

# Protecting and Preserving *América Tropical* in Downtown Los Angeles

Leslie Rainer  
Susan Macdonald



This monumental 1932 rooftop mural has been conserved, protected, made accessible, and interpreted for the public by the Getty Conservation Institute and the City of Los Angeles.

Fig. 1. *América Tropical* mural by David Alfaro Siqueiros painted in 1932 on a second-story exterior wall of the Italian Hall above Olvera Street in downtown Los Angeles, with one of Siqueiros's associates in the foreground. Photograph courtesy of the Getty Research Institute, ca. 1932, photographer unknown. Mural © 2012, Artists Rights Society (ARS), New York/Sociedad Mexicana de Autores de las Artes Plásticas (SOMAAP), Mexico City.

When the renowned Mexican artist David Alfaro Siqueiros was commissioned to paint the mural *América Tropical* (Fig. 1) on a second-story exterior wall at El Pueblo de Los Angeles in 1932, the expectation was that he would create a romanticized scene of old Mexico, in keeping with the theme of the newly developed Olvera Street, where tourists could purchase Mexican crafts along a pedestrian alley and enjoy the experience of a sleepy Mexican marketplace in the heart of the city.<sup>1</sup> Siqueiros, a radical and politically motivated artist, instead depicted an overgrown jungle, which was described by fellow artist and critic Grace Clements at the time as follows:

Huge twisted trees spread their branches in the direction of an ancient Aztec temple which lies ruined in their midst, recalling the lustful conquest of Cortez in the name of Spain and the Church. In the center of the composition, above the ruins of the temple, are the outstretched wings of world imperialism—the American eagle, beneath whose fierce eye and carnivorous claw is the lynched figure of a Mexican peon roped to a double cross. . . . And in the upper right corner from the roof of a red building two crouching men, one wearing the Peruvian cap of South America, the other the sombrero of Central America and Mexico, aim with loaded rifles at the destructive bird.<sup>2</sup>

Shortly after unveiling, the highly controversial mural was whitewashed, then neglected and largely forgotten until the 1960s, when it was rediscovered during the rise of the Chicano mural movement and early

preservation efforts to save the mural began, rallying artists, filmmakers, and preservationists.<sup>3</sup> Since that time, efforts to preserve the mural have been ongoing. In 1988 the Getty Conservation Institute (GCI) and the City of Los Angeles joined in a public-private partnership and collaborated on a comprehensive project to conserve, protect, present, and interpret *América Tropical*, which is the artist's only mural in the United States that remains in its original location.

The history of the mural is a story of controversy, political resistance, adversity, abandonment, and ultimately rediscovery, preservation, resurrection, and public access. The conservation issues range from lack of public recognition to archeological, architectural, and structural challenges and technical and physical issues related to mural preservation, along with stakeholder management, urban infill, sustainable management, and interpretation. This paper presents the efforts of the GCI and the city to preserve, protect, and present the mural to the public and draws together the various components of the project.

In 1988 the GCI and the City of Los Angeles initiated a comprehensive project that adopted a holistic approach to the conservation of *América Tropical*. Measuring 80 feet by 20 feet, the mural is painted on the external wall of the historic Italian Hall and sits atop a group of historic buildings within the historic streetscape of Olvera Street, a part of El Pueblo de Los Angeles Historical Monument, all owned by the city. At street level are commercially leased shops and restaurants. The project spans five historic buildings and includes the mural, shelter, viewing platform, and interpretive center (Fig. 2).

The project was begun in the 1990s and continued through 2012, with ongoing monitoring and maintenance since then. The work included scientific study, documentation and condition assessment, conservation treatment, and construction of a shelter and viewing platform to preserve and

