

A linen backed map from 1905 showing the water distribution system for Contra Costa County. It's almost as big as Contra Costa County!



## Digitizing GIANT maps for the San Francisco Public Utilities Commission

The archive at the San Francisco Public Utilities Commission is the most extensive collection of documents, photographs, blueprints, drawings and maps that chronicle the development of the water system for Northern California. The system is a public works infrastructure on the same scale as the railroads and highways, with a profound influence on the history of California.

What started as the Spring Valley Water Company in 1860 morphed into a vast system of dams, aqueducts, canals and pipes that stretches from the Sierras to the ocean – and fueled the growth of San Francisco, the East Bay and Silicon Valley.

Big projects seem to beget big maps. That was clearly the case when the PUC recently discovered a treasure trove of documents and maps from the 1860's to the early 1900's that were presumed lost in the 1906 earthquake.

These are truly one-of-a kind historical assets, and include a set of hand-drawn wall maps that were used to manage the acquisition of real estate and track the development of the system. They're huge – some as large as 18 feet long! On top of that, after decades in a storage container they were covered with dust and dirt, and were brittle and difficult to unroll. The PUC wanted them digitized to share with historians but didn't want the maps to leave the archive annex.

The resulting 140 megapixel composite image of an 1890 hand-painted map of the water system. Every brush stroke is shown in great detail!



← 18 ft →

The PUC archivists had seen our work with large maps for U.C. Davis, Santa Clara University and the Marin County Library and asked us to help with the project.

We base our digitizing process on what we call “Raw Rapid Capture” which is a high-resolution photographic capture in the wide-latitude RAW format. It's fast, low impact, and produces exquisite detail. Each frame can be up to 50 megapixels.

Large maps present a special challenge because they frequently involve very fine detail on a very large surface. For maps up to 4 x 6 feet we have a proprietary system that allows us to carefully move the map under the camera while taking a series of accurately aligned 50 megapixel images. These shots are stitched into a final composite image using Adobe software. The final files are often hundreds of megabytes in size with astonishing detail.

A six foot map is a large item to capture. An eighteen foot map is ridiculous! It's especially challenging in the PUC archive because there isn't eighteen feet of unobstructed space anywhere in the annex!

Preparing to pull a linen map over a cross bar to shoot the five separate shots that would be stitched into a final image



Necessity being the mother of invention, we rigged a novel pipe and drape system that simulated the flat moving map system we use for smaller maps. We draped the map over a horizontal bar near the ceiling and successively pulled section after section over the bar and into the camera's field of view. A pair of construction lasers helped assure that the map was perfectly flat to the camera, which is the key to getting a good stitched result. It sounds complicated but once we were set up the maps were captured in mere minutes!

It's satisfying to know that these amazing relics of California history have been brought out of complete obscurity and can now be seen in sharp detail by a wider audience.

To learn more about our Raw Rapid Capture Process visit us at [Act3Partners.com](http://Act3Partners.com).