

Museum without Walls Outreach Program: A Case Study at the Arizona State Capitol

C.S. Carter, R.I. Davis & F.M. Conway
Arizona Geological Survey



Arizona State Capitol, Phoenix Arizona

OPEN-FILE REPORT OFR-17-03

June 2017

Arizona Geological Survey

azgs.arizona.edu | repository.azgs.az.gov



Arizona Geological Survey

P.A. Pearthree, Arizona State Geologist and Director

Manuscript approved for publication in June 2017

Printed by the Arizona Geological Survey

All rights reserved

For an electronic copy of this publication: www.repository.azgs.az.gov

For information on the mission, objectives or geologic products of the Arizona Geological Survey visit azgs.arizona.edu .

This publication was prepared by the Arizona Geological Survey at the University of Arizona. The University of Arizona, or any department thereof, or any of their employees, makes no warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed in this report. Any use of trade, product, or firm names in this publication is for descriptive purposes only and does not imply endorsement by the University of Arizona.

Recommended Citation: Carter, C.S., Davis, R.I. and Conway, F.M., 2017, *Museum without Walls* Outreach Program: A Case Study at the Arizona State Capitol. Arizona Geological Survey Open-File Report OFR-17-03, 12 p.



UASCIENCE

Museum without Walls Outreach Program

A Case Study at the Arizona State Capitol

C.S. Carter, R.I. Davis and F.M. Conway

Arizona Geological Survey | University of Arizona

Introduction: *Museum without Walls* program

The Arizona Mining, Mineral and Natural Resources Education (MMNRE) Museum at the University of Arizona has embarked on an outreach program to showcase Arizona minerals and mining artifacts in cooperating museums, libraries, and public spaces across the state. Why? Because traveling museum exhibits, developed in partnership between two organizations, provide an opportunity to reach and inform new audiences of fresh ideas and concepts. A key objective is to advance the missions of both MMNRE and the host organization and to make collection objects and interpretation accessible to the broader community.

The Cincinnati Museum Center (CMC) employs a similar concept in their “Curate My Community” program. Faced with a building renovation that would force most of their exhibits into storage, the CMC staff chose to partner with community organizations and transfer more than 700 objects into 50 public spaces around Cincinnati. By sharing stewardship – curation, storytelling, and interpretation – with community organizations such as libraries and universities, CMC created a model for sharing and promoting museum resources. The MMNRE Museum can leverage this model of shared collections stewardship within Phoenix and the larger Arizona community before, during, and after build out of the physical plant in downtown Phoenix.



Figure 1. The State Capitol Building, which hosts the Arizona Capitol Museum.

Arizona Mining, Mineral and Natural Resources Education Museum

Arizona’s Mining, Mineral and Natural Resources Education (MMNRE) Museum was conceived in August 2016, when Senate Bill (SB) 1530 charged AZGS, under the University of Arizona, with designing, opening and operating a new natural resources museum. The mission of the MMNRE Museum, the first of its kind in Arizona, is to provide an informal learning environment to promote sustainable best practices and land use management of Arizona’s minerals, agriculture, rangelands, deserts, and forests. As part of the bill, AZGS was also transferred custodianship of the Polly Rosenbaum building on the Capitol Mall and the 22,000+ object mineral and mining artifact collection of the former Arizona Mining and Mineral Museum (AMMM). With the passage of SB1415 in May, 2017, management of the MMNRE Museum was transferred directly to the UA.

As of May 2017, building development and restoration remains in progress, and the majority of the mineral collection is housed in storage. For this reason, the MMNRE Museum is committing to sharing our collection by deploying traveling exhibits around the state. The purpose of this document is to detail MMNRE’s traveling exhibit program to potential partners – museums, cultural institutions, libraries, and educational organizations – and provide a case study of exhibit development and build out from “Minerals of Arizona’s Historic Mining Communities” at the Arizona Capitol Museum.

The MMNRE collection contains over 21,000 minerals from Arizona, the United States, and around the world, as well as 1,400 historical mining artifacts. By partnering with other museums and organizations, we can deploy traveling exhibits that are tailored to the host organizations and their audience, offering new content and fresh perspectives on the role of mining in shaping Arizona’s economy and culture.