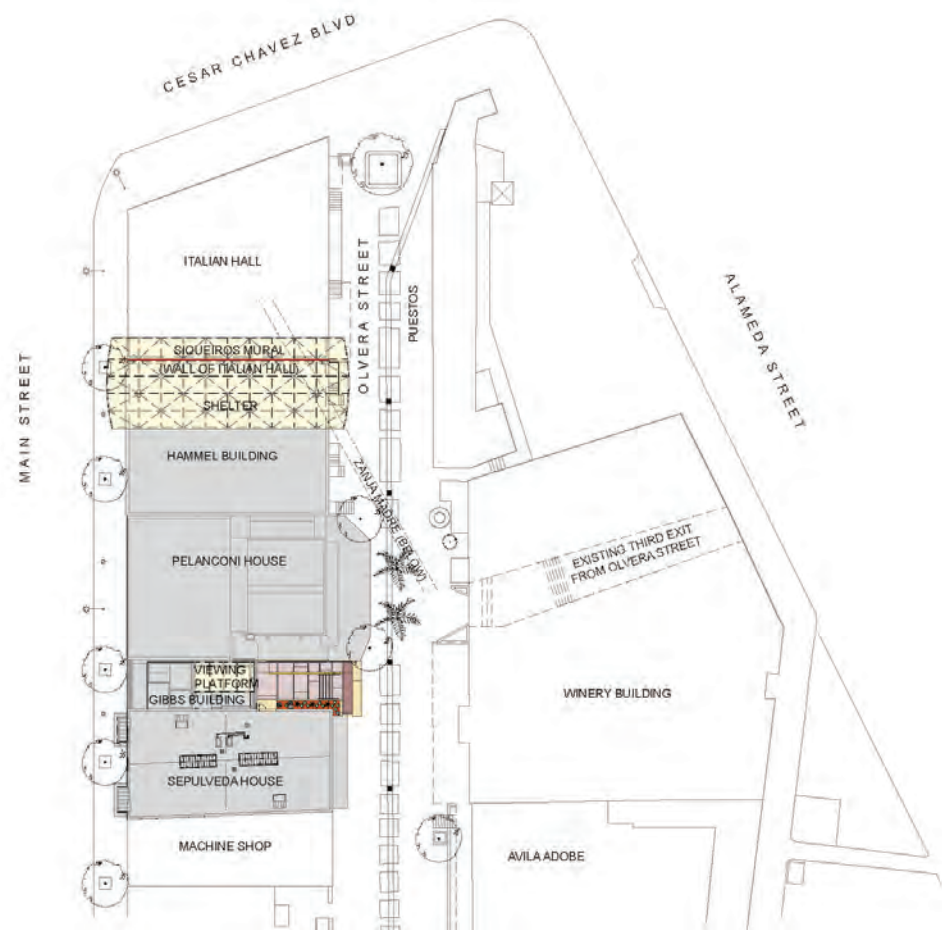


Fig. 2. Plan of the project site, including the Sepulveda House, the Gibbs Building, the Pelanconi Warehouse, the Hammel Building, and the Italian Hall. Drawing © Brooks + Scarpa Architects, 2009.

protect the mural and present it to the public. Additionally, an interpretive center was designed to provide visitors with information on the story and significance of the mural in the context of the artist's life and work. In 2012 the GCI organized an international symposium on the conservation of Siqueiros's murals in the Americas and their legacy. The various aspects of the preservation of *América Tropical* were reported in papers by each of the professionals involved. This paper summarizes the comprehensive project.<sup>4</sup>

The responsibilities for the project were shared by the partners in a public-private partnership. Funding was provided largely through a grant from the Getty Foundation matched by the city. The GCI brought conservation expertise, taking responsibility for the conservation of the mural, as well as its monitoring and maintenance for 10 years after

completion of the project. The city jointly funded the project, and the city's engineering and capital works departments commissioned the design and construction of the mural shelter, viewing platform, and interpretive center. The staff at El Pueblo was responsible for stakeholder management, the day-to-day running of the interpretive center, and the long-term care of the mural.

### Scientific Investigation

Over the course of the project, the GCI undertook a series of scientific investigations on the mural and its environment, in order to better understand the materials used to create the mural and the agents of



Fig. 3. The GCI conservation team performing cleaning during the 2012 treatment, which also included fills of cracks and losses, removal of tar staining, and limited aesthetic reintegration. Tar stains can be seen along the lower edge of the mural as intermittent dark spots. Photograph © J. Paul Getty Trust.

its deterioration and to develop methods and materials best suited for its conservation. Environmental monitoring and a sun study, conducted in the early 1990s, aimed to determine the effect of atmospheric pollution, wind, rain, solar radiation, and direct ultraviolet light on the condition of the mural.<sup>5</sup>

Scientific study by the GCI aimed to characterize the materials used to execute the mural. A thin cement plaster had been applied over the exterior brick wall, with the paint layer(s) applied directly over the plaster, and whitewash later applied over the paint.

