3D Laser Scanning & Digital Historic Preservation

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LIDAR
Light Detection And Ranging

• Light detection time of flight; R=tx
  50,000 points per second
• Phased Base
  500,000 points per second

Airborne Laser Swath Mapping-LIDAR Contour Mapping
Land Survey – Buildings – Ground Surfacing

Collision Detection & Conflict analysis
BIM
• Meta Data
• Complex Buildings
• AutoDesk Revit

Vector/2D Line Drawings
• High Degree of Accuracy
• Level of Detail & High Quality
Conservation/Preservation
• Existing Condition
• Condition Assessment & Condition Monitoring
• Interpretation/Visualization Tool
• Historic Documentation
Building a Sustainable Model for Cultural Heritage Documentation

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CyArk
Center of Preservation Research (CoPR)

University of Colorado Denver

- researching the past, understanding the present and informing the future.

- interdisciplinary approach to investigating and participating in the preservation of built environments, cultural and natural landscapes and cultural heritage.
At the Center of Preservation Research and the College of Architecture and Planning at the University of Colorado Denver, we are:

- **Redefining** historic preservation and cultural heritage in the context of the landscapes of the American West.
- **Educating** the next generation of historic preservationists.
- **Preserving** the past and examining the present to prepare for the future of our cities, suburbs, rural lands, and even our wildlands.
- **Developing** the use of cutting edge technology and research.
- **Partnering** with key organizations throughout the Mountain West, the United States, and the world.
Fort Laramie

Fort Laramie National Historic Site
1863 by Charles Moellman
Developing the use of cutting edge technology and research.
Fort Laramie: Phase I (CoPR and NPS)

3-D SketchUp Models
Parade Ground

View from Hospital

Barracks Interiors
Preserving Cultural Heritage Sites through collecting, archiving and providing open access to data created by laser scanning, digital modeling, and other state-of-the-art technologies.
Building a sustainable model for cultural heritage documentation

• Establishing Fort Laramie as a pilot project
• Drawing on CoPR's initial work at the site
• Exploring how the CyArk SiteManager system could be used to pull together existing data
• The benefits of applying new technologies to a heavily studied site. (comparison of HABS drawings with data created by scanning)
• Capacity Building through a Technology Center
Fort Laramie Pilot Project
Documentation -- discovery through research and site work and the recording of this provides knowledge and meaning relevant to making preservation decisions for the future.

Telling the stories keeps the narratives of our history and our sites alive.
Training
Data Processing

Post Hospital Model
Cyclone Software
2D CAD Drawings
Virtual Tours

Fort Laramie

Directly adjacent to the Sutler's Store along what was known as Officer's Row, this attractively-built former Lieutenant Colonel's Quarters was constructed in 1884-1885 and is the only single-family dwelling at the Fort other than the commanding officer's house. The building is of lime-grout concrete construction with timber framing and has a large front gable with an iron post and rail porch.
CyArk’s Site Manager
SLIDESHOW INTRODUCTION TO
FORT LARAMIE
NATIONAL HISTORIC SITE

A collaborative project between the National Park Service, CyArk and the University of Colorado, Denver

click for a detailed history or for a brief overview go to the next slide

A Brief Introduction

Fort Laramie National Historic Site was originally established as a private fur trading fort in 1834. Situated in western Wyoming, the site witnessed the saga of America’s western expansion and Indian resistance to encroachment on their territories. This famous site of the American west was ultimately named a National Historic Site in 1960. In 2009 the site was the subject of a digital preservation pilot project between the National Parks Service, CyArk, and the University of Colorado, Denver.

Related Articles

Field Report: Digital Preservation of Fort Laramie National Historic Site

Related Projects
It [historic environment] has shaped the places where we live and work and is fundamental to the quality of life. It is one of the most accessible of historic narratives. Like other aspects of the environment, the historic environment deserves our most thoughtful care.

Sir Neil Cossons 2001