Case study: “*Minerals of Arizona’s Historic Mining Communities*” at the Arizona Capitol Museum

The mission of the Arizona Capitol Museum (AZCM), located in the 1901 Arizona Territorial and State Capitol Building in Phoenix (Figure 1), is to “celebrate Arizona’s vibrant cultural heritage” through exhibits that highlight Arizona’s political, social, environmental, and economic history. Current exhibits include: “Arizona Takes Shape,” which follows Arizona’s

history from westward expansion through statehood; “USS Arizona: Flagship of the Fleet,” which displays artifacts from the USS Arizona; and exhibits about Arizona’s governors and judicial branch, among others.

The AZCM regularly hosts seasonal exhibits in order to broaden the museum’s offerings and expose visitors to new ideas and new perspectives. According to Assistant Director Jason Czerwinski, traveling exhibits “offer us a chance to bring new content that has specialized information to our visitors. The best externally generated exhibits can provide a focus on aspects we don’t have expertise in, or the time/resources to develop the content needed.”

In fall 2016, AZGS staff approached Ted Hale, Director of Archives and Records Management, Arizona State Library, Jason Czerwinski, Assistant Administrator of Operations, Arizona Capitol Museum, and Dorie Hanson, Chief Administrator, Arizona Capitol Museum, about creating an AZCM exhibit of minerals from Arizona’s historic mining communities. Benefits to partnering with the AZCM include: high profile exhibit space and location on the Capitol Mall; the prospect of reaching a new audience; and the status of the AZCM as a reputable and popular museum (J. Czerwinski pers. comm, April 2017). The Capitol Museum benefits by expanding on their existing mineral display and by adding substantial content, including spatial content, to the discussion of the role of mineral resources on the history, economy and cultures of Arizona.

Exhibit Proposal: Minerals of Arizona’s Historic Mining Communities

The parameters, goals, and objectives of the traveling exhibit, *Minerals of Arizona’s Historic Mining Communities*, are bulleted below. Appendix A includes the original traveling exhibit proposal as presented to AZCM staff in Sept. 2016.

- Exhibit Audience. Visitors to the AZCM. This includes elementary school age children who arrive daily through classroom field trips, as well as visitors of all ages who have an interest in minerals or unique aspects of Arizona’s history.
- Relevance. The hard-rock mining industry powered the Arizona economy from the 1880s through the first half of the 20th century. Mining communities played a major role in Arizona’s population trends and growth. In 2016, Arizona mining continues to generate 6-8 billion dollars annually, provides tens of thousands of jobs, and supplies vital materials for technology and manufacturing.
- Exhibit Purpose. Employ place-based learning with physical samples (i.e., minerals and artifacts) to engage students in the role that mineral resources and mining played in Arizona’s cultural and historical development.
- Exhibit Objectives. Provide a learning opportunity focusing on the impact of ore mineral distribution in central and southern Arizona on migration and settlement patterns.
- Display resources. Minerals and artifacts from select Arizona historic mining communities, mineral case, mounted map with URL linking to Virtual Arizona Experience Historic Mining Communities map, historic photographs of Arizona mining, interpretive signage.
- Description and display. Each mineral or artifact is accompanied by a short, descriptive label. A shaded relief map pinpoints the locations of the select mining communities. Photographs showing aspects of early mining life complement the physical display.



Figure 2. Left: Exhibit space in the Mine Inspector’s Office on the second floor of AZCM, fall 2016. Right: The “Minerals of Arizona’s Historic Mining Communities” (April 2017).

The original proposal included a mineral history timeline, which was replaced by the video, “The Legacy of Copper Mining in Arizona,” from the Virtual Arizona Experience website.

Building ‘Minerals of Arizona’s Historic Mining Communities’ exhibit

We built and deployed the exhibit over several weeks in November-December 2016; there was no disruption of museum services. The AZCM provided space in the Mine Inspector’s Office display on the second floor (Figure 2) of the museum. They also provided a 60” x 84” x 12” case and two large display blocks. MMNRE provided 23 minerals and historical mining artifacts from the MMNRE collection (Table 1), a 1:500,000 scale shaded relief map of Arizona, and brackets and shelving sourced from old cases found in the Polly Rosenbaum building and refurbished for display.

The first step in building the exhibit involved making a digital mock-up to scale of the planned exhibit layout. This initial sketch included a title banner, four rows of minerals on shelves on the left side, and historic mining photos with two larger specimens on the right side (Figure 3).