The analysis found that inorganic pigments were used to execute the mural.<sup>6</sup> Characterization of the binder has been inconclusive to date, and no organic binders have been positively identified, suggesting that a fresco technique was used.<sup>7</sup> Further evidence that Siqueiros used a fresco technique can be seen in the plaster joins (*giornate*) across the mural, and contemporary references in his papers

indicate that only mineral pigments in water would be used. However, brushstrokes can be seen in areas of impasto, indicating that a bodied paint was used at least in some areas. Due to the overall deterioration of the surface, it is not certain how extensively this paint was used. The question remains whether or not additional paints were used in a mixed technique.<sup>8</sup>

### Documentation

The mural has been documented in photographic, graphic, and written formats, which reflect the evolution of documentation techniques over the course of the project. Detailed photographic documentation of the mural was undertaken in 1990, in conjunction with the first phase of conservation, followed by a mosaiced digital photographic capture in 1993. A detailed condition assessment of the mural was performed by GCI conservators and documentation specialists in 1997 and updated in 2002 and 2012.<sup>9</sup>

Graphic documentation has been carried out since 1997 using AutoCAD to record existing and new conditions, treatment testing, treatments, and sample collection over a photographic base map. A set of graphic symbols was developed at the outset of the project to ensure consistency of recording as different phases of work were completed. Written reports drafted at each stage of the project describe the work completed, the results of analysis, and the methodology followed. Project results have also been reported at professional conferences and in published papers.<sup>10</sup>



Fig. 4. View of *América Tropical* and the canopy shelter from a nearby rooftop. Photograph © J. Paul Getty Trust, 2012. Mural © 2012, Artists Rights Society (ARS), New York/Sociedad Mexicana de Autores de las Artes Plásticas (SOMAAP), Mexico City.

### Conservation Treatment

In 1990 preliminary conservation treatment of the mural was carried out, including plaster reattachment, filling of cracks and losses, cleaning, and removal of residual whitewash.<sup>11</sup> In 2002, in preparation for the construction of the shelter and viewing platform, further stabilization of the mural, including injection grouting and fills to cracks and losses, was undertaken by the GCI. A temporary rigid structure of polycarbonate sheets with an aluminum tube frame was installed in front of the mural to protect it during construction of the shelter.<sup>12</sup>

Upon completion of the shelter in 2012, the GCI carried out further conservation work, including injection grouting of voids between the brick support and the plaster using a commercially available grout;

filling of losses using a cement-lime-sand mixture; readhesion of flaking paint with a polyvinyl-butyl resin; consolidation and re-saturation of the surface with a dilute solution (less than 7 percent) of isobutyl and n-butyl methacrylate with ultraviolet-light stabilizers in solvent as an isolating layer; cleaning with an ammonium-citrate solution; and minimal inpainting using artists' matte fluid acrylic colors over the isolating layer in areas of damage (Fig. 3).<sup>13</sup> At the same time, the city undertook seismic retrofitting of the mural wall.<sup>14</sup>

Following current conservation philosophy and reflecting the approach proposed by conservators as early as 1971, the GCI preserved the mural in situ, but did not restore it to its original appearance.<sup>15</sup> Due to the overall degradation of the paint layer over the entire

Fig. 5. Elevations of Main Street and Olvera Street, showing the profile of the canopy shelter and viewing platform. Drawing © Brooks + Scarpa Architects, 2009.



surface of the mural, this approach allowed for limited aesthetic reintegration to reinstate legibility of the composition without erasing the traces of its controversial history and censorship. Any attempt to restore the mural to its original appearance would have required significant repainting and reconstruction of large areas of loss, which would have been largely conjectural. The surface cleaning and minimal reintegration work considerably improved the legibility and harmony of the mural's composition.

### Shelter

To protect *América Tropical* from exposure to direct sunlight and rain and to allow viewing by the public, a shelter and viewing platform were constructed in 2012. The construction of the shelter posed numerous structural, archeological, contextual, and construction challenges. First and foremost, the shelter was required to protect the mural from the elements, whilst providing an unobstructed view of the mural from the viewing platform, which was located on a nearby rooftop. A roll-down screen was incorporated into the design of the shelter to provide additional protection from environmental exposure and from vandalism at times when the interpretive center is closed.

