

PUBLIC WORKS PROJECT OF THE YEAR AWARD NOMINATION FORM

Deadline March 1, 2017
(electronic submittals only)

Project Name
Memorial Fountain Restoration

Project Completion Date
Must be substantially completed (90%) and available for public use as of December 31, 2016.
January 31, 2016

Public Agency
Town of Palm Beach, Florida

Project Category
☐ Structures
☐ Transportation
☐ Environment
☒ Historical Restoration/Preservation
☐ Disaster or Emergency Construction/Repair

Project Division
☒ Less than \$5 Million
☐ \$5 Million, but less than \$25 Million
☐ \$25 Million–\$75 Million
☐ More than \$75 Million

Managing Agency
Michael Roach, P.E.

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Project Engineer
Title
Town of Palm Beach
Agency/Organization
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Primary Contractor
Tony Sabatino

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Project Manager
Title
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Agency/Organization
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Primary Consultant
Kevin Schanen, P.E.

Name
Vice President
Title
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Continued...

PUBLIC WORKS PROJECT OF THE YEAR AWARD SUPPORTING DATA FORM

Please address each of the following areas in your nomination, adhering to the sequence below when possible.

- Completion date contained in contract. Any time extensions granted should be addressed in the submittal.
- Construction schedule, management, and control techniques used. Use of alternative materials, practices of funding that demonstrates a commitment to sustainability.
- Safety performance including number of lost-time injuries per 1,000 man-hours worked and overall safety program employed during the construction phase.
- Environmental considerations including special steps taken to preserve and protect the environment, endangered species, etc., during the construction phase.
- Community relations—a summary of the efforts by the agency, consultant and contractor to protect public lives and property, minimize public inconvenience and improve relations.
- Unusual accomplishments under adverse conditions, including but not limited to, adverse weather, soil or site conditions, or other occurrences over which there was no control.
- Additional considerations you would like to bring to the attention of the project review panel, such as innovations in technology and/or management applications during the project.

NOTE: Supporting documentation is **limited to 20 pages**, exclusive of photographs and nomination form. Photographs will be used for promotional purposes by the association. Submittal should include nomination form and supporting documentation form, and photographs. No letters of recommendation please. Simultaneous nomination of the same project in both Public Works Project of the Year and SC/RC Project of the Year or in two categories is not permitted.

Nominations not chosen in a specific year for the Public Works Project of the Year—Small Cities/Rural Communities Award cannot be resubmitted in a subsequent year in the other category.

Nominated by: *(Can only be nominated by managing public agency or APWA chapters.)* Projects that involve or reside within two or more chapters locations can be co-nominated. Each chapter will receive credit to submit a PACE nomination. All chapters must be identified on the nomination form and before the nominations are judged.

Paul Brazil, P.E.

Name

Director of Public Works

Title

Town of Palm Beach

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Memorial Fountain Restoration

<u>Fountain Restoration Cost</u>	\$1.265 million
<u>Estimated Cost vs. Actual Cost</u>	\$1.4 million vs. \$1.265 million
<u>Completion Date</u>	January 31, 2016
<u>Schedule Adherence</u>	On time
<u>Team</u>	Construction Team: Burkhardt Construction, Inc. and Hedrick Brothers Construction; Prime Design Consultant: Kimley-Horn and Associates, Inc.; Fountain Restoration: Clifford Restoration; Fountain Reconstruction: Premier Stoneworks; Architectural Planning/Design: Bridges, Marsh & Associates; Landscape and Irrigation Design: SMI Landscape Architecture; Electrical/Plumbing Engineering: Wojcieszak and Associates; Grant Administration: Research Atlantica; Historical Conservation Consultant: Conservation Solutions, Inc.

Project Overview

The Town of Palm Beach, Florida recognized the need to restore the historic **Memorial Fountain in Town Hall Square**. Surrounded on four sides by Town Hall, local fire and police stations, and numerous businesses and restaurants, the fountain and gathering place is the center of the community and at the heart of this landmarked historic district. Designed by renowned architect Addison Mizner, the 1929 double-bowl, cast stone fountain was deteriorating and needed restoration and reconstruction so the community could continue to enjoy it for generations to come. Mr. Mizner based his design on the Fontana dei Cavalli Marini in the Borghese Gardens in Rome, adding to the international feel of Palm Beach. Featuring four mythical horses of the sea, or hippocamps, the fountain is a hallmark for this iconic island community.

Scarred by corrosion from the tropical climate, harsh weather, and scouring from the fountain's normal water flow, it needed more than a simple facelift. Portions of the fountain were worn away, especially artistic details on the hippocamps and top stem. Structurally, large cracks had formed and some of the supporting steel reinforcement was exposed to the elements.

*Before
Restoration*



*Before
Restoration*





Spurred by the Town's Centennial celebration in 2011, a group of residents, local civic organizations, and the Town government committed to restoring the fountain and eventually added renovating the entire Town Hall Square area to the overall project scope. Once a project team was established including engineers, contractors, designers, and a dedicated conservator, an important decision was made to conserve as much of the original fountain as possible—notably the majestic hippocamps. This would be accomplished by an international team of over 150 artists, designers, craftsmen, contractors, and builders in three cities working simultaneously. This complexity called for partnership, strong communications, and creativity to achieve their mission.

The fountain restoration began in January 2015 when crews from Burkhardt Construction and Hedrick Brothers Construction began preparing the site to dismantle the fountain. While Mr. Mizner's original design plans were available to the team, they shed very little light on how the fountain sculpture was constructed, therefore offering minimal assistance on how it could be taken apart. Without an existing procedure to follow, the team took each step as a new challenge. Custom scaffolding was built around the fountain to give the team access to conduct up-close investigations. Extreme care and planning was taken to devise the most effective process to separate the hippocamps from the main pedestal so they could be preserved for

restoration. Selective pilot holes were drilled into the base to decipher how the fountain's elements were held together. This helped guide the team to best preserve each portion (top stem, pedestal, two basins, and four hippocamps) as they set out on the difficult task of removing these 85-year-old works of art. All these steps were chronicled and conducted under the watchful eye of conservator Mark Rabinowitz, with Conservation Solutions, Inc. (CSI).



