



A PUBLICATION OF FP2 INC

SUMMER 2020

PAVEMENT PRESERVATION *JOURNAL*



INSIDE:

PPRA-AEMA-ARRA-ISSA
IN SAN ANTONIO

THIN ASPHALT OVERLAYS

ROADRESOURCE.ORG
'SUPER USERS'

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PAVEMENT PRESERVATION JOURNAL

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PHOTO CREDIT: VSS INTERNATIONAL, INC.

Pavement Preservation Journal is published for FP² Inc., (512) 970-8865, www.fp2.org, Editor: Tom Kuennen, (262) 618-4819, expwys@expresswaysonline.com. Opinions expressed herein are those of the authors and not necessarily those of FP² Inc., its directors or staff.

Published for FP² by **NAYLOR** ASSOCIATION SOLUTIONS 5950 NW First Place, Gainesville, FL 32607, (800) 369-6220, www.naylor.com, Project Manager: Adam Lingenfelter, Publisher: Heather Greyling, Content Strategist: Carter Davis, Marketing Account Specialist: Taylor Hicks, Advertising Sales Representatives: Paul Walley (Director), Norbert Musial and Leron Owens, Project Coordinator: Cindy Samons, Design: Gufran Khan

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Eco-Friendly Micro Surfacing Enhances Golden Gate National Recreation Area

BY JEFF ROBERTS

Once home to a strategic U.S. Army base, California's Golden Gate National Recreation Area was established in 1972 to preserve the scenic landscape that stretches 82,000 acres from southern San Mateo County to northern Marin County across from San Francisco.

Golden Gate National Recreation Area encompasses breathtaking views of the Golden Gate itself and Pacific Ocean, and it's the northern anchor to the spectacular Golden Gate Bridge. As one of the largest urban national parks, it's home to over 3,000 plant and animal species, with views that attracts 15 million visitors each year.

In 2019, VSS International, Inc. (VSSI) was awarded the opportunity to provide pavement preservation for a section of the recreation area known as the Marin

Headlands under the Federal Highway Administration's Multiple Award Task Order Contracts (MATOC).

The contract was designed to preserve the pavement in several national lands within the western United States, for which prequalified contractors have an opportunity to bid on task orders solicited by the FHWA. The Golden Gate Pavement preservation contract tasked VSSI with providing asphalt repairs, crack filling, striping removal, Type II micro surfacing and replacement of permanent delineation on 15 miles of roadways and 50 parking lots in Marin Headlands.

PREP FOR MICRO SURFACING

Most pavement preservation processes provide a wearing surface that extends the life of the pavement.



Micro surfacing is an engineered, thin application of asphalt and aggregate. For success it's crucial to perform preparatory work to aid the integrity of the surface and maximize the life of the wearing course.

Therefore, pavement patching and crack fill were performed on failed or



Specialized applicator truck places micro surfacing on grade in Golden Gate National Recreation Area above the Golden Gate to San Francisco Bay and San Pedro Bay



Hand work assures quality placement of micro surfacing



A mixture of aggregate and ambient temperature asphalt emulsion, micro surfacing is designed to adhere to the asphalt concrete surface

failing areas. Pavement patch work was completed in areas that were distressed and showing signs of failure to a depth of 4 to 10 in. There, the full depth of the asphalt was removed, the base was compacted, a geogrid fabric was placed, and then hot mix asphalt was placed on top of the geogrid.

Following patching, crack filling was undertaken on the areas where the base structure of the road was still intact, but the asphalt concrete pavement was showing signs of distress.

Cracks were filled with a hot rubberized sealant to prevent moisture from entering through the road and eroding the

stable road base. Patching, crack filling and removal of thermoplastic pavement markings is an absolute necessity for the success of any pavement maintenance project. Prep work was completed to optimize the budget for the FHWA and extend the life of the park's existing assets.

Following the preparation, micro surfacing was placed. A mixture of aggregate and ambient temperature asphalt emulsion, micro surfacing is designed to adhere to the asphalt concrete surface. The aggregate in the micro surfacing is specifically graded to meet the Type II gradation, and must be clean and meet a durable rating specified.

The advantage of a micro surfacing is its quick set, which allows for quick traffic returns, and the product is stackable to allow multiple courses. The quick set can be a challenge when placing micro surfacing in the project's 50 parking lots. The quick set does not allow for the kind of hand work required in the parking lots. VSSI was able to create a formula and mix design that allowed for the workability and still meet the standards within the mix design and specification.

RIGOROUS TRAFFIC CONTROL

With 15 million visitors to the park each year (41,000 people each day), traffic control was extremely challenging and required more attention compared to a normal project. Because most are visiting for the first time, visitors may not be familiar with the routes.

Visitors may also be distracted by the views overlooking the Golden Gate Bridge and the city of San Francisco. The hilly landscape is appealing for bicyclists as they escape the city to enjoy the vast trails offered by the peninsula.