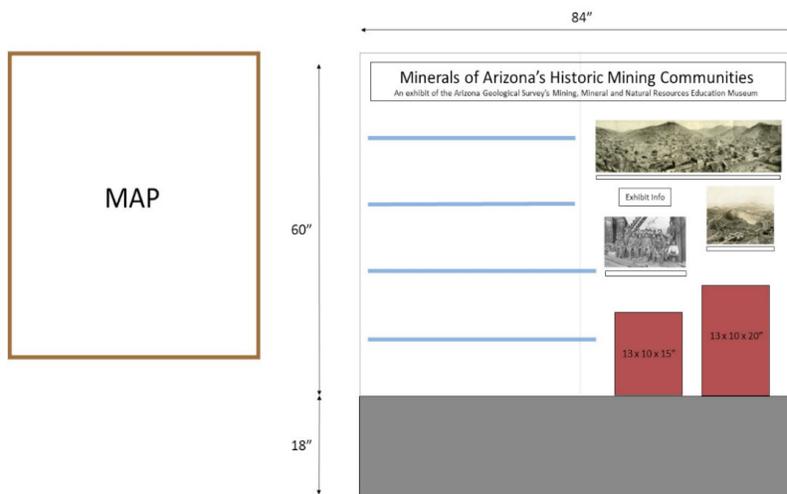


Figure 3. Digital sketch of 60” x 84” case layout to scale, including title banner, shelves, photos and captions, display stands, and supplementary map.

The second step involved moving the case from the Arizona Agriculture exhibit to the Mine Inspector’s Office, coordinated by Museum Curator Stephanie Mahan. Next, we thoroughly cleaned and prepared the case. Brackets and shelving, pulled from former AMMM cases, were spray painted to match the loaner case (Figure 4) and installed by Bill Yedowitz, a volunteer from the Flagg Mineral Foundation (Figure 5).



Figure 4. Shelving sourced from cases at the Polly Rosenbaum building (left) and brackets after spray painting dark red color (right).



Figure 5. Brackets after mounting into case (left) and empty case ready for exhibit installation after bracket installation and cleaning (right).

Pulling it together: Integrating minerals, mining artifacts, photographs, and map of Arizona

The 19 mineral specimens selected for the exhibit included a representative selection of Arizona ores, economically important minerals, and collectors' specimens (Figure 6). Minerals were chosen that were both visually attractive and historically or economically significant. Localities included Bisbee, Jerome, Miami-Globe, Ajo, Morenci, Bagdad, Hayden, Superior, and Silver Bell (Table 1). Mineral specimen sizes were mostly fist-sized (~ 4"), with two large specimens of native copper and carbonate copper ore, placed on individual stands on the right side of the case (Figure 6). The display also includes four mining artifacts, including a carbide lamp, oil lamp, blasting caps, and a specimen of blister copper. Mineral and mining artifact labels include the mineral or artifact, purpose (mineral ore, collector's item, or other), locality, and donor.



Figure 6. Representative mineral specimens and artifacts on shelves (left) and large specimens of copper and gypsum from Ray Mine and azurite and malachite from Ajo (right).

Table 1. Minerals and mining artifacts on display in the exhibit. Information includes object name, locality (mine, if available, historic mining town, and county), and additional info included in the label.

Object	Locality	Additional Info
Aragonite on Calcite	Southwest Mine, Bisbee, Cochise Co.	Calcium carbonate
Azurite and Malachite	Bisbee, Cochise Co.	Copper carbonate ores
Azurite and Malachite	Bisbee, Cochise Co.	Copper carbonate ores
Azurite and Tenorite	Bisbee, Cochise Co.	Copper carbonate and oxide ores
Roman�chite	Bisbee, Cochise Co.	Manganese ore
Siderite	Lavender Pit, Bisbee, Cochise Co.	Once an important iron ore
Smithsonite	Bisbee, Cochise Co.	Zinc carbonate ore
Turquoise	Lavender Pit, Bisbee, Cochise Co.	Often polished and used for jewelry
Vanadinite	Apache Mine, Globe, Gila Co.	Vanadium ore and minor source of lead
Aurichalcite	79 Mine, Hayden, Gila Co.	Zinc and copper carbonate ore
Diopase	Morenci, Greenlee Co.	Popular with collectors; used in pigments
Wulfenite	Red Cloud Mine, La Paz Co.	Often sought by mineral collectors
Azurite and Malachite	New Cornelia Mine, Ajo, Pima Co.	Copper carbonate ores
Bornite and Chalcopyrite	New Cornelia Mine, Ajo, Pima Co.	Copper sulfide ores
Copper Blister (artifact)	Ajo smelter, Ajo, Pima Co.	Intermediate product of the copper refining process
Native Copper	Ray Mine, Pinal Co.	Copper ore
Copper and Gypsum	Ray Mine, Pinal Co.	Gypsum used in fertilizer and building industry
Cuprite	Ray Mine, Pinal Co.	Copper oxide ore
Malachite	Bagdad, Yavapai Co.	Copper carbonate ore
Calcite	United Verde Mine, Jerome, Yavapai Co.	Common mineral with many industrial uses
Blasting Cap Boxes (artifact)	Unknown	Held mining explosives
Brass Carbide Lamp (artifact)	Unknown	Burned acetylene gas; used by miners in early 20 th century
Oil Lamp (artifact)	Unknown	Used by miners circa 1890