Because the shelter is located within a historic district, it had to be structurally independent of the unreinforced masonry buildings over which it was constructed. This requirement was achieved by supporting the canopy of the 80-foot-wide shelter on two steel

columns, one at each end of the mural. The columns are 36 inches wide and 18 inches deep. The columns transfer the load through the building to the ground, thus seismically isolating it from the Hammel Building on which it sits (Fig. 4). Additionally, the archeological remains of the ca. 1850 Zanja Madre, the original brick-barreled aqueduct that ran from the Los Angeles River to the early settlement of El Pueblo de Los Angeles, crossed a corner of the site, exactly where one of the columns enters the ground. The remains were preserved in situ; a concrete-filled transfer beam cantilevers over the Zanja Madre, supporting the column.<sup>16</sup>



Fig. 6. View of the canopy shelter from Olvera Street, showing the vertical metal louvers, which provide protection from sunlight directly hitting the mural at the two sides and allow for a partial view of the mural and shelter from the street. Photograph © J. Paul Getty Trust, 2018.

The historic fabric of the five masonry buildings within the site was preserved and/or rehabilitated observing best practices and guiding principles based on the *Secretary of the Interior's Standards*. The design of the shelter atop these historic buildings and within the historic context of Olvera Street adopted a contemporary architectural language whilst referencing the colors, urban texture, and features of the existing streetscape (Fig. 5).

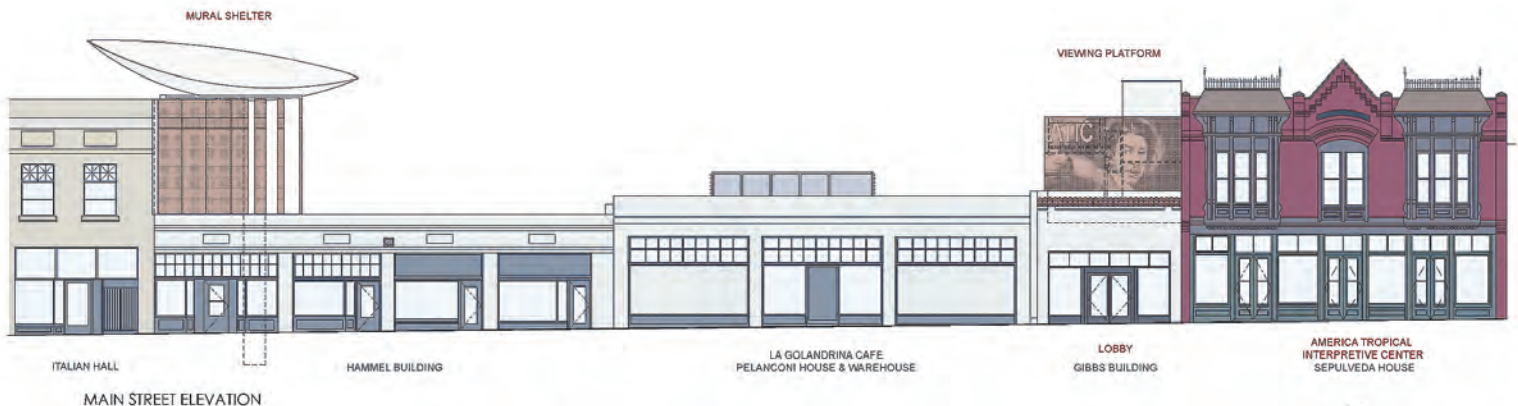




Fig. 7. Viewing platform, which provides visitors access to a nearby rooftop with an unobstructed view of the mural. Photograph © J. Paul Getty Trust, 2017.



Fig. 8. Project team members carrying out monitoring of the mural as part of the GCI's 10-year post-treatment monitoring program. Monitoring is carried out on an annual basis to assess the condition of the mural and infrastructure. Photograph © J. Paul Getty Trust, 2015.

