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Field Reports

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Field Report: Chicano Park, San Diego October 16th, 2026

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Publication Date

2026-10-19

Data Availability

The data associated with this publication are available at:

<https://openheritage3d.org/project.php?id=D6V31Z>

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Field Report:

Chicano Park, San Diego

October 16th, 2026



Chicano Park - mural capture beneath the Coronado Bridge

Field Report prepared October 17th 2026

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Expedition Overview:

This report details an opportunistic documentation test at Chicano Park in the Barrio Logan neighborhood of San Diego, California, carried out on October 16th, 2026, between 12:00 and 15:00 PDT. Two handheld capture systems were compared in the field: the LOOQ qCam, a GPS-assisted multi-camera photogrammetric mapping system, and the XGRIDS PortalCam, a LiDAR and camera scanner built for 3D Gaussian Splatting. Additional frames were collected with the CHEI iPhone depth capture app, developed by Aviral Agarwal, which records registered LiDAR depth and RGB frames from the iPhone.

Visiting researcher Alessio Martino of Politecnico di Torino collected the PortalCam and iPhone data, and Scott McAvoy collected the LOOQ scans. The capture resulted in 2 LOOQ mobile mapping scans of about 17 minutes each with good GPS coverage, 2 PortalCam Gaussian splat scans, and a series of supplementary registered LiDAR and RGB frames from the iPhone. Much of this work will be disseminated publicly through Open Heritage 3D ([doi:10.34946/D6V31Z](https://doi.org/10.34946/D6V31Z)).

A full listing of datasets and their contributors is provided in the appendix.

Please contact Scott McAvoy (smcavoy@ucsd.edu) for any questions regarding access to this data.

Site Significance and Location

Chicano Park sits in Barrio Logan, San Diego, beneath the interchange of Interstate 5 and the San Diego-Coronado Bridge (locally, the Coronado Bridge), between Logan and National Avenues. The 7.4-acre park was established in 1970, after construction of that interchange displaced many Barrio Logan residents. Those who remained occupied the land under the bridge for 12 days and, led by the Chicano Park Steering Committee, held firm through months of negotiation. The park's formation was signed into law in 1971, and mural painting began by 1973.

Today the park holds the largest concentration of Chicano murals in the world, more than 100 paintings across seven acres with sculpture and gardens. Painted on the bridge's concrete pillars and girders, the murals record the history of the Chicano community in Barrio Logan alongside figures such as Benito Juárez, Cesar Chavez, Frida Kahlo, and Our Lady of Guadalupe. Murals continue to be added and restored. The park was listed on the National Register of Historic Places in 2013 and designated a National Historic Landmark in 2017. It remains an active civic and cultural space, celebrated each April on Chicano Park Day.



On-site mural map from the Chicano Park Steering Committee, listing murals by lane with artists, dates, and restorations

Expedition Team

Alessio Martino (Politecnico di Torino), alessio.martino@polito.it

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Data Acquisition - 10/16/2026

This was an opportunistic test comparing the LOOQ qCam and the XGRIDS PortalCam, supplemented with additional registered LiDAR and RGB frames from the iPhone. We covered two main sections of the park beneath the bridge, stopping short of the skate park. Scott collected 2 LOOQ scans, each about 17 minutes long, with good GPS coverage. Alessio collected 2 PortalCam scans and supplementary iPhone frames.

Capture distance is part of the study. The murals sit at varying heights on the pillars and girders, some more than 10 meters above the ground (one pillar measures 56.38 ft, about 17.2 m, in the LOOQ point cloud), so the datasets will help compare how each system resolves detail with distance.

We worked to avoid disturbing other visitors. We did not capture areas where people were sleeping, including the central gazebo and the edges of the westernmost fountain area, so these appear as gaps in coverage.