Archival Photos. Working with archivists at the Arizona Historical Society’s Tempe Library and Archives, we selected three photos to tell a story about early mining in Arizona: panoramic view of Bisbee; Sacramento Hill in Bisbee; and miners from Bisbee’s Copper Queen Mine (Figure 7). MMNRE purchased from AHS the rights to display the photos. The photos, along with the title banner, were printed at AZGS on high-quality photo paper and mounted with captions inside the case.



Figure 7. Selected archival photos from the Arizona Historical Society’s Library and Archives: Panoramic view of Bisbee, Arizona circa 1900 (A); Sacramento Hill circa 1920 (B), which would become the site of the Lavender Pit in 1951; and Bisbee miners (C) at the Spray Shaft of the Copper Queen Mine, date unknown.

Arizona Map. The display includes a shaded relief map of Arizona (1:500,000 map scale, U.S. Geological Survey) to pinpoint mining towns and provide place-based context to marry the mineral samples and historical mining artifacts to their source (Figure 8.) A caption adjacent to the map references the online, interactive “[Historic Mining Towns](http://arizonaexperience.org/live-maps/historic-mining-towns-map)” map on the Virtual Arizona Experience website.



Figure 8. Mounted shaded relief map of Arizona (left), and interactive Historic Mining Towns map on Virtual Arizona Experience website (right). The map can be viewed at <http://arizonaexperience.org/live-maps/historic-mining-towns-map>.

Photo Captions. Six exhibit captions supplement the exhibit (Figure 9): three photo captions; a brief overview of Arizona mining history; map caption; and a primer on the MMNRE Museum. The photo captions and Arizona mining overview were mounted inside the case, while the MMNRE information and map caption were mounted on the wall to the left of the case.

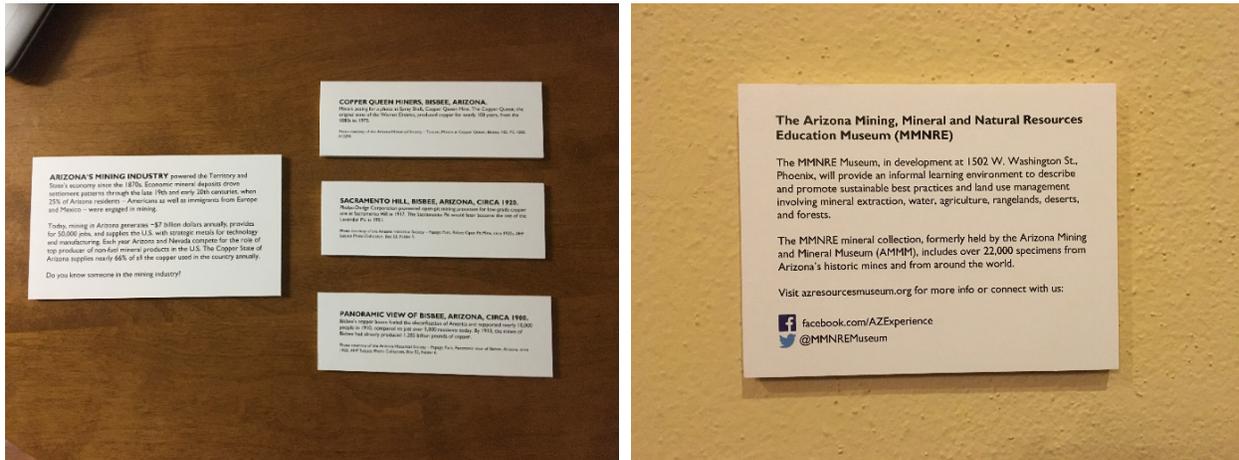


Figure 9. Exhibit captions, including Arizona mining history and photo captions after spray mounting on to foam board (left) and MMNRE caption (right) with museum information and social media links, shortly after installing on the wall in December 2016.