The canopy and vertical louvers of the shelter protect the mural from direct sunlight and rain. The canopy consists of a two-way truss space frame, which is wrapped with fire-retardant fiberglass and polytetrafluoroethylene fabric stretched tightly over the frame and tapered toward the edges to visually reduce the apparent mass; there is a continuous “knife-edge” gutter at the perimeter. The louvers on each side consist of vertical panels, which are attached to the column construction; they extend in height from the parapet of the Hammel Building to just below the underside of the canopy.

Constructed of perforated copper, the louvers align with architectural elements of the adjacent Italian Hall. They are oriented at an oblique angle to protect the mural from direct sunlight coming in at the two sides (Fig. 6).

A motorized roll-down screen, designed as a secondary physical protection for the mural, is composed of three separate panels of a solar-shade material printed with an image of the mural to provide passersby on Olvera Street and Main Street a sense of the mural's composition when the site is not open to the public. The screen is controlled remotely from the Gibbs House, where the viewing platform is located.

### Viewing Platform

An open-air viewing platform built in 2012 provides visitor access to a rooftop approximately 120 feet from the mural (Fig. 7). The placement of the viewing platform was dictated by building-code and engineering constraints, which did not allow for construction closer to the mural. These requirements included the need to comply with minimum distances to fire stairs and the need to minimize structural load to the existing historic buildings. The location selected also provided the best overall view of the mural. Contemporary in style, the rooftop addition announces the interpretive center below and provides shade for visitors while viewing the mural. An annotated, black-and-white historical photograph of the mural as it appeared in 1932 describes its composition to viewers.

### Interpretive Center

The América Tropical Interpretive Center occupies the ground floor of the Sepulveda House. The adjacent Gibbs Building serves as a lobby and as the egress corridor from Olvera Street and also houses a staircase and elevator to the viewing platform and a restroom.

Two galleries display historic documents and photographs along with interactive exhibits, telling the story of the mural from creation to censorship to eventual preservation, in the context of Siqueiros's life and work. Visitors learn about the history and significance

of *América Tropical*, its resurrection in the 1970s, and its legacy. A period wood-frame scaffolding displays materials and equipment that Siqueiros and his team of artists would have utilized to execute the mural.<sup>17</sup>

## Post-Treatment Monitoring and Maintenance

The GCI's commitment to the project included 10 years of monitoring and maintenance of the mural following project completion in 2012. Since then, GCI conservators have monitored the conditions of the mural, the shelter, the viewing platform, and other rooftop infrastructure. A monitoring plan with inspection forms and a report template has been developed for this purpose.

Monitoring of the mural includes visual inspection, graphic documentation, and photographic documentation of a set of monitoring locations on the wall (Fig. 8). These areas were selected to document color shift, both of original paint and areas of inpainting, flaking paint, dimensional change of cracks, reappearance of tar staining along the base of the wall, and new damage. The team prepares a report following each monitoring visit. Visits were carried out every six months for the first 18 months after the treatment in 2012, then annually thereafter.

## Challenges

Over the course of more than 20 years of work, the project faced numerous challenges as personnel, regulations, and conservation practice changed. Shifts in management at the site, in city government, and in direction at the GCI, as well as evolving building codes, lengthy approval processes, and budget challenges, led to a redesign of the shelter and viewing platform ca. 2007. While the challenges presented some major obstacles to the project, the commitment of the City of Los Angeles and the Getty to conserve, protect, and interpret the mural for the public made it possible to complete the project in its entirety. Advances in technology related to scientific investigations, conservation practice, and exhibit design benefited the project. Many lessons were learned, which may inform similar projects in

the future, and the ongoing approach to stewarding the mural. The most pertinent lessons are mentioned below.

**Scientific investigations.** At the outset of the project in 1988, scientific investigations primarily addressed the pigments used to execute the mural. To date, no binder has been positively identified, although it seems that in at least some places there may have been one.

Atmospheric pollutants continue to be a source of potentially detrimental particulate accumulation on the mural. The typical atmospheric pollutants associated with car and bus traffic in downtown Los Angeles and the exhaust fans from nearby Olvera Street restaurants are likely responsible for the deposition of particulate on the surface of the mural. Over time, the accumulation of various pollutants leads to the need for repeated surface cleaning, highlighting the importance of the roll-down screen to protect the mural when the site is not open to the public.