Pre-dismantle Investigation

Since the team did not know what would happen when one element was removed, they constructed individual protective crates around each hippocamp as a precaution. Surgically cutting the figures from the base during a two-day process, the team painstakingly dismantled the cast stone fountain. Each hippocamp was housed in its own specially-built crate onsite and carefully transported by truck to Clifford Restoration in Ontario, Canada. This internationally recognized restorer is home to specialized artisans and its own in-house conservator.



Once in Canada, the hippocamps were mounted on specially fabricated stands traditionally used to hold car engines. Each figure was carefully cleaned allowing the restoration team to determine actual damage, deterioration, or previous repairs. Artists recreated the lost detail of the figures with clay so molds could be created to replace missing or damaged pieces. Representatives of the construction team and the project conservator visited Clifford Restoration to consult with and monitor the hippocamp restoration.



By mid-April, the Town and consultants approved the models to cast new pieces for the hippocamps consisting of new legs and surface treatments to restore the hippocamps' faces and manes. In addition to the visual restoration, the original steel reinforcement was replaced with stainless steel reinforcing rods. The once broken and dingy figures were given a new life.



At the same time the hippocamps were transported to Canada, the fountain's upper and main stems, pedestal, and two bowls were transported to Premier Stoneworks in Delray Beach, Florida for reconstruction. These pieces also suffered extreme deterioration and were reproduced using details from old photos. Premier Stoneworks also fabricated the fountain's basin cap stone and veneer. Special care was taken to replicate the original water flow the fountain created off the edges of the stem and bowls. Water flow tests were conducted and modifications were made to the design so the water could cascade as it originally did in 1929.





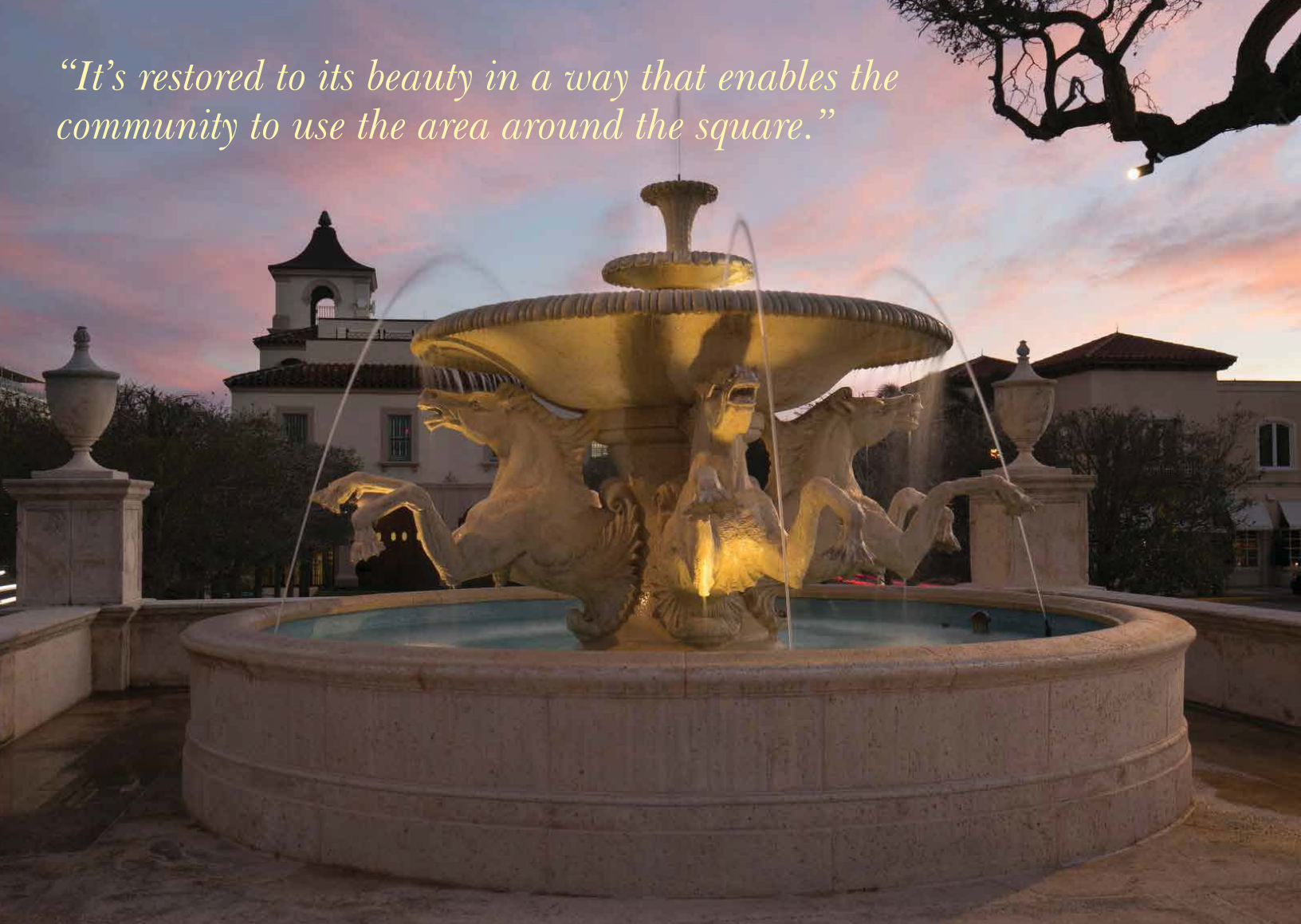
While work progressed in Canada and Delray Beach, onsite the center pedestal base and top portion of the basin's outer wall were reconstructed. Though the original design plans showed a lower basin wall, a section of structural clay tiles, aka "speed tiles" to raise its height were found to be part of the original construction. However, the upper basin wall was deemed structurally unsound and its original clay speed tiles were replaced with poured concrete. During demolition crews discovered blue paint under the basin's plaster liner and rose colored grout between the veneer stones. To confirm that these were the original colors, CSI conducted forensic testing to guide the restoration team.