The Legacy of Copper Mining in Arizona. The exhibit includes an 27-inch monitor that broadcasts a five-minute video produced by the Virtual Arizona Experience Museum (Arizonaexperience.org) (Figure 10). Viewed more than 34,000 times on Youtube, the video captures the cultural and economic impact of mining on the people and lands of Arizona. It includes historic photographs from early mining operations as well as computer visualizations of current mining technologies, detailing how today’s mining industry works to minimize environmental impact and ensure safe extraction of Arizona’s copper wealth.



Figure 10. Left: Screenshot from “The Legacy of Copper Mining in Arizona,” a video developed by the Virtual Arizona Experience about Arizona copper mining’s past, present and future. The popular video is available online at <https://youtu.be/BucmR-kWwmo>. Right: video playing in the Mine Inspector’s Office at the Arizona Capitol Museum.

Leveraging social media to promote a traveling exhibit

In promoting the exhibit (Figure 11), we collaborated with AZCM marketing staff in crafting posts for social media outlets – Facebook, Twitter and Flickr. According to AZCM Education Coordinator Carissa Whiting, social media is the primary method of outreach and sharing new exhibits for the museum. Promotional posts from the AZCM and MMNRE can be cross-posted across multiple accounts, and photos can be shared for those who may not visit the exhibit in person.

In late December 2016, AZCM Exhibit Coordinator Steve Peter published several photos to Flickr of individual specimens in the exhibit (<https://flic.kr/s/aHskK9S5mG>). In mid-February, AZGS released a short ~1 minute video on social media outlets with MMNRE Curator, Catie Carter, introducing the exhibit and providing a short overview (<https://youtu.be/og23nv49isY>).

As of May 2017, both MMNRE and the AZCM continue to promote the exhibit through regular Facebook and Twitter posts. In addition, AZCM educators have integrated the exhibit into their regularly scheduled tours and programs.