**Conservation treatment.** In many respects, the conservation treatment of the mural itself was, from a technical viewpoint, the most straightforward aspect of the project. Once decisions were made about the philosophical approach, the challenge was to perform minimal intervention, and, at the same time, to reinstate legibility, preserving traces of the mural's censorship and conservation history.

Tar staining along the base of the mural has been a recurring problem. Even after repeated attempts to remove it, dark stains continue to reappear over time. This problem will likely continue to occur and will require close monitoring and repeated treatment in the future.

**Shelter.** The protection of the mural was a project priority. Prior to construction of the canopy shelter, the mural was protected by a series of closed shelters that shielded it from direct sunlight and the accumulation of atmospheric pollutants; however, these shelters prevented public viewing. The canopy provides visitors with an

unobstructed view of the mural, in keeping with the desire of the artist to create a public artwork for all to see. However, due to structural limitations on the size of the shelter, it was not possible to completely prevent sunlight from directly hitting the mural at certain times of day in the winter months. Because of the low angle and southerly course of the sun from late fall to early spring, sunlight creeps up the wall and reaches the mural in the afternoons. A management approach was therefore adopted, and the opening hours of the viewing platform were modified. During the winter, visitors can view the mural only during the morning hours or by appointment. When the sun hits the mural directly, the roll-down screen is intended to remain lowered to protect the mural from direct sun exposure. Finding the right balance between public access and protection of the mural was critical and involved managing expectations of the public and engaging them in the conservation process.

**Viewing platform.** The viewing platform provides the opportunity for the public to once again see the mural. However, its challenging context atop a historic building and the need to meet code compliance for access and fire egress dictated that it be located farther back from the mural than initially proposed. The limited number of visitors allowed on the platform at a time is also a limiting factor, which, however, provides a more enjoyable viewing experience. The viewing platform has, in the end, allowed viewers to see the mural in its entirety and read the composition from this distance.

**Roll-down screen.** The roll-down screen has broken repeatedly since installation. The motors occasionally become clogged with particulate matter; high winds have caused the screen fabric to stretch and flex, causing the horizontal seams to split; and greasy particulate has accumulated on the surface of the fabric—all of which causes operational difficulties for the rolling mechanism.

Alternative roll-down screen systems are being investigated, including

installing sturdier motors, reducing the width of each screen panel, and not printing on the screen fabric, which required horizontal seams, thereby reducing the stretching and flexing of the fabric and splitting of horizontal seams with exposure to high winds.

**Post-treatment monitoring and maintenance.** Post-treatment monitoring has provided an opportunity to evaluate the treatment, to track change over time, and to evaluate the buildup of atmospheric particulate. The monitoring plan is effective, and the team has been able to track conditions through regular visits to the site. However, color monitoring has been a challenge. Due to the uneven areas of color on the surface, colorimetry was thought not to be an option. White-balanced color photography using MacBeth ColorCheckers has been used instead. Due to issues of ambient light and the difficulties of reproducing photographic settings and conditions with each monitoring campaign, it is difficult to obtain consistent results from visit to visit without a major photographic setup, which has proven impractical for the conservation team and will be unsustainable for the city once its staff assumes responsibility for monitoring. It should be noted that the monitoring plan is designed as a combination of written reports and photodocumentation, with locations serving as reference areas. Visual assessment and notes are combined with photodocumentation to evaluate mural conditions.

In 2017, midway through the 10-year monitoring period by the GCI, a maintenance treatment was carried out. This procedure involved primarily cleaning to remove accumulated surface particulate. Additionally, recurring tar staining was reduced and removed to the degree possible, and limited areas of flaking paint were readhered. This maintenance treatment provided additional means of evaluation, which showed that the treatment was effective overall, with minor issues to be addressed aside from the surface cleaning, which was to be expected, given the location and surroundings of the mural.

**Interpretive center.** The interpretive center is an attraction for visitors along Olvera Street, given its free access and rich content, with up to 100,000 visitors reported annually. However, within five years, the technology used for interpretation, including computer monitors, headphones, and software, has begun to need replacement. The interactive technology used in the space has proven challenging to maintain and update, especially given the high visitation. New systems using sturdier hardware and more reliable software are being pursued, since the cost of maintaining and upgrading technology on an ongoing basis for an organization with limited information-technology support and capacity is high. Moreover, there are strict mural copyright issues, making the use of a web-based system prohibitive.