Field Photos



Alessio Martino scanning with the PortalCam beneath the "Hasta La Bahía" mural



Capture at the "View From the Bridge" mural



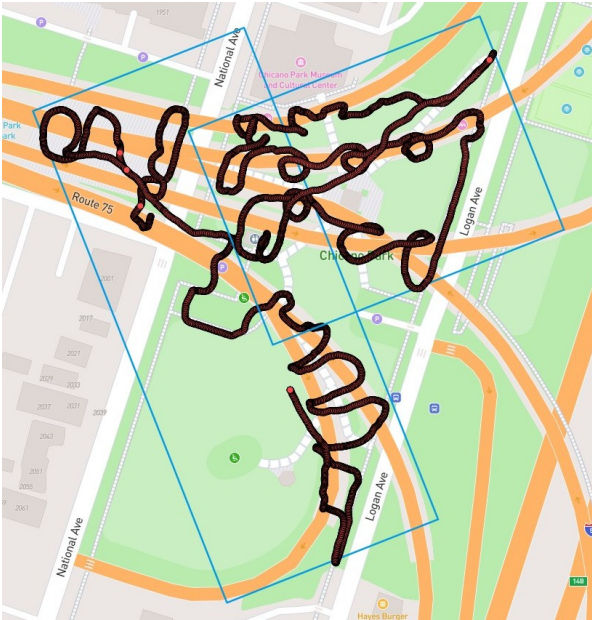
Capture beside the "¡Varrio Sí, Yonkes No!" pillar



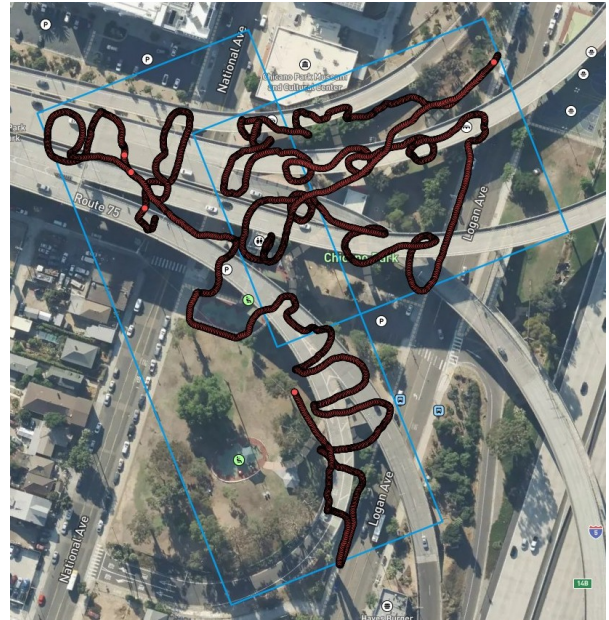
Capture across the park lawn beneath the bridge

LOOQ Results

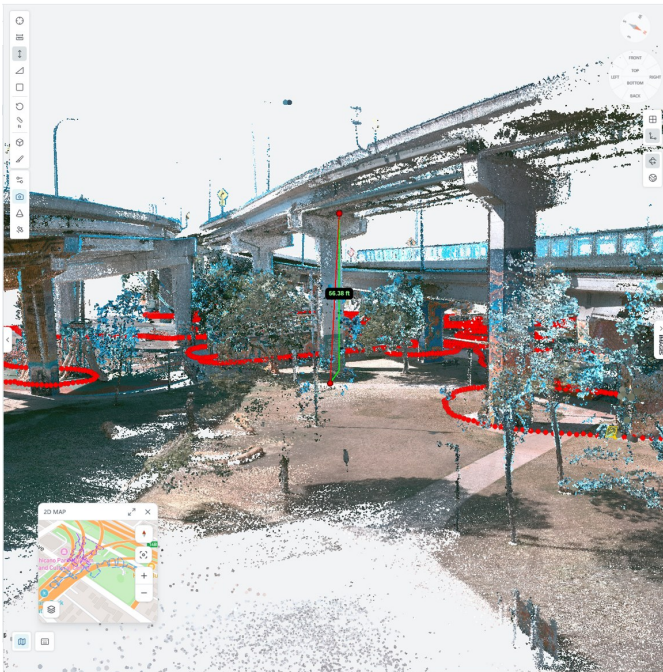
The two LOOQ scan trajectories are shown over street and satellite basemaps, with the scan areas outlined in blue. The point cloud and stitched panoramas resolve the murals on the pillars and the bridge deck overhead.