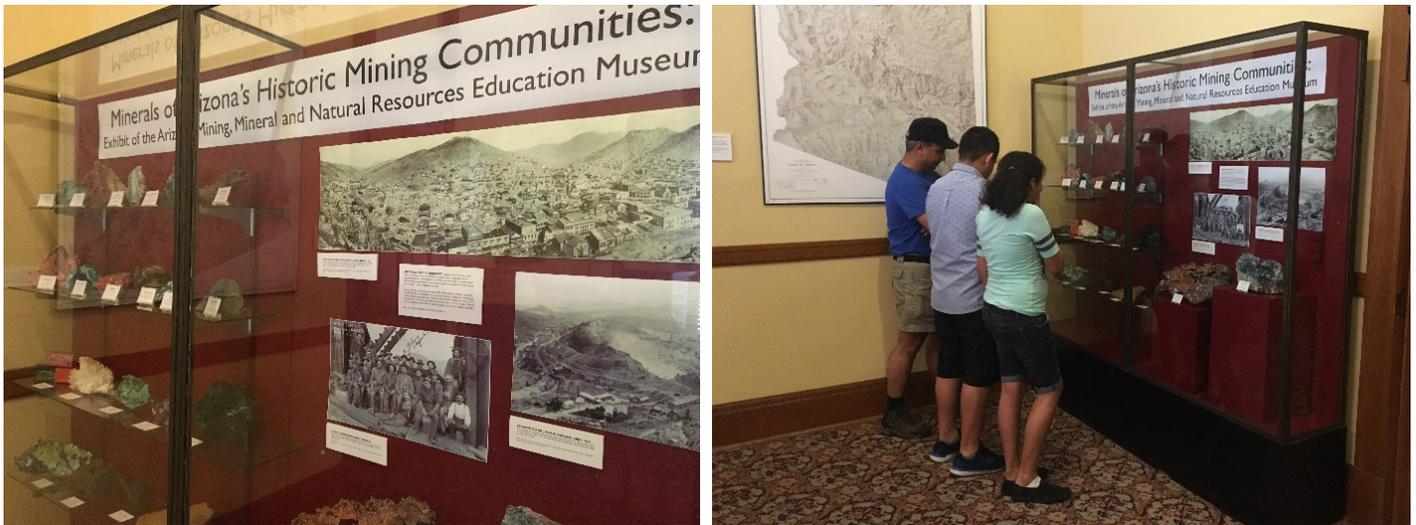


Figure 11. Final exhibit, “Minerals of Arizona’s Historic Mining Communities,” on display in the Mine Inspector’s Office exhibit on the second floor of the Arizona Capitol Museum (left). Right: AZCM visitors admiring the mineral specimens in April 2017.

Integrating with AZCM tours and programming – perspectives from the AZCM educators

“*Minerals of Historic Mining Communities*” has been seamlessly integrated into tours and programming at the Capitol Museum since its deployment in December 2016. In an informal meeting in April 2017, volunteer educators Patrick Lutz and Scott Shive described how the exhibit has been used to supplement the history of the “Copper State”: educators and tour guides use the map to show where copper and other mineral deposits have been located, and then explain how the minerals in the case are tangible examples of what was mined in those locations.

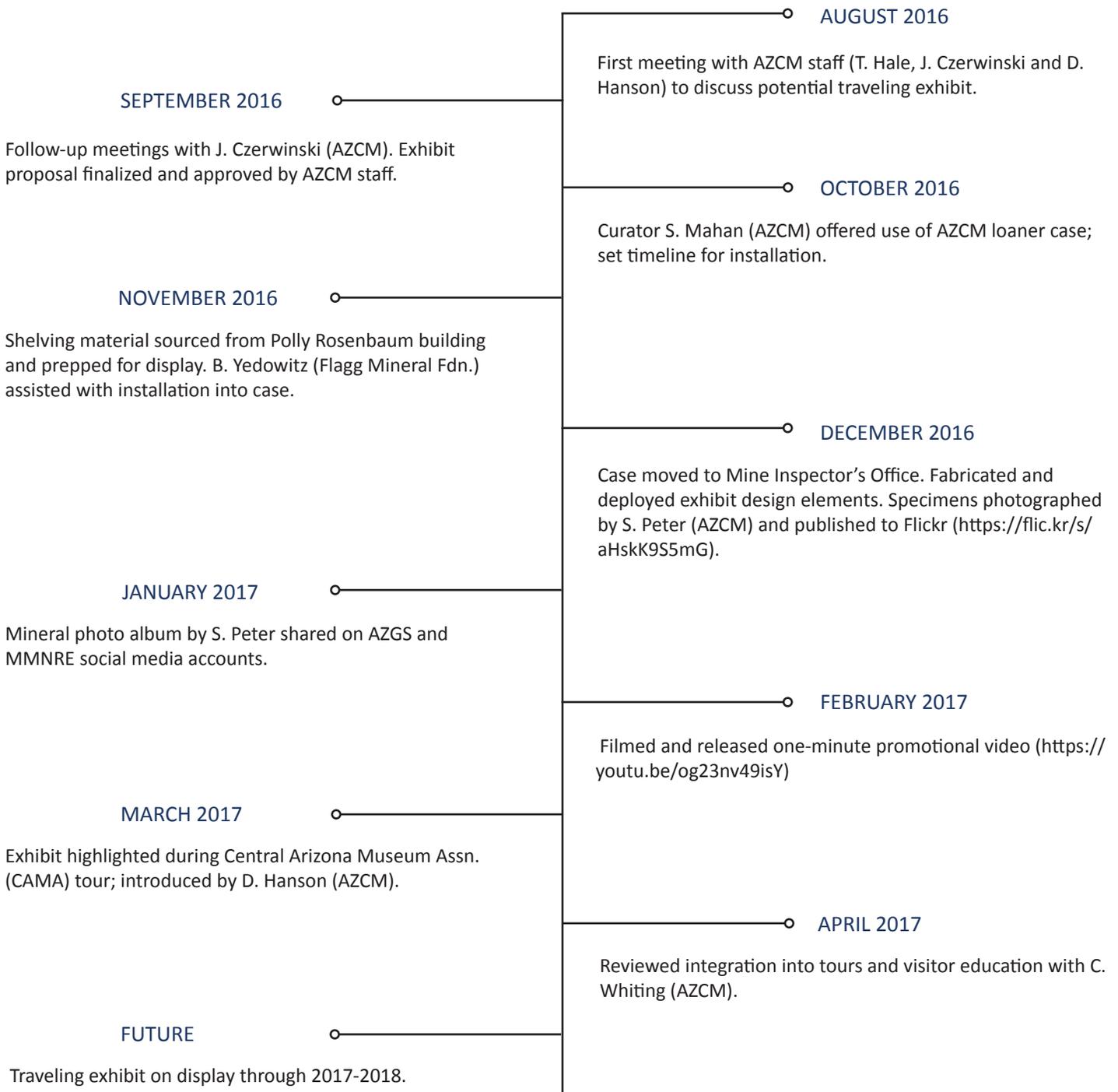
According to Carissa Whiting, Education Coordinator, AZCM tour guides utilize the location of the exhibit within the Mine Inspector’s Office to link Arizona’s mining history with present-day mining. They introduce the mineral specimens to show what kinds of minerals and ore are mined, and use the surrounding Mine Inspector’s exhibit of present-day mine safety displays to emphasize how the mining industry continues to contribute to Arizona’s economy and culture.

