

NATIONAL PARK SERVICE
FINANCIAL ASSISTANCE: NOTICE OF INTENT TO AWARD

This announcement is not a request for applications.

This announcement is to provide public notice of the National Park Service’s intention to award a task agreement under a previously competed or single source justified master cooperative agreement.

ABSTRACT	
Funding Announcement Number	P17AS00744
Project Title	Develop Monitoring Protocols to Evaluate Vulnerabilities of Traditional Architecture Resources/Sites in the Arid West
Recipient	Frank Matero, University of Pennsylvania
Anticipated Federal Funding	\$52,836
Anticipated Period of Performance	9/12/17-4/12/19
Award Instrument	Task Agreement
Statutory Authority	54 USC 100703, 101702(a), (b)
CFDA # and Title	15.945 CESU
Point of Contact	Katie Gaertner Katie_gaertner@nps.gov

BACKGROUND AND OBJECTIVES

Cooperative Agreement Number P17AC00865 was entered into by and between the Department of the Interior, National Park Service, (NPS), and University of Pennsylvania (hereafter referred to as ‘Recipient’) for the purpose of providing research, technical assistance, and/or education, as described below. Unless otherwise specified herein, the terms and conditions as stated in the Cooperative Agreement will apply to this Task Agreement as well as those for the Colorado Plateau Cooperative Ecosystem Studies Unit Cooperative Agreement P14AC00921.

STATEMENT OF WORK

Statement of work: Past and current (2016-17) funding has allowed an initial inventory and assessment of past site records at Fort Union including historical photographs, construction documents, geotechnical and engineering analyses, weather data (back to 1861), as well as past and current conservation and management strategies. A preliminary survey of one unit of the Fort—the Mechanics Corral—was selected to generate useful diagnostics identifying the critical factors that are affecting the deterioration of the adobe walls. Such analyses hold the key to more sustainable interventions and the promise of preventive conservation and management. Under completion now is a two-year study to 1) record the original construction of individual buildings using field inspection as well as details from historical documents and photographs; 2) to quantitatively measure current condition and deterioration of adobe walls and stone foundations using non-destructive evaluation techniques (NDE) —especially photogrammetry, infrared thermography, and UAV’s (unmanned aerial vehicles) — to calculate wall loss, attrition, and profile changes over time compared to original wall mass, surface and profile; 3) to dynamically model current weather patterns on site using parametric software such as WUFI and Grasshopper; 4) to measure moisture content, surface temperature, and other wall conditions in real time, and 5) to perform real-time monitoring of the standing elements recording weather

phenomena and wall responses to those phenomena using time-lapse digital photography (GoPro cameras).

The data collected on orientation, exposure, and wall geometry suggest preferred conditions for the occurrence of certain deterioration and where combined, they have a synergistic effect of accelerating deterioration. Similarly, by better understanding the role of contextual factors in the deterioration of the walls, it should also be possible to monitor the performance of remedial treatments when these contextual factors cannot be mitigated or evaluate the application of preventive measures such as temporary wind screens, to remove or reduce their effect in causing deterioration in the first place. Taken together these data will allow the development of a protocol for site-wide assessment of the weathering and deterioration of adobe walls and a more nuanced understanding of how to intervene in both remedial as well as preventive methods to improve their weatherability as well as their interpretation for the public. This understanding will contribute to development of a protocol that will inform site managers on best-approaches to monitoring conditions over time, which will, in turn, allow for better management decisions to be made.

RECIPIENT AGREES TO:

1. Appoint Professor Frank Matero as Principal Investigator.
2. Hire graduate student research assistants (intern) to assist in the project. The investigator will have primary responsibility for selection of Interns.
3. The cooperator will perform the following tasks:
 - a. Collaboratively develop a work plan.
 - b. Provide oversight and guidance to team involved in the project.
 - c. Work with park staff to complete field and archival research.
 - d. Plan and conduct field work to execute investigations and to develop a vulnerabilities protocol for sites in the arid West.
4. The Recipient will produce a final report including: 1) Definitions and discussion of deterioration mechanisms and vulnerabilities of ruins in the arid West; 2) Methodology for the monitoring of historic walls/structures; 3) Protocol for developing a site conservation and management plan for these sites. Management recommendations will follow NPS and Department of Interior standards for cultural resource preservation (NPS-28).

NATIONAL PARK SERVICE AGREES TO:

1. Provide scaffolding and fall protection, electricity and water for the project.
2. Appoint Lauren Meyer as the NPS ATR.
3. The NPS will be actively involved in every aspect of the cooperative project. NPS will consult with Recipient about the location and method used for sampling and evaluation. Treatment locations and methods will be suggested by Recipient and vetted by the NPS staff, and ensure that work and recommendations follow NPS Reference Manuals, Management Policies, and Department of Interior standards. Additionally, NPS will complete necessary compliance for sampling and treatment. Access to work locations will require a combination of ladders, and/or scaffolding.
4. Provide cooperators with information required for completion for the study.
5. Provide joint leadership for all planned training activities at the site.
6. Fully acknowledge PI in any published or formally presented material developed or derived from this Task Agreement.

7. Participate, as appropriate with PI in a 60-day wrap-up period following the due date of the last project product.
8. Resource management staff at Fort Union NM will participate in the project in the areas of condition assessment and treatment testing. Cultural Resource and Facility Management staff will work with University personnel to review and agree upon project scope, budget, field techniques, and products.
9. Work with University personnel for dissemination of information in the technical reports through web-based media and/or special exhibit.