LOOQ scan trajectories over a street map



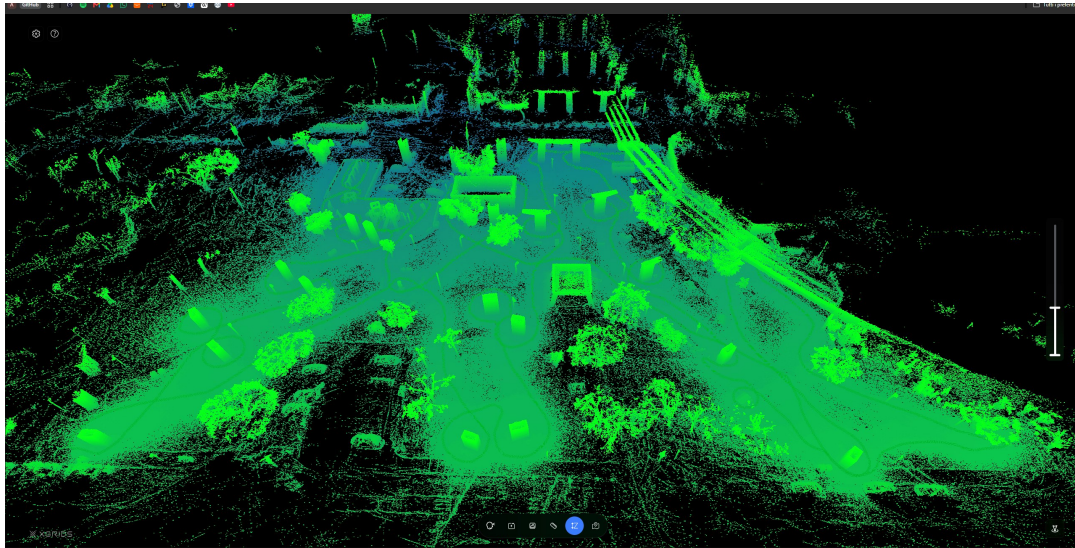
LOOQ scan trajectories over satellite imagery



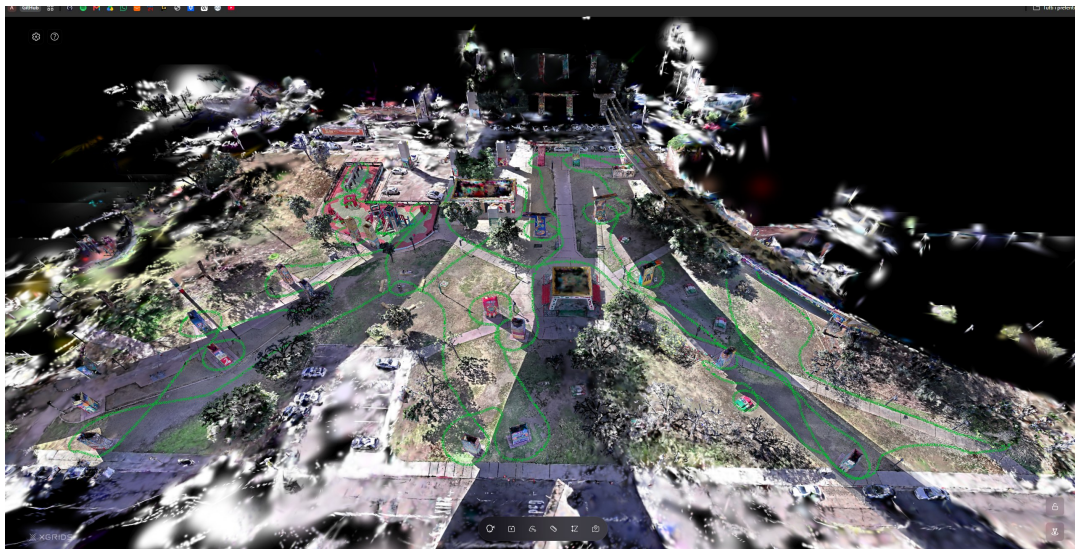
LOOQ point cloud with the scan trajectory in red and a 56.38 ft (17.2 m) pillar height measurement (left), beside a stitched panorama of a mural pillar (right)

PortalCam Results

The first PortalCam scan covered the park section beneath the bridge, looping around each mural pillar. The raw LiDAR point cloud captures the pillars, trees, and paths, and the Gaussian splat built from it in XGRIDS LCC adds photorealistic color, with the scan track shown in green.