Carissa Whiting and AZCM educator Amanda Finlayson developed a five-question survey for canvassing visitors and school chaperones regarding their feedback for the mineral exhibit. The survey includes a question inquiring whether the exhibit supplements the mission of the Capitol Museum by enhancing visitors’ understanding of Arizona history. The survey kicks-off in mid- to late-April 2017.

Exhibit development timeline

The following timeline (Table 2) summarizes the process of exhibit development for “Minerals of Arizona’s Historic Mining Communities,” beginning with initial meetings and progressing to the final product and promotion.

Table 2. Exhibit Timeline: August 2016 – April 2017



Building out MMNRE’s Traveling Exhibit Program

“Minerals of Arizona’s Historic Mining Communities” was the MMNRE Museum’s second traveling exhibit and has provided a model to build on, adapt, and improve for future traveling exhibits.

In designing future traveling exhibits, the objectives and mission of partnering institutions and the makeup and needs of the target audience are of paramount importance. Partnerships with other institutions can be used as a tool to promote MMNRE’s goal of inclusivity, reaching and appealing to visitors from other locations and backgrounds.

We invite all museums, libraries and cultural institutions to contact us if they are interested in hosting an MMNRE traveling exhibit and beginning a long-standing partnership.

Traveling exhibit web resources

The following is a list of web-based resources for traveling exhibits design, theory, and development:

[Exhibition Studies: Designing Traveling Exhibitions for the Small Community](#)

American Alliance of Museums (AAM). This article considers the challenges of bringing traveling exhibits to small communities: cost, design, value, and community impact.

[Planning a Traveling Exhibition](#) *American Association for State and Local History (AASLH)*. Technical report that helps exhibition organizers to plan, implement, and evaluate traveling exhibitions.

[The Making of Exhibitions: Purpose, Structure, Roles and Process](#) *Smithsonian Institute of Policy and Analysis*. This document outlines the decision-making process for museum exhibit development, including traveling exhibits, and explores the roles of partnering organizations as well as provides models for creating new exhibitions.

The following is a list of traveling exhibit opportunities – exhibits for rent, grants, and partnerships:

[ExhibitsUSA \(EUSA\)](#) ExhibitsUSA (EUSA) is a traveling exhibition program managed by Mid-America Arts Alliance. The mission is to strengthen communities and improve lives through extraordinary cultural experiences. EUSA offers exhibition opportunities and grants.

[Smithsonian Institution Traveling Exhibit Service \(SITES\)](#) SITES specializes in creating full-scale exhibitions for museums partnering with the Smithsonian. SITES exhibitions include exhibit resources, curatorial information, programing, publications and insurance. The SITES website lists exhibit opportunities across a number of fields as well as archived exhibits for reference.

[Smithsonian Museum Studies: Traveling Exhibit Resources](#) The Smithsonian has provided a comprehensive list of traveling exhibit providers, including art museums, science museums and historical societies.