**Public-private partnership.** The public-private partnership between the Getty Conservation Institute and the City of Los Angeles through El Pueblo de Los Angeles Historical Monument has been successful, largely due to the commitment of key individuals to see the project through. Over the course of the project, support has ebbed and flowed. While the early champions of the mural paved the way for the current collaborative project and while the city and the GCI partnered to carry it out starting in 1988, changes in leadership at both institutions have impacted the project over time. It was not until the early 2000s that both the city and the Getty committed to complete the project and eventually invest the resources necessary to do so.

The long-term nature of this work was enormously beneficial. The project was heavily leveraged financially by the Getty, which secured the City Council's commitment to it. However, despite the city having excellent manuals for future care of the mural in the longer term, there are concerns about its financial and management capacity once their highly committed general manager leaves.

The continued dedication of current El Pueblo management is actively working to put into place a sustainable plan for the maintenance of the site with funding

through a public-private partnership associated with El Pueblo de Los Angeles Historical Monument. The sustainability of the work is, however, reliant on ongoing dedication by a few champions, as is often the case in preservation.

## Conclusions

This project, whose goal was to conserve the mural, *América Tropical*, applied an integrated approach that included, not only treatment of the mural itself, but its study, protection, interpretation, and presentation to the public. This comprehensive program is meant to present a model for the conservation of other significant outdoor murals and public art, which are exposed to harsh environmental conditions, to ensure their preservation. The long-term care and conservation of outdoor public art (and, in this case, the mural, shelter, and interpretive center) is where the most difficult challenges lie. The public-private partnership provided an opportunity to overcome the challenges faced by many local governments to steward these artworks where there is a lack of expertise or funds to undertake such an endeavor. The project has been well received by the public, with positive media coverage of the reopening of the site in 2012 and high annual visitor numbers. In 2017 the number of visitors to the site was over 75,000, which includes scores of school groups, domestic and international visitors, researchers, and scholars. Moreover, the site is fully integrated into the larger museum and site complex of the El Pueblo de Los Angeles Historical Monument, with several other restoration projects underway for its historic buildings, house museums, and streetscapes.

However, unexpected issues—such as the failure of the roll-down screen, the glitches in technology in the interpretive center, and the recurrence of tar staining on the mural—have all needed to be addressed in different ways. The GCI's 10-year commitment to monitoring has provided a rare opportunity to track the performance of the mural and the infrastructure of the site over an extended period of time and has been vital to ensuring its preservation in the



future. This commitment has allowed the time for the city's capacity for stewardship to develop with expert support during the post-project period. In 2022 the GCI will complete the 10 years of post-treatment monitoring and will hand over the care of the mural to the City of Los Angeles and El Pueblo Historical Monument. Under the care of the city, with the necessary infrastructure to maintain, interpret, and present the mural for viewing, the public will be able to discover and appreciate this Los Angeles landmark for many generations to come.

It is hoped that the comprehensive project to conserve, protect, and present the mural to the public with a shelter, viewing platform, and interpretive center can serve as a model for other significant outdoor murals and public art, which are exposed to harsh environmental conditions, to ensure their long-term preservation.

**Leslie Rainer** is a wall-paintings conservator and senior project specialist at the Getty Conservation Institute. She has worked on wall paintings internationally. She received a master's degree in the conservation of decorated architectural surfaces from Antioch University and a certificate from ICCROM, Mural Paintings Conservation Course. She can be reached at [lrainer@getty.edu](mailto:lrainer@getty.edu).

**Susan Macdonald**, FAPT, manages the international work of the GCI's Buildings and Sites Department. She has worked as a conservation architect in Australia and London. A member of Docomomo, APT's Technical Committee on Modern Heritage, and the ICOMOS Committee on 20th Century Heritage, she has published widely on modern heritage.