VSSI scheduled and implemented the project with minimal disruption to the park operations or visitors by implementing a rigorous traffic control program and maintaining a dedicated traffic control supervisor and on average eight flaggers each day.

There were 50 parking lots, most of them fully occupied during normal hours. This required VSSI to constantly communicate with the park service, FHWA and the public by means of notification of all affected parties in advance of operations.

Where possible, VSSI split parking areas in half to accommodate users while working. The FHWA representative credited and praised traffic control operations several times on the job which resulted in a satisfied customer.

MAINTAINING ECOLOGY

As in most national areas, maintaining the ecology is of utmost importance. The impacts from construction operations can be devastating if not properly controlled. Procedures were followed to ensure little to no impacts were caused.

- **Prior to mobilization** onsite, equipment was sanitized with high-pressure hot wash system to make sure no

invasive plant species were brought into the recreation area.

- **Plastic was placed** under stockpiled material and a strict storm water pollution control plan was followed to assure no runoff from stored materials happened.
- **Drain inlets were** protected to prevent the potential of runoff into water ways such as the Rodeo Lagoon, which attracts photographers who want to catch photos of the many species that inhabit the lagoon.

Environmental protection of the park ecology is only one aspect of the quality control measures that are required by the FHWA for National Lands projects. The protection of existing buildings and other structures that may be deemed historic is an absolute must. Structures including concrete curbs and sidewalks, stone walls, and wood fences, needed to be protected with plastic sheeting to protect from overspray and splashing of material.

Clearing of shrubs and brush was closely watched by the park service to keep the natural undisturbed look of the park.

QUALITY CONTROL

VSSI also hired an engineering firm to perform and implement the quality control. It's the contractor's responsibility to perform the quality control, as the agency does the quality assurance.

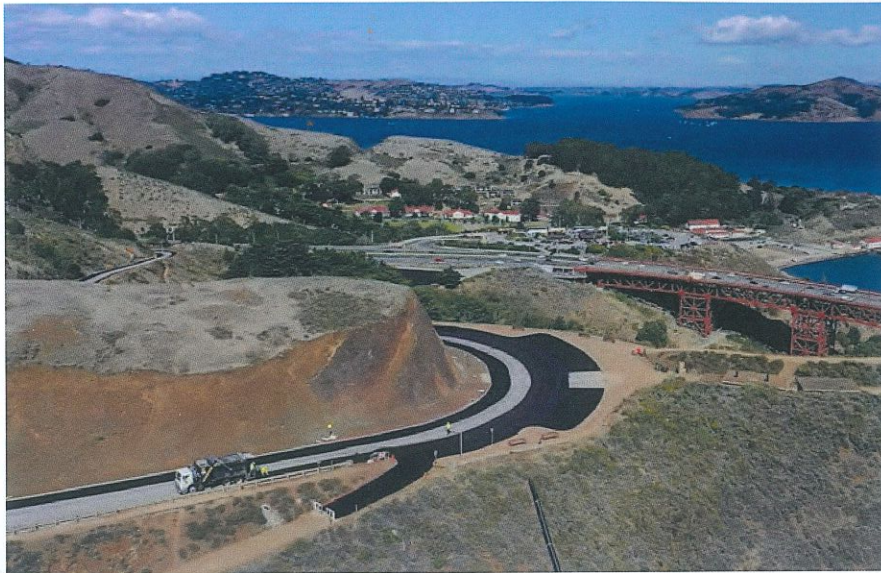
Among the duties of the quality control manager is verifying the preparation of the surface of the roadway, that the surface is clean, free of loose material, that thermoplastic has been removed to allow bonding, and the weather is suitable and within the range of the specification.

During construction, the quality control manager has the responsibility of sampling and testing the gradation of the aggregate for the micro surfacing. Test results need to be turned around and reports submitted within 24 hours.

Also, the manager verifies compaction testing for the asphalt repairs, and verifying the depth of patches prior to replacing with asphalt concrete. Daily reports are required to be submitted to verify the notes and acceptance from the FHWA.

There were specific timing requirements for closures on routes. VSSI worked with FHWA and the park service to minimize the impact to traveling public. One-way





impact was minimized was a 48-hour complete closure of Conzelman Road East and McCullough Road, which are the most heavily traveled roads within the park.

Message boards were placed by VSSI two weeks in advance of the closure and a press release was sent out by the park service to inform the public of the upcoming closures. It was crucial to complete this section of Conzelman Road and McCullough Road in this 48-hour period to ensure a second notification to the public—and the inconvenience to the park—would be avoided.

As part of the contract, Conzelman West was also a complete closure,

which included a winding three-mile, one-lane road running along the Pacific Ocean shoreline that has an 18 percent grade. This section proved to be another challenge.