Acknowledgements

We thank the staff of the Arizona Capitol Museum – Jason Czerwinski, Stephanie Mahan, Carissa Whiting, Steve Peter, Dorie Hanson, and Ted Hale – for their generosity, patience, and inspiration. Special thanks to Jason and Stephanie for devoting hours to helping us with design and build out of the exhibit as well as providing the exhibit space, case, and stands. Thank you to Steve for taking pictures and providing audio-visual expertise, and Carissa for ensuring the exhibit is shared with school groups and visitors. We also thank Patrick Lutz and Scott Shive for their expertise as AZCM volunteers and educators, and Amanda Finlayson for designing and distributing the visitor survey. We thank Bill Yedowitz, Vice Chairman of the Flagg Mineral Foundation, for revamping the exhibit case by installing and mounting brackets. Also, thank you to the Arizona Historical Society’s Library and Archives staff – Linda, Rebekah and Susan –for assisting us with archival research and providing the high-quality Bisbee photos.

Thank you to Sarah Lima and the staff of Cincinnati Museum Center for creating a model for community-based “Museum without Walls” programming and providing inspiration and direction.

Lima, S., & Linziger, F. (2017). Breaking Free: How Cincinnati Museum Center Chose to Be a Museum Without Walls. *Informal Learning Review*, Feb., 8-13.

Appendix A: Exhibit Proposal



Proposed Historic Mining and Mineral Exhibit at the Arizona Capitol Museum

Figure 1: Image of George Warren, the namesake of Bisbee's Warren Mining District. This image is rumored to be the origin of the Arizona state seal.

Title: Historic Mining Communities and their Minerals

Space: Arizona Capitol Museum Mine Inspector's Office (2nd floor):

- 2x4' mineral case
- 4x3' space on wall above case (for map poster)
- 2x4' space on wall for early mining history timeline
- Freestanding display for mine artifacts



Audience: Elementary school age children, who comprise a majority of visitors through classroom visits and field trips, as well as visitors of all ages who have an interest in AZ mining history.

Relevance: The hard-rock mining industry continues to power the Arizona economy, much as it has since the 1880s. The development of mining communities played a major role in Arizona's population trends and economic growth in the late 19th and early 20th centuries, and today, mining continues to generate 6-8 billion dollars annually, provide tens of thousands of jobs, and supply vital materials for technology and manufacturing.

Purpose: Use place-based learning to engage students in an exhibit that illustrates the role of minerals and mining in Arizona's cultural and historical development by marrying physical samples and supplemental photographic and cartographic materials.

Objectives: Provide a learning opportunity to understand how the distribution of minerals impacted settlement and population patterns. Mineral samples are physical evidence of a resource that is quite unique to the state of Arizona.

Accompanying maps will display the distribution of minesites and the historic townsites, and a timeline will chart their development as the mining industry developed. Companion photographs and historic artifacts will depict mining life and early townhood, helping to show the lives of early populations of miners.

Resources:

- Minerals from mines of historic mining communities
- Mineral cabinet(s), size TBD (2x4)
- Mounted historic map(s) and photographs of Arizona mining community
 - B&W historic images (4x3)
 - URL linking to VAE Historic Mine map
- Historic artifacts – miners helmet, light, hand tools, miners metal lunch pail
- Hanging banner of mineral history timeline (2x4)
- Interpretive signage TBD

Exhibit Team: MMNRE team & ACM team

Time Frame: Design and Deploy Fall 2016 | Revisit Christmas Break 2016 | 1-2 year display

Interpretive Signage: TBD

Resources: Arizona Mining Alliance / Southern Arizona Business Coalition / University of Arizona Office of Research Development / Flandrau Museum / MMNRE

Education vetting: Representatives of Arizona Science Teachers Association

Description:

- Mineral cases with minerals
- One or two minerals that are large enough to display opening w/out being encased in glass
- Historic mining artifacts
- A large, static version of the historic mines map (<http://arizonaexperience.org/live-maps/historic-mining-towns-map>) developed for the Arizona Experience website with mine names, blown up to poster size to illustrate what part of the state the display minerals come from.
 - The poster could include a URL to enable the viewer to access the interactive version of the map from their cell phone for slide shows.
- Select printed pictures and captions from the towns could accompany the minerals in the case

Display: Minerals displayed in large glass case, with the historic map poster located low on the right side of the minerals. Inside case, each mineral is accompanied by one or more photographs showing an aspect of mining or early town life from that location. Mining artifacts could be displayed on a shelf to the right of the map poster. Poster of mineral history timeline could be mounted on the wall above the mineral exhibit case.

Possible takeaway prompt: "Do you know someone in the mining industry?"