PortalCam scan 1: LiDAR point cloud, colored by height



PortalCam scan 1: 3D Gaussian splat with the scan track in green



Video walkthrough of the PortalCam model:

<https://youtu.be/zy-cvXckvCw>

Imaging Equipment

Mobile Mapping System - LOOQ qCam



The LOOQ is a multi camera GPS assisted photogrammetric 3d mapping system with 4x 5mp cameras. The speed of acquisition, pre-aligned views, and built in lighting systems make the LOOQ ideal for tight spaces, caves, tunnels, alleyways.

Intended for infrastructure inspection, and positioning of spherical images, resolution and accuracy of 3d products are generally expected to be within 3 cm.

The qCam georeferences its models automatically using a Septentrio mosaic-X5 GNSS module with IMU processing [1], and LOOQ's cloud pipeline applies post-processed kinematic (PPK) corrections [2]. No ground control was set at Chicano Park, so positional accuracy reflects GNSS and IMU alone; an independent evaluation found survey-level accuracy when ground control is used [3]. The bridge deck overhead may degrade GNSS reception in parts of the park.

Gaussian Splatting Scanner - XGRIDS PortalCam



The PortalCam pairs a LiDAR sensor with a four camera array (two front cameras and two fisheye cameras). The LiDAR point cloud orients the imagery, and scans are processed in XGRIDS Lixel CyberColor (LCC) into 3D Gaussian Splatting models [4].

The resulting splat provides a photorealistic, walkable visualization that represents the murals and features of the park well.

Depth Capture App - iPhone

A depth capture app developed at CHEI by Aviral Agarwal records registered LiDAR depth and RGB frames from the iPhone's built-in LiDAR sensor and camera. It was used here to collect supplementary frames of selected murals.

Data Quality and Availability

The data provided by this project is not certified by a licensed surveyor. Measurements provided are subject to error. If an application requires a particularly high level of accuracy or precision (for example, a hydrological analysis) please contact the authors of this report.

The data is published publicly as cited below.

Alessio Martino, Scott McAvoy, Politecnico di Torino Architecture and Design Department, Cultural Heritage Engineering Initiative (CHEI) 2026: Chicano Park, San Diego, California - LiDAR - Mobile. Distributed by Open Heritage 3D. <https://doi.org/10.34946/D6V31Z>

Acknowledgements

Special thanks to [Loog.ai](https://loog.ai) for their continued support of CHEI field documentation, and for the LOOQ qCam platform and processing used in this survey.

Appendix - Data Inventory

Description	Collector	Sensor	Data Location
LOOQ Scans (2), about 17 minutes each, two park sections under the bridge	Scott McAvoy	LOOQ qCam	smcavoy/san_diego/chicano_park/
Gaussian Splat Scans (2), two park sections under the bridge	Alessio Martino	XGRIDS PortalCam	smcavoy/san_diego/chicano_park/
Supplementary registered LiDAR and RGB frames of selected murals	Alessio Martino	iPhone, CHEI depth capture app	smcavoy/san_diego/chicano_park/

References

- [1] NovAtel Velocity: Precise, dynamic positioning for a bold, new reality capture system. <https://novatel.com/tech-talk/velocity-magazine/velocity-2025/precise-dynamic-positioning-bold-new-reality-capture-system>
- [2] AEC Magazine AI Directory: Looq. <https://aidirectory.aecmag.com/?p=426>
- [3] Geo Week News: Field Evaluation of Photogrammetric SLAM for Infrastructure Asset Mapping. <https://www.geoweeknews.com/?p=50267>
- [4] Laserscanning Europe: XGRIDS PortalCam. <https://www.laserscanning-europe.com/en/node/3692>
- [5] Visit San Diego: Chicano Park. <https://www.sandiego.org/article/chicano-park>
- [6] National Trust for Historic Preservation: Explore the Murals of San Diego's Chicano Park. <https://savingplaces.org/stories/explore-the-murals-of-san-diegos-chicano-park>
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- [8] California-Mexico Center: Chicano Park guide. <https://www.california-mexicocenter.org/?p=19138>