



120,000 Additional Historical Aerial Photos Now Available

Since 2006, the State Water Commission (Commission) has provided free, web-based access to the agency's data stores through their online MapService. Through the MapService, users can access the Commission's immense database of imagery, elevation data, and water resource records that the Commission has been collecting since the early 1900s.

When it was first created, the MapService was focused on providing all of the data that the agency uses in its day-to-day operations. This includes, but is not limited to: water level; water chemistry; water structures; and well drilling records. Since that time, available data has been expanded to support the needs of the surveying

community, as well as providing a clearinghouse for high-resolution, precise elevation data (LiDAR) all free for public dissemination and use.

The Commission has now added an additional MapService dataset, this one focused on historical aerial photography. Aerial photography has always been an integral part of the Commission MapService. However, that imagery has only included the last 20 years. What is now available through the MapService is different, in that its aim is to allow delivery, viewing, and comparison of the agency's vast historical collection of aerial photography, dating back to the 1930s.



1938 US Department of Agriculture



1952 US Geological Survey



2011 US Army Corps of Engineers

Aerial imagery of the site of Garrison Dam, pre-construction, under construction, and during the 2011 flood.

The conversion of these paper photos to a scanned digital file that can be used in modern mapping applications requires hundreds of hours of tedious work, as well as serious attention to detail by talented and patient specialists, through techniques such as geo-registration. Geo-registration is the process of adjusting one drawing or image (an aerial photo in this case) to the geographic location of a “known location,” such as the four corners of a section. In all, the Commission has almost 700,000 aerial photos in its inventory, and has committed thousands of hours of staff time to the effort.

“Since the late 1930s, tens of thousands, if not hundreds of thousands of dollars, were spent on the initial acquisition of these aerial photographs across the state, for a wide variety of projects. After their initial project use, until the advent of computer systems capable of serving up these data through an easy-to-use internet portal, they have sat unused in their original boxes, because they were difficult to repurpose for other projects in their paper form,” said Rod Bassler, GIS Coordinator at the Commission. “Now that they’ve been scanned and geo-registered for use in computer mapping applications, they’ve found new life for countless projects that require a snapshot of North Dakota geography in times past. Many of these photos may never be looked at, but for that one time and place for which a snapshot in time is required, they are priceless.”

Aerial photography at the Commission has been used in a wide variety of areas for over 75 years; from floodplain and ground water management, riverine studies, identifying abandoned dam locations, to even supporting law enforcement investigations. Having a window into the past gives people a unique chance to see what things looked like long ago.

These photos represent an immense amount of data, with approximately 160 terabytes of computer storage dedicated to their preservation and dissemination. Approximately 120,000 of these photos (in 250 project areas) are available right now through the MapService, and are ready to view or download.

Roughly 60,000 of these aerial photos were scanned from Commission and State Archive inventories, with the rest being obtained from federal agencies such as the Natural Resource Conservation Service (NRCS)/U.S. Department of Agriculture and the U.S. Geological Survey. Over 500,000 photos are in the queue for processing and development to make them available on the MapService. In addition, approximately 30,000 paper photos are also awaiting the scanning and geo-registration process.

The Aerial Photography MapService can be found by going to the State Water Commission website, Information & Education, and then Maps/GIS and Data, or by directly accessing it through <http://aerial.swc.nd.gov/>.

For more information, please contact the Commission’s GIS Coordinator at (701) 328-4998 or rbassler@nd.gov.

State-Federal Partnerships

In 2016, the Bismarck NRCS office approached the Commission with the offer of partnering in order to get historical photos (image at right is an example) in their field offices scanned and included in the MapService. The Commission oversees the efforts of staff hired by the NRCS, and uploads those photos onto the MapService for the benefit of the general public and government agencies. This partnership has resulted in an additional 28,000 photos being scanned, geo-registered, and added to the MapService. Although the agency has made significant progress in adding aerial photography, it is not a core function of the agency, and photos are added as staff time, project demands, and resources permit.