To complete this section of road the crew needed to be confident, cautious, experienced, and equipped with VSS Macropavers to complete this difficult section of roadway. VSSI's expeditious implementation of resurfacing on some of the parking lots at Muir Beach was remarkable due to the amount of tedious handwork involved, and the need to have the parking open to the public the same day.

AMBIENT CONDITIONS

Weather on the Marin Headlands can create its own clouds when moist, warm Pacific Ocean breezes are pushed into higher, colder air, causing condensation, fog, fog drip, and perhaps rain.

The crew needed to be flexible with the schedule and start work in areas that were suitable to place micro surfacing and wait for the morning fog to dissipate in the afternoon sun. This was a cause of concern, with a mandatory shut down for Fleet Week, which is an event in San Francisco that draws many tourists to the Golden Gate National Recreation Area.

Overall, VSSI showed tremendous ability to deliver the job on time in that climatically challenging location.


VSSI completed 15 miles of roadway, along with several parking lots, utilizing 2,200 tons of aggregate and 350 tons of micro surfacing emulsion. Black aggregate supplied from George Reed Table Mountain provided the final surface with a dark appearance, rendering the roads aesthetically pleasing for years to come.

VSSI accommodated park service needs throughout the life of the project by providing them flaggers on weekends for their major events.

With the abundance of bicycle traffic, VSSI provided delineators on Conzelman East while a drawing was being completed for the reconfiguration of the permanent striping. This was done to create a temporary lane for bikes and mimic the new configuration from bidirectional road to one-way traffic.

Due to the bicyclists' use of the road, post-sweeping needed to be completed to ensure the safety of public on the steep down hill roads. VSSI continued to post-sweep throughout Fleet Week in insure the safety of the traveling public.

Once Fleet Week was wrapped up, VSSI completed the remaining items on the contract and the job was accepted by the National Park Service.

The cooperation between VSSI, the FHWA and the NPS, the overall product, safety of the crews and traveling public was a great success, providing a scenic roadway that all visitors will enjoy for years. 

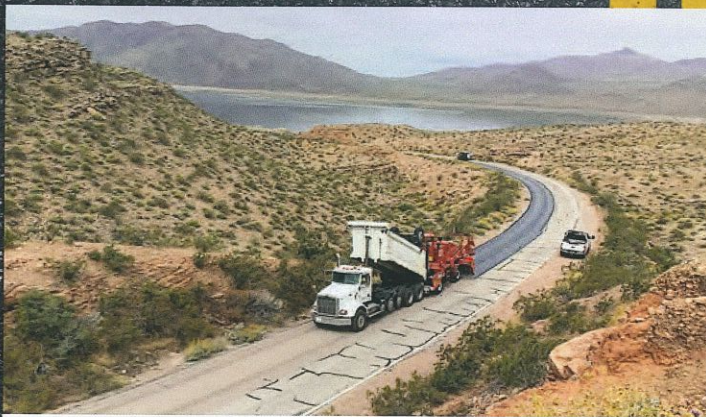
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**YOSEMITE NATIONAL PARK
PAVEMENT PRESERVATION –
NATIONAL HISTORICAL PARK**

Owner:National Parks Service
Location: California
Completion Date: November 2019



VSS International, Inc. completed more than 750,000 square yards of microsurfacing throughout Yosemite National Park during the summer of 2019. Work included placement of Type 2 microsurfacing materials at dozens of campgrounds and parking lots, and also included a Type 3 microsurfacing application on major roadways such as Big Oak Flat Road and Tioga Road at elevations nearing 9,632 feet. This scenic park attracts over 300 million visitors each year and VSS went to great lengths to ensure minimal disruptions during their visit to the “Crown Jewel” of America’s National Park System.



**LAKE MEAD NATIONAL RECREATION AREA
PAVEMENT PRESERVATION PROJECT –
PHASES 1 & 2**

Owner: National Parks Service
Location: Arizona & Nevada
Completion Date: May 2020

VSS International, Inc. completed more than 550,000 square yards of Type 2 microsurfacing and 1,000,000 square yards of 3/8” chip seal and fog seal at Lake Mead National Recreational Area. All work was completed in two separate phases between August 2019 and May 2020.

**SAN JUAN ISLANDS
PAVEMENT PRESERVATION –
NATIONAL HISTORICAL PARK**

Owner: National Parks Service
Location: San Juan Island,
Washington
Completion Date: December 2019



VSS International, Inc. completed Type 2 microsurfacing at multiple locations in San Juan Island National Historic Park during the summer of 2019. Work included roadways and parking lots at historic English Camp and American Camp sites. This project presented many logistical challenges as all required materials and crew resources were ferried from mainland Washington state to the island as needed for the successful completion of this project.



PAVEMENT SPECIALISTS



MICRO SURFACING

SLURRY SEAL

FIBER SEAL

ASPHALT RUBBER

CHIP SEAL

CAPE SEAL

CRACK SEAL



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