## Notes

1. El Pueblo is the heart of Los Angeles and the site of the Spanish settlement founded in 1781. Olvera Street, located within the early pueblo, was transformed in 1930 into a Mexican-themed marketplace.
2. Grace Clements, "Fresco as a Subversive Art," David Alfaro Siqueiros Papers 1920–1991, series 11, box 3, folder 22, The Getty Research Institute, 6.
3. The mural was whitewashed within two years of completion along the easternmost third section, which included revolutionaries with rifles and could be seen by tourists walking along Olvera Street. By the end of the decade, the mural was completely whitewashed.
4. Leslie Rainer and Luann Manning, eds., *The Siqueiros Legacy: Challenges of Conserving the Artist's Monumental Murals*, Proceedings of a Symposium Organized by The Getty Conservation Institute, October 16–17, 2012 (Los Angeles, Calif.: The Getty Conservation Institute, 2013), [http://hdl.handle.net/10020/gci\\_pubs/siqueiros\\_legacy\\_challenges](http://hdl.handle.net/10020/gci_pubs/siqueiros_legacy_challenges).
5. Shin Maekawa and Jeff Meyer, "Report on Environmental Monitoring at the Siqueiros Mural" (internal report, The Getty Conservation Institute, Jan. 13, 1993).
6. Francesca Piqué, Michele R. Derrick, A. Parker, David A. Scott, M. Schilling, and Miguel Saavedra Pérez, "Original Technique of the Mural *América Tropical* by David Alfaro Siqueiros," in *Materials Issues in Art and Archaeology IV: Symposium Held May 16–21, 1994, Cancun, Mexico*, eds. James R. Druzik, José Luis Galván Madrid, I. C. Freestone, and George Segán Wheeler (Warrendale, Pa.: Materials Research Society, 1995), 365–371.
7. Due to the small amount of intact impasto paint remaining on the surface, it was not possible to collect samples of adequate size to identify a binder, suggesting the possibility of a fresco technique having been used. In Siqueiros's 1932 writings, he stated that for this revolutionary new fresco technique on wet cement, "pure natural earths and pure mineral oxides must be used exclusively as color in the work. To dissolve the pigments, only water is to be used." David Alfaro Siqueiros Papers 1920–1991, series 11, box 3, folder 15, The Getty Research Institute. This technique, applying pigments in water to a cement plaster, was a departure from traditional fresco techniques using pigments and water on a fresh lime plaster, as the curing mechanism of cement would have been different and the setting time much faster than that of lime.
8. Leslie Rainer, "Preserving *América Tropical*: From Original Technique to Conservation Treatment," in *The Siqueiros Legacy*, 57–58.
9. Leslie Rainer, Angelyn Bass, Irene Sen, Gaetano Palumbo, and Mitchell Bishop, "Condition Survey Report: *América Tropical* by David Alfaro Siqueiros" (internal report, The Getty Conservation Institute, 1997).
10. Further information on the project and dissemination of project results can be found on the Getty Conservation Institute's website: [http://www.getty.edu/conservation/our\\_projects/field\\_projects/siqueiros/](http://www.getty.edu/conservation/our_projects/field_projects/siqueiros/).
11. Agustín Espinosa, "Informe de los trabajos de conservación efectuados a la 'pintura' mural 'América Tropical' del pintor David Alfaro Siqueiros en Los Angeles, California, Estados Unidos de Norte América," (unpublished report, 1990).
12. The process of getting the shelter design through various approvals and redesign, and for the city to gain support, funding, and further approvals took 10 years. The time of construction of the shelter was about three years.
13. Leslie Rainer, "Preserving *América Tropical*: From Original Technique to Conservation Treatment" in *The Siqueiros Legacy*, 59.
14. Gary Lee Moore, "Sheltering Siqueiros: Complexities of Building in a Historic Site" in *The Siqueiros Legacy*, 49.
15. Jaime Mejía Servín, "*América Tropical* y el Renacimiento del arte en Estados Unidos" in *The Siqueiros Legacy*, 27–30.
16. Mark Buckland, "*América Tropical* as Artifact: Designing a Framework for its Protection, Viewing, and Interpretation" in *The Siqueiros Legacy*, 31–41.
17. Thomas Hartman, "Interpretive Design for *América Tropical*: Created, Concealed and Revealed" in *The Siqueiros Legacy*, 65–75.



The *APT Bulletin* is published by the Association for Preservation Technology, an interdisciplinary organization dedicated to the practical application of the principles and techniques necessary for the care and wise use of the built environment. A subscription to the *Bulletin* and free online access to past articles are member benefits. For more information please visit [www.apti.org](http://www.apti.org).