Mid-summer brought about the return of the restored hippocamps from Canada and reconstructed elements from Delray Beach so the reassembly of the fountain could begin. The key components of the fountain started to come together when the four restored hippocamps were affixed to the main stem and bowl of the fountain. The cast-stone veneer and caps were also reattached to the fountain basin wall.

The construction team was extremely cautious with the dry fitting process and made sure everything was measured correctly and no damage was done to the restored hippocamps. Stainless steel metal rods were used to support the figures and were connected inside the fountain's base once the exact alignment was determined. The team also ensured the hippocamps were level so that water properly flowed from the large lower bowl. Adhesives were used to affix the hippocamps to the base.



"It's restored to its beauty in a way that enables the community to use the area around the square."



Funded by the Town with contributions from local individuals and organizations plus a State of Florida historic preservation grant, the project was led by a team of design, engineering, conservation, and construction experts.

The unveiling and dedication of the restored fountain was delayed until January 2016 while the additional improvements were made to the plaza. This allowed for the Town to hold a community dedication celebration for the fountain and the renovated entire area in a safe environment.

The restoration was heralded by Town Mayor Gail Coniglio as a recipe of *"love and hard work and perseverance, inspiration, teamwork and community support."*



◆ Construction Management Techniques

This project utilized the Construction Manager at Risk delivery method. It afforded the team the flexibility to manage the project in a way that worked best for the unique scope of service.

With no previous process to follow or guidelines for dismantling and restoring an 85-year old fountain, alternative methods were utilized to conserve as much of the original materials as possible for restoration or reconstruction.

As one of the Town's trusted construction teams, the lead contractor was granted permission to work during the Town's "high season" from November-April. Other contractors are traditionally prohibited from performing any construction work during these months. The original contract called for a project duration of approximately six months. This complex project was completed on time and under budget to the delight of the Town of Palm Beach.

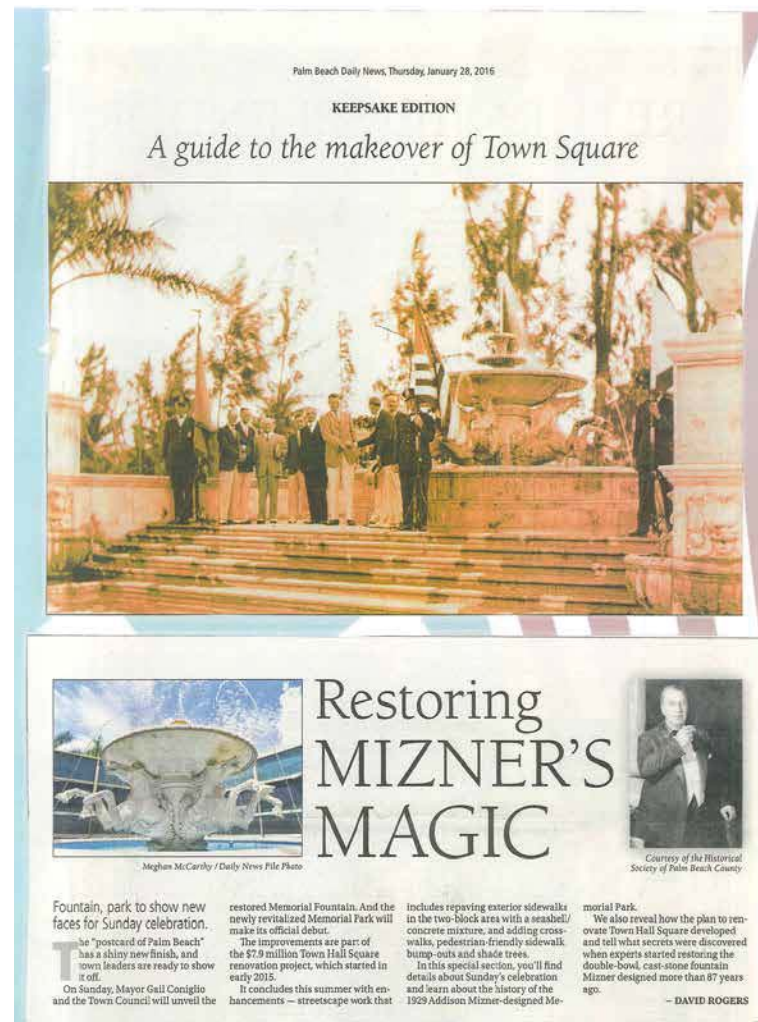
◆ Safety

Memorial Fountain resides in a central plaza, surrounded by local government facilities, emergency services, businesses, and restaurants. Burkhardt Construction incorporated comprehensive safety measures into the project approach to protect both construction workers and the public. The site was cordoned off from the surrounding area to prevent the public from wandering into the work zone. Workers were protected with safety equipment and educated with weekly toolbox talks. Thus, there were no injuries or lost time during project construction.

◆ Community Relations

Having completed large construction projects in the Town previously, the contractor's team made access and area convenience a priority. Every effort was made to minimize public inconvenience during project construction. Because all construction activity was contained in the work zone, the team maintained vehicular traffic in both directions. All parking spaces remained available for shoppers and diners. Pedestrian traffic was routed around the work zone in a manner that caused very little public inconvenience. Screening was erected to maintain a pleasing visual presence during construction and to keep dust and noise to a minimum.

Burkhardt Construction's project manager, Tony Sabatino, maintained open lines of communication with the local newspaper the *Palm Beach Daily News* (colloquially called "The Shiny Sheet"). The Shiny Sheet reported on each stage of the project via news stories and videos to keep the residents informed of the progress. Mr. Sabatino also gave several presentations to the Preservation Foundation of Palm Beach to update the members on the fountain's progress and to educate them on how the restoration was accomplished.





The Town decided to unveil the restored fountain several months after its completion, allowing work on the entire square to be finalized. To enhance the surprise for the community, the contractor team erected protective screening around the restored fountain to allow for the delayed public unveiling. The event on January 31, 2016 was a community gathering to herald a successful project. State and local dignitaries including Florida's Lieutenant Governor, donors, Town officials, and the public welcomed the fountain's return to its original glory and the improvements to the plaza. Antique cars, music, food tastings from local restaurants, and family activities were part of the festive celebration.

