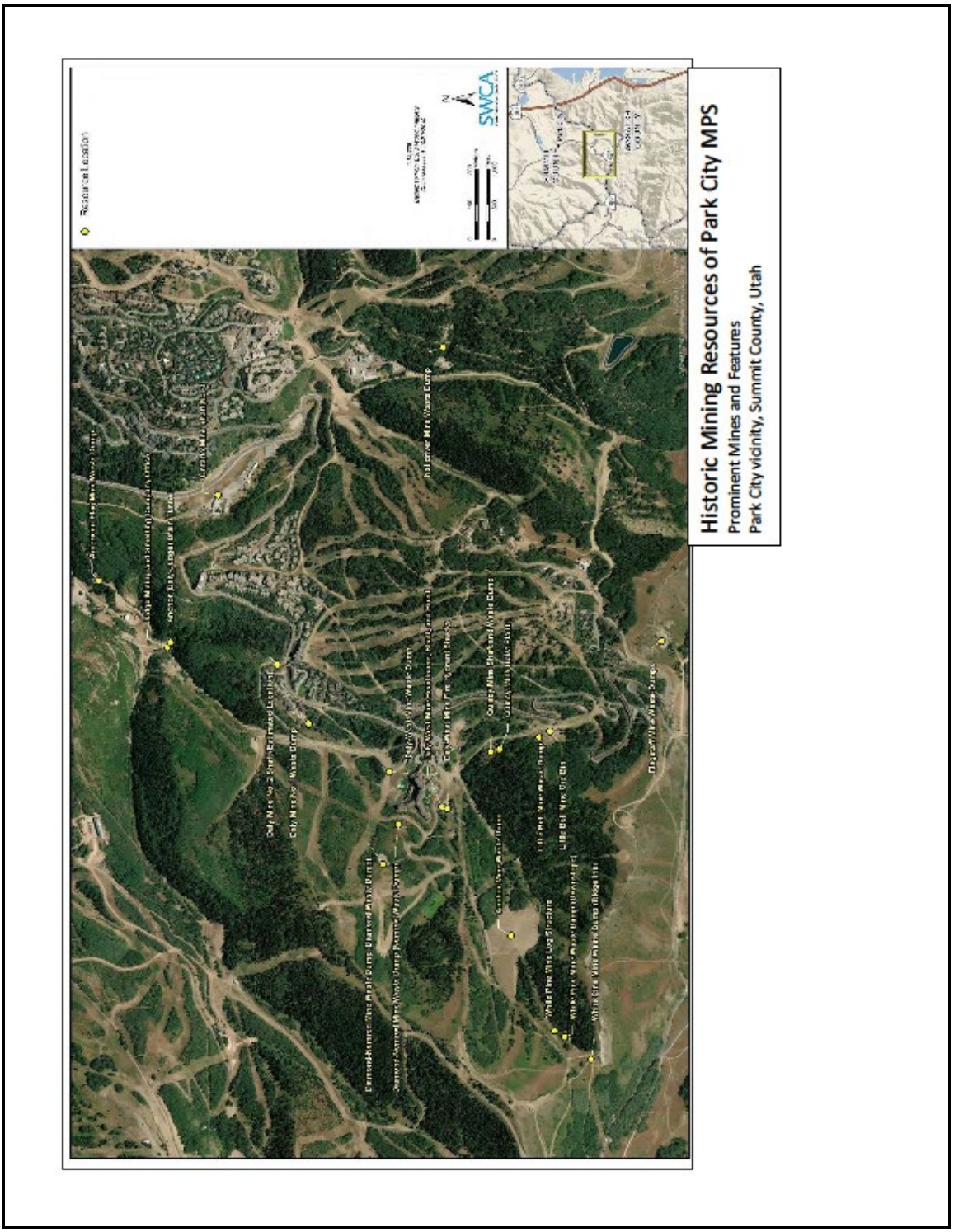
Map #2

United States Department of the Interior
National Park Service

Historic Mining Resources of Park City, Utah
Name of Multiple Property Listing
Summit, Utah
County and State

National Register of Historic Places Continuation Sheet

Section number MAPS Page 3



Map #3

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Historic Mining Resources of Park City, Utah
Name of Multiple Listing

Summit County, Utah
County and State

Section number I Page 1

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