

# 28 Feet Long! 1910 Railroad Elevation Map Conserved and Digitized

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## INTRODUCTION

The Northeast Document Conservation Center (NEDCC) recently conserved, digitized and created a facsimile print of a 28-foot long elevation and grade map of the Portland, Gray, and Lewiston, Maine Railroad for the Seashore Trolley Museum in Kennebunkport, Maine .

The elevation map dates to January 1910. Several years earlier, surveyors began covering the 30-odd miles between Auburn and Portland, Maine. Their efforts laid the groundwork for the Portland-Lewiston Interurban, the “high-speed” electric railroad that ran in Maine between 1914 and 1933. The rolled map was gifted to the Seashore Trolley Museum, which houses one of the Interurban’s original coaches, in 2017. It was not unrolled until it arrived at NEDCC in 2018, when it was determined to be 28.5 ft long (fig. 1).

## TREATMENT

Prior to treatment, four 4' x 8' lab tables were rearranged to accommodate the oversize map. Testing revealed that none of the media were sensitive to water or a mixture of water and alcohol.

Dry cleaning techniques reduced surface dirt. Afterwards, the map was rerolled onto polyester film, humidified and washed with filtered water/alcohol to clean the paper and reduce staining, discoloration, and acidity.

The map was then moved to a series of melamine-surfaced Masonite boards that had been lined up to carry out a “Dacron lining” method (fig. 3). This also served to keep the map flat while drying. In order to mend tears, fill losses and provide additional support, the map was lined with Japanese paper and wheat starch paste and methyl cellulose. After drying for a week the map was separated from the boards and trimmed (fig. 4).



Fig. 3: conservators Luana Maekawa, Suzanne Gramly, and Terra Huber prepare the surface to receive the map post-aqueous treatment.



Fig. 1: the map unrolled almost to its full length. Pictured: Luana Maekawa (front), Audrey Jawando (middle-left), Katie Boodle (back-left), and Suzanne Gramly (right)



Fig. 2: the map displayed extensive tearing, water damage, and mold.

## CONCLUSION

The rolled map was covered with a Melinex sheet and fastened with two cotton twilled tapes. It was housed in an archival tube box and returned to the Seashore Trolley Museum for permanent storage in their library. The facsimile offers the Museum the chance to show guests a replica of the map without jeopardizing its fragile condition, while the high-resolution archival TIFs can be shared among researchers studying Maine’s urban history. The map presented a unique challenge for the Center’s conservators and imaging staff that was accomplished with coordinated team effort, a spacious lab, specialized imaging equipment, and NEDCC’s extensive experience in treating and imaging very oversized objects.

## INITIAL CONDITION

The map was received rolled and partially flattened, resulting in regular, almost pleated planar distortions. The distortion was so pronounced and strong that the exact length of the map couldn’t be precisely measured. An approximate measurement determined that it was 19 5/8” x 28 1/2” in one continuous sheet of paper. The map was manuscript in black and red pen inks and graphite pencil on off-white, wove graph paper

There were numerous breaks and losses of varying degree in the paper (fig. 2). The left side of the map was outermost when rolled and was the most damaged, with a 9” x 16” loss at the lower left corner. Other smaller losses along the bottom edge extended for 40”. The bottom edge of the paper was generally tattered with many small tears and folds. Three very small edge sections were detached. There was also a 54” wide tear 2” up from the bottom edge of the paper that began approximately 145” from the left edge of the map.

The map had been exposed to moisture, resulting in water stains, numerous mold stains of various colors, and areas where the paper adhered to itself, causing skinning and small losses. There was also surface dirt and embedded mud that was especially heavy at the two ends, but which appeared as small heavy deposits scattered throughout the map.

## DIGITIZATION & REPRODUCTION

Following conservation, the map was digitized on NEDCC’s oversize materials workstation, which is a custom-designed 4’x8’ vacuum table on rails, allowing for movement along both X- and Y-axes. The design permits objects to be imaged at high resolutions in multiple, overlapping segments without excess handling. When imaging very long materials, such as the railroad map, NEDCC is able to rely on the map’s necessarily rolled storage format, as well as multiple collections photographers, to carefully digitize those overlapping sections, handling the map in a ‘take-up reel’ manner, unrolling, imaging, and then re-rolling, etc. (fig. 5). At 300 PPI, the final file measured 6,200 by 103,500 pixels.

NEDCC also created a one-to-one color-matched archival print facsimile, with losses filled digitally to minimize visual distractions, for handling and display (fig. 6). The print was generated on an Epson 9900 using their pigment-based inkset and the company’s UltraSmooth Fine Art Paper and was a single, continuous print reproduction of the original.

Fig. 4: Luana Maekawa trims the map’s lining.



Fig. 5: David Joyall prepares to photograph the map post-conservation, using NEDCC’s XY setup for oversized items.



Fig. 6: NEDCC photographers display the completed facsimile.

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