◆ Environmental Considerations

Since the project is in a developed commercial area, there were no special environmental considerations necessary for wildlife or flora. However, the team did incorporate several environmentally-friendly processes and elements into this restoration.

- ◆ The existing water circulation system for the fountain was connected to the reflecting pond at the north end of the plaza. Harsh chlorine was used to fight algae in the pond, but was potentially destructive to the newly restored elements of the main fountain. To prevent future chemical damage to the restored fountain, the water circulation system was split so the necessary chlorinated water for the pond would not impact the restored fountain. The fountain water is sanitized using UV sterilization.
- ◆ To minimize air pollution, the contractors utilized wet cutting techniques for the stone work on the fountain.
- ◆ The project team followed National Pollutant Discharge Elimination System (NPDES) guidelines and installed storm water inlet protection around the project site to prevent debris and run-off from entering the inlets and flowing into the Intracoastal Waterway.

◆ Unusual Accomplishments

Few public works projects combine the complexity of three simultaneous work locations in two countries, a beloved work of art from a revered designer, no established restoration process to follow, combined with a tight schedule and an entire community watching. But the restoration of Memorial Fountain team made the impossible possible.

It was the attention to detail and respect for the history of this work of art combined with the passion of the community to see it preserved that made this project special. The inclusion of a project conservator to partner with the design, restoration, and construction team highlighted the historical significance of the project. CSI's participation during all steps of the project insured the historical integrity of the fountain remained after all the work was completed.

While there are a handful of firms that can reconstruct stone pieces, few have the in-house artisans to restore works of art. The choice of an internationally-known restoration firm illustrated the importance placed on the historical significance of the figures. Clifford Restoration's artisans hand sculpted the lost detail and regained the elegance of Mr. Mizner's hippocamps.



Every effort was made to return the fountain to how it originally was, including the special forensic testing to determine the original colors for the paint in the basin and grout for the basin veneer stones. The use of historic photos to reconstruct damaged portions of the fountain and replication of the original water flow added to the quest to turn back time, while giving the structure a future.

The project team delivered the promised scope of work, budget, and schedule while solving new mysteries and challenges each day. Dismantling and reconstructing of the nearly century-old fountain was a challenge for the project team and at each turn they had to think several steps ahead. They faced challenges including what if they removed the basin and one of the hippocamps comes loose or how do they get all the pieces to come back together from three separate work sites. In the end, they met all of these challenges and completed a project that far exceeded the community's expectations.



Water Flow Test

◆ Additional Considerations

One of the key issues of the project was the safety of the historic hippocamp figures. While in transit between Palm Beach, Florida and Ontario, Canada, they were constantly monitored by the team via a computerized tracking system. Upon their arrival in Canada, photos were immediately sent to the project team to document their condition after transport.

During the project, team members made on-site visits to Clifford Restoration and Premier Stoneworks to check on the status of restoration and reconstruction work. But for more frequent status updates, the team utilized video conferencing, saving both time and money.

The team's engineering consultant, Kimley-Horn and Associates, Inc. conducted regular construction observation services, management of the specialized design and conservation consultants, and structural engineering. Kimley-Horn provided timely inspections so any issues could be quickly resolved by the appropriate team member. Site photos were shared with the project team and inspection notes were electronically maintained and shared with the Town so all parties were constantly informed of the progress.



*Visit to
Clifford
Restoration*



◆ Sustainable Infrastructure Rating System

While the project team did not utilize a sustainable infrastructure rating system for this project, sustainability was a primary consideration for the project. Prior to the commencement of the project, Town officials and members of the community's fountain restoration committee mandated that the hippocamp figures were to be saved and restored, not replaced. This meant every effort was made to remove, restore and reassemble the fountain elements without damaging these fragile figures. The successful restoration of the hippocamps and their return to their island home was the completion of a decades-long wish for the community.

With a mission "to rebuild it new but make it look old" the project team had to incorporate gentle demolition techniques, artistry, and creativity to give this piece of history a new life.



Before and After

Before



After



Before



After



Before



After





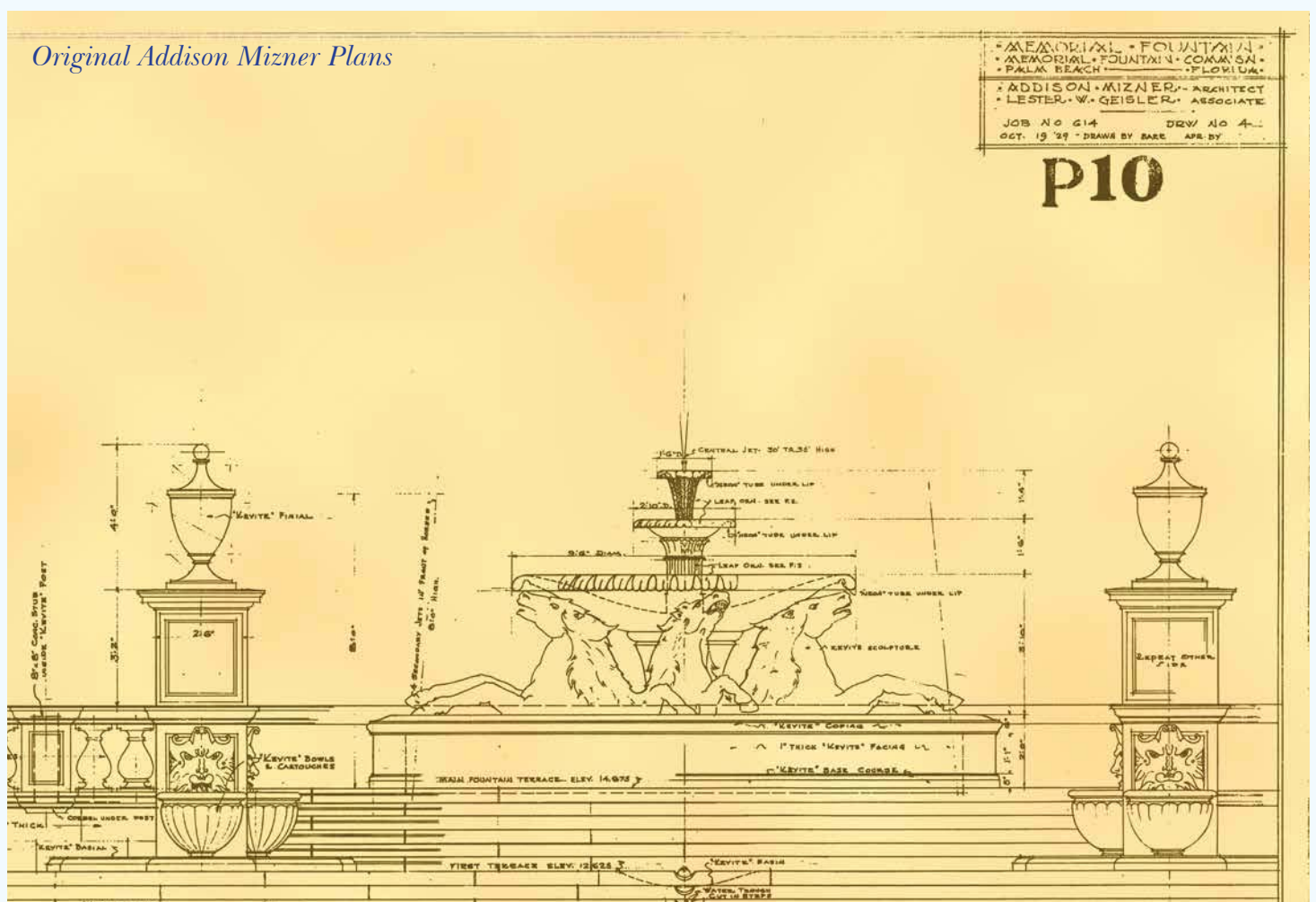
Before

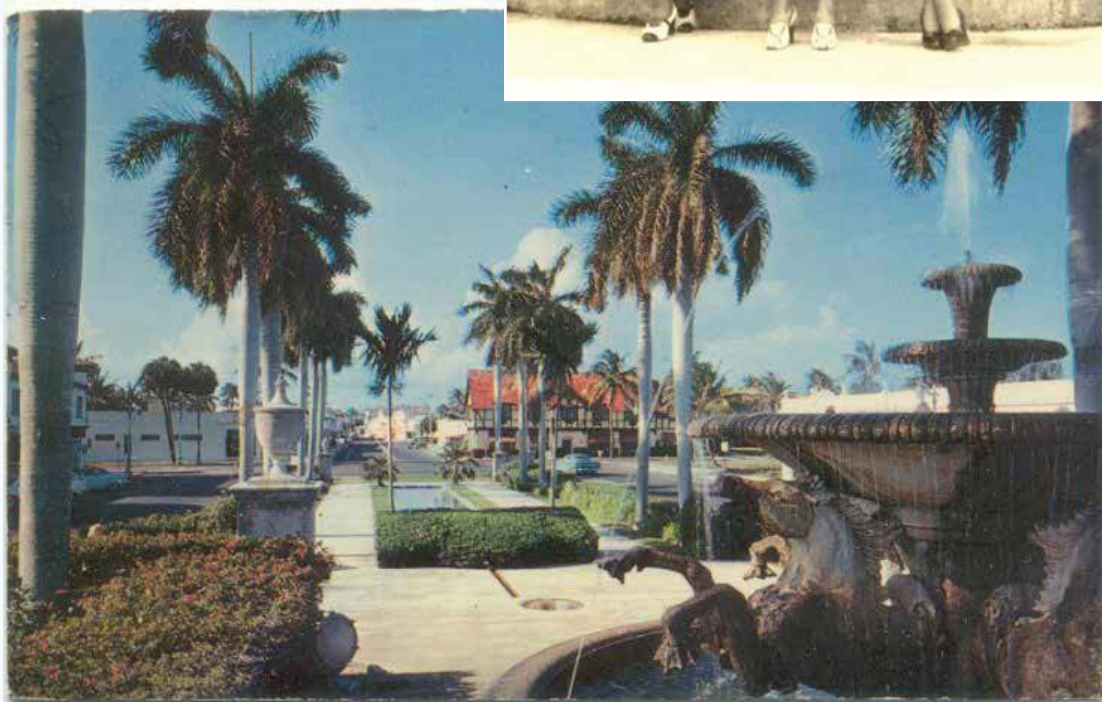


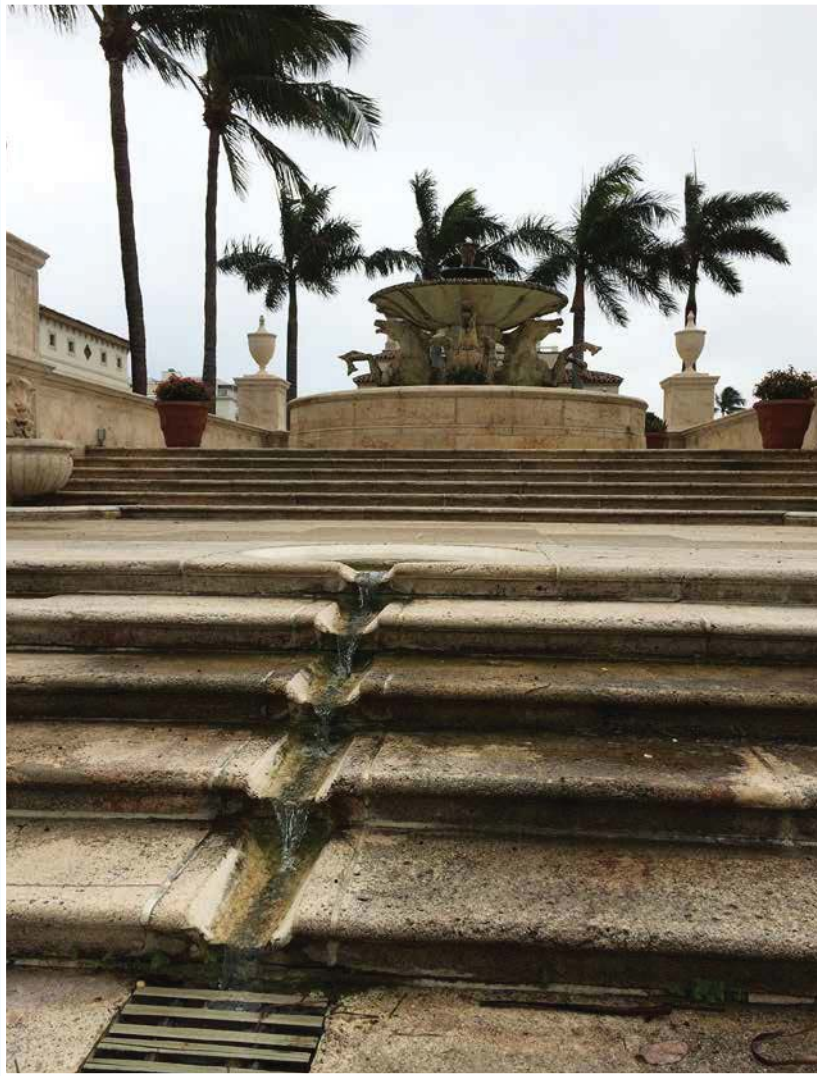
After

A vintage, sepia-toned photograph capturing a formal event at the dedication of a large, ornate fountain. A group of approximately ten men are posed on the wide, stone steps leading up to the fountain. They are dressed in a mix of formal attire, including suits and uniforms, with some wearing hats. The fountain itself is a grand structure with a central column topped by a shell-like sculpture, and it is flanked by large, curved, shell-like structures. The background is filled with tall, slender trees, and the overall scene is set outdoors. The photograph has a slightly aged, historical quality.

Original Fountain Dedication







*Conditions Before
Restoration*



*Dismantling
Fountain*





*Hippocamp
Restoration*



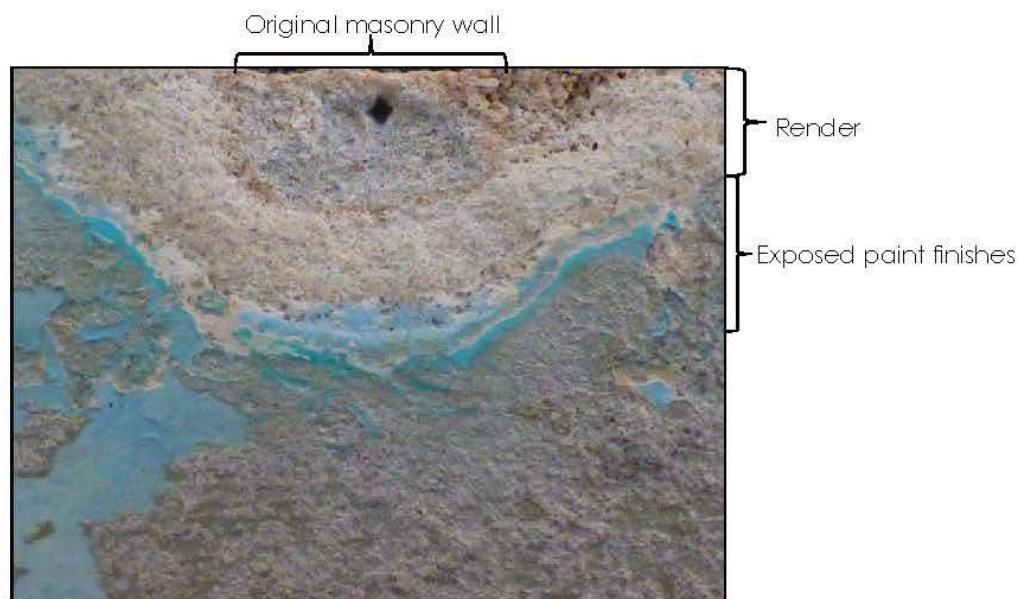


Figure 5: Detail of exposure on bulk sample.

FINISH ANALYSIS

In the finish analysis, at least six (6) different paint finishes were identified. Two (2) of the most complete and representative samples are included in Appendix A – Paint Layer Stratigraphy Analysis. In the stratigraphy analyses, samples are shown in a standard orientation, with the earliest (original) finishes at the bottom and the most recent finishes at the top.

A lack of definition and dirt layers between the render and paint scheme 1 suggests that scheme 1 was applied during the same campaign. A lack of definition and dirt layers between scheme 1 and 2 suggests that scheme 1 (white) is a primer layer and scheme 2 (light cyan blue) is the first finish layer. The presence of large aggregate at the surface of the render suggests it was not designed to be a finish layer. Exposures on the bulk sample confirmed that the render, scheme 1 and scheme 2 were well integrated and difficult to separate.

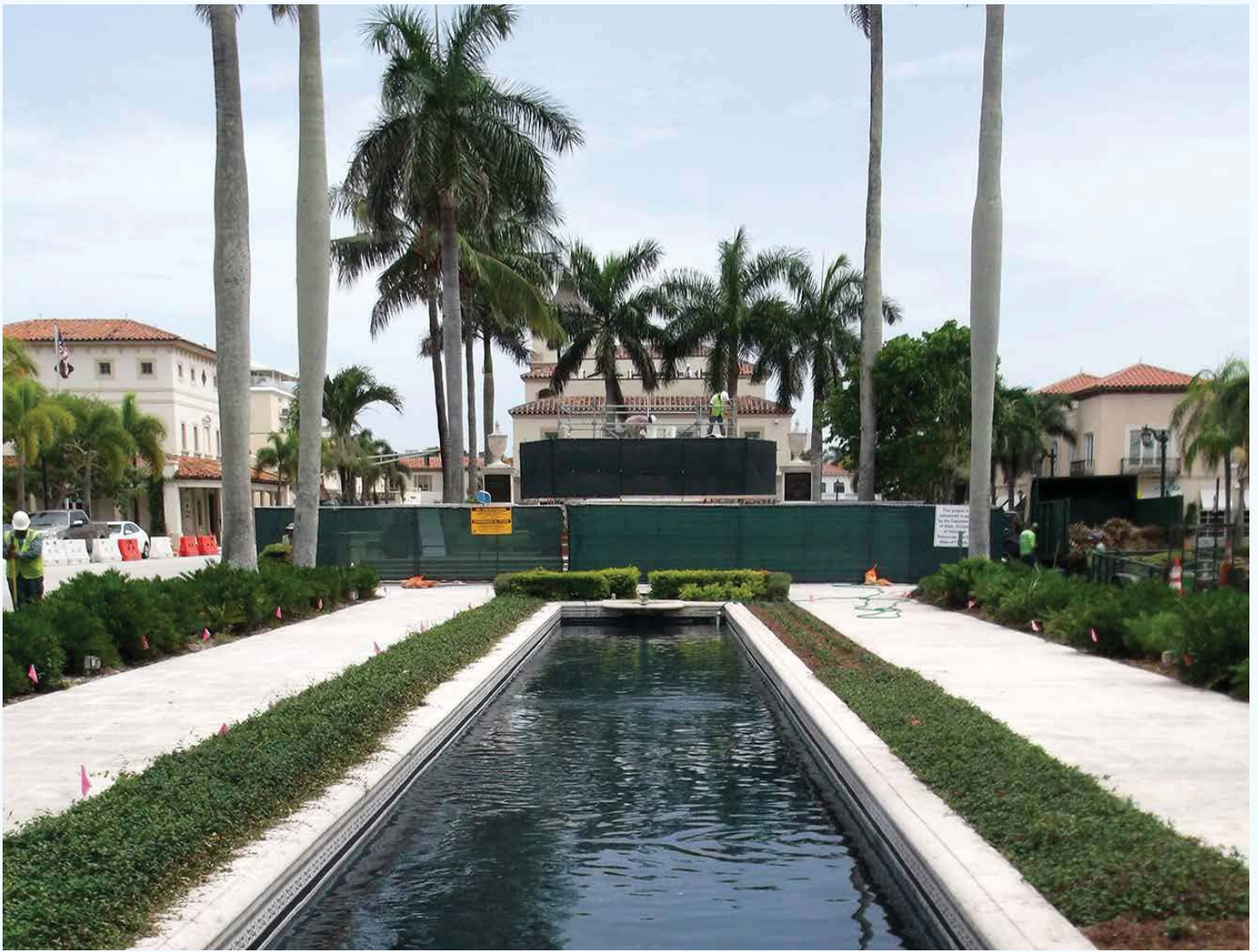
CONCLUSIONS & RECOMMENDATIONS

Analysis of the samples suggests that the original pool lining was a simple, continuous blue color on top of a white render and primer layer. The scheme identified for re-creation (scheme 2) most closely matches **Munsell 10B 8/4**. This translates to the **Benjamin Moore color 2061-60, "Little Boy Blue."**

Without additional sampling, CSI cannot confirm that the original pool finish was not unpainted render or a white paint finish. However, among the limited sample set, CSI found that in a majority of the samples the render and scheme 1 were not exposed finish layers. Scheme 2, on the other hand, consistently read as an exposed finish.

Rebuilding the Fountain



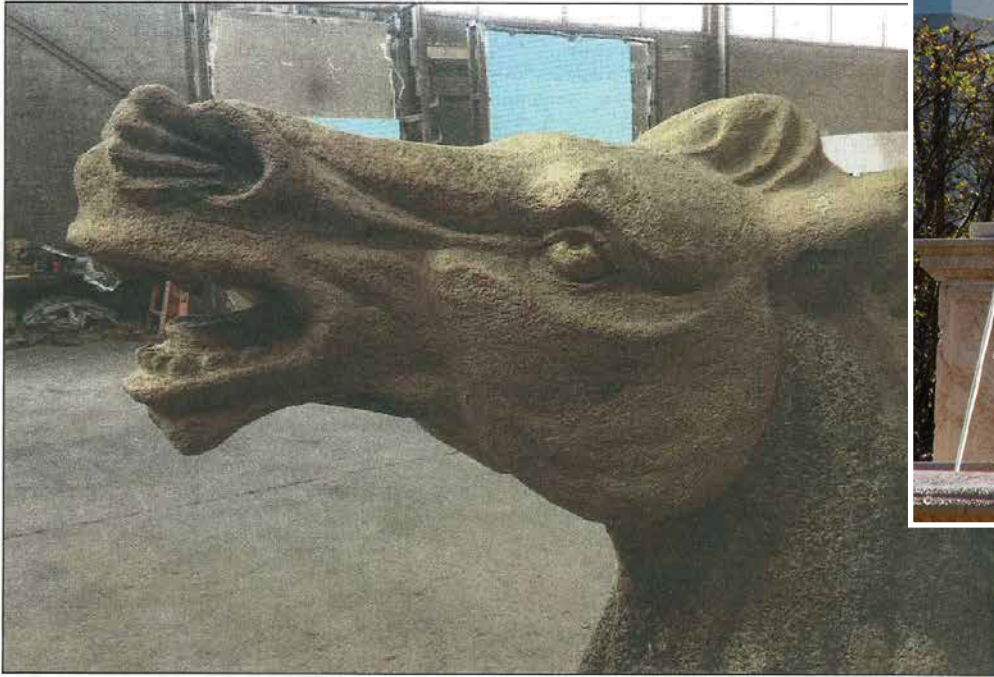


Matching Original Pink Grout

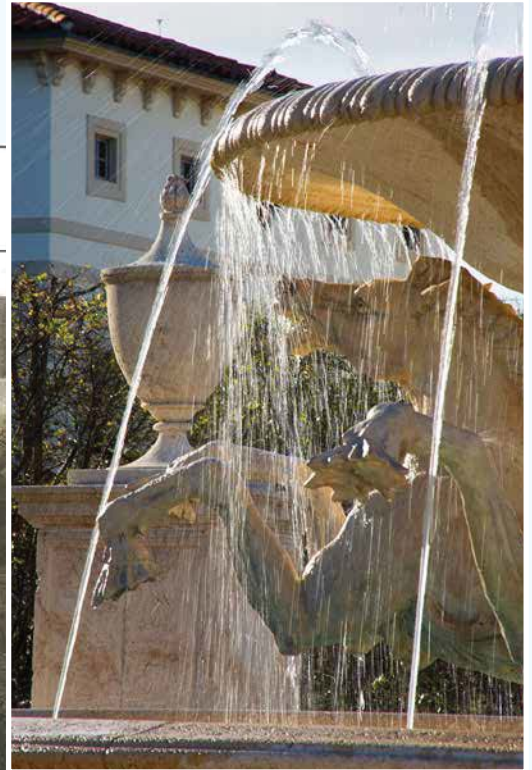
New Bowl Edge

A New Life

REVIVING ADDISON MIZNER'S VISION



A rebuilt hippocamp sports well-defined features. The team reviewed equine anatomy to give the horses the sharper, more vigorous look they had originally. See restoration video, PalmBeachDailyNews.com



Photos Courtesy of Clifford Restoration

A model hippocamp leg has a webbed hoof.



Jeffrey Langlois / Daily News File Photo

A view of an unrestored hippocamp figure shows the deterioration it has suffered.

Fountain sea horses regaining their shape

By DAVID ROGERS
Daily News Staff Writer

In locations more than a thousand miles apart, Palm Beach's beloved Memorial Fountain is being reborn.

In Ontario, Canada, the staff of Clifford Restoration has brought back the muscular features of the north hippocamp's face and torso, removed cracks, and is giving the horse of the sea a new pair of legs.

Clay added to its face, mane and torso effectively erases the damage that water and metal corrosion have created over the years. These temporary "mock-up" features will soon be cast in a concrete and keystone (cut coral) mixture and applied or — in the case of the legs — attached.

This week, fountain restoration project leaders will visit Clifford Restoration offices to review the progress, with others participating by videoconference.

The north hippocamp has been reviewed by Mark Rabinowitz, senior conservator with Conservation Solutions Inc., to ensure that the changes match historical renderings and photographs.

Leg molds complete

"The molds for casting the new legs are completed. We are in the process of casting material at the moment," said Donovan Pauly, conservator and project coordinator for Clifford Restoration. "So, we've

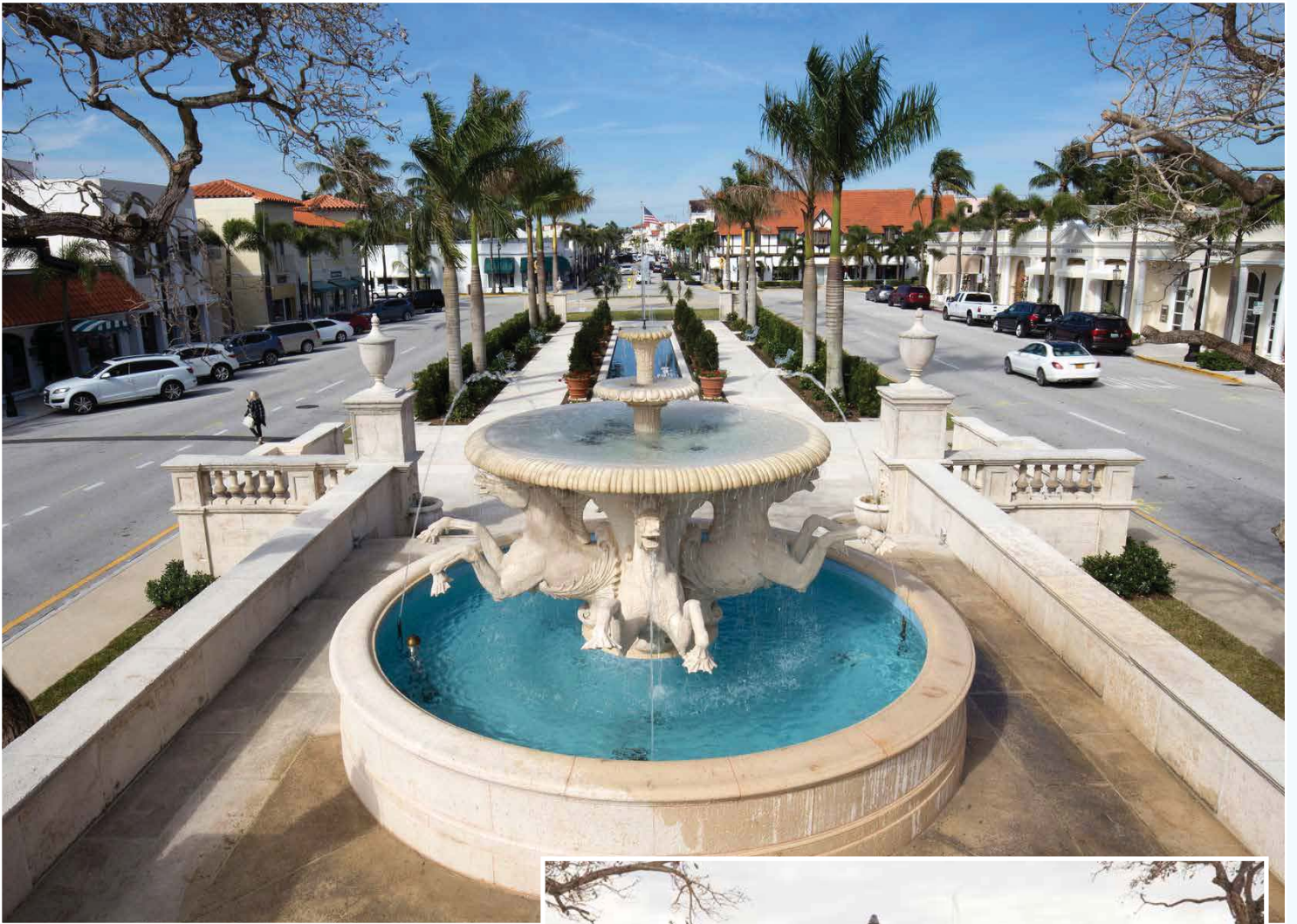


Pauly
"We've turned the corner now."

Clifford

Please see **FOUNTAIN**,
Page A4





Town Celebration 2016