

Preserving History through Partnerships

Partnerships play a vital role in the existence of the Natural Resources Conservation Service (NRCS). In December 2015, the North Dakota State Water Commission (NDSWC) announced online availability of an aerial photography map service, providing public access to a tremendous amount of aerial imagery by the Geographic Information System (GIS) division. This article prompted Jennifer Heglund with NRCS to seek a partnership, visioning the shared goal of preserving and providing historic imagery to the public and other agencies.

The project involves electronically scanning 9-inch by 5-inch or larger photos and applying geospatial

components so location can be easily found. The NRCS has photo imagery for each county dating back to the late 1930s, but has no method of providing them in a digital format. The NDSWC is the largest in-state digital archiver of aerial imagery, as well as large quantities of other GIS data. Since the inception of this partnership, approximately 25,000 photos have been scanned, 16,000 have had geospatial registration completed, and 9,500 have been uploaded to the server for viewing. “These historical records and the depth of information available, will be an excellent resource for producers and conservation planners for quality, commonsense decision-making,” says State Conservationist Mary Podoll, USDA-NRCS (ND). “These photos tell a story of the land. By adding soils data, plant and ecological data with yield data, you’ve created foundational information that can assist land users.”

For this partnership, the NRCS has provided monetary funds, office space, and computers to employees, while the NDSWC has provided the equipment (high resolution scanner), digital storage, and the expertise on archiving and uploading the imagery.

The NDSWC historic aerial photography map service is a web-based interactive GIS service that can be accessed from any browser (<https://aerial.swc.nd.gov/>). The imagery can either be viewed directly from the website or downloaded. To view imagery, first zoom to the location by using the + symbol on top of the page. Once zoomed in, all imagery available for that location will be listed on the left. Next, select the year you are interested in viewing. Other years may be viewed by clicking on them, and can be downloaded by using the green down arrow next to the imagery year (*see below*). This process is rather straightforward; however, aerial imagery may take some time to load depending on internet connection speed. The files are fairly large, so the download process may take a few minutes.

Rod Bassler, NDSWC GIS coordinator, states, “We started scanning our aerial photography holdings within the State Water Commission as a way to make it easier for our employees to find and use data that had been collected for various projects over the last 80 years. These projects, and the photos collected for them at the time, were simply intended to answer questions specifically related to that single project task. By geo-registering them and developing an easy to use map service for people to find and download the data, we’ve given second life to these data, and increased the return on investment for the initial collection. It’s now easy for our employees to quickly see that priceless “snapshot in time” that would be impossible if not for these photos. Additionally, we’ve made them available for anyone to download, providing our valuable photographic archives of 100,000 plus photos to the general public, other government agencies, and commercial entities for their benefit and use.”

The general public, non-profits, and government agencies who rely on aerial imagery will have a lot of uses

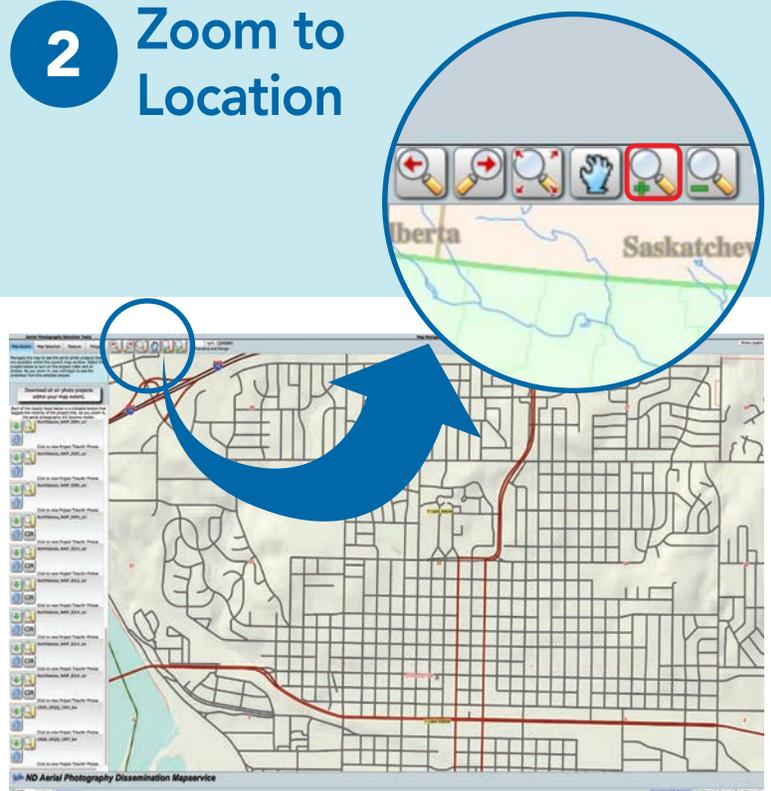
NDSWC Historic Aerial Photography Map Service

Step-by-step directions on viewing imagery

1 Open Website



2 Zoom to Location



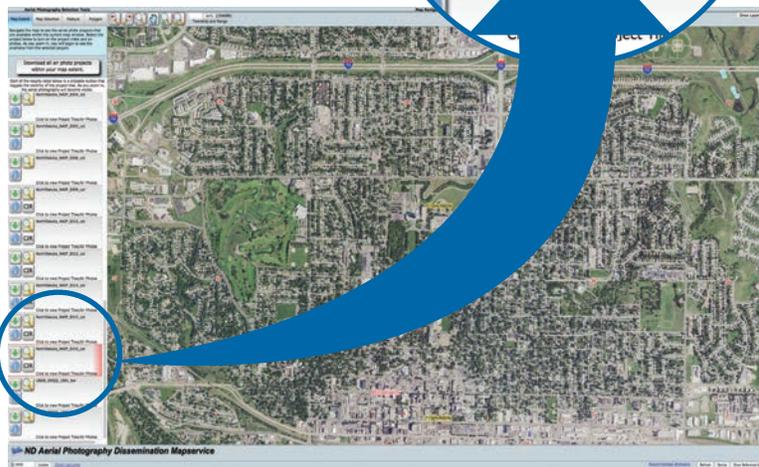
for this data. These images can be used to view changes in neighborhoods or towns over the last 80 years, or help connect people to their grandparent’s farmstead (Figure 1 and 2, page 12). “The images being archived through this partnership, as well as prior to this partnership, are a direct link to North Dakota’s past, and a link to a lot of North Dakotans heritage,” states NRCS Designated Conservationist Mark Suchy. “A connection to prior generations, and their determination can be made when viewing old homesteads, school houses, harvesting lines, railroads, and cities. When I view this old imagery, I am always intrigued that almost acre-for-acre, the land being farmed 80 years ago is the same as today.”

The NDSWC is using the imagery to permit drain projects or to assist in legal matters. Non-profit entities and other government agencies may find this imagery beneficial for reaching their desired goals, specifically when dealing with restoration to historic standards. The NRCS is using this imagery to assist with wetland compliance and conservation planning.

Wetland compliance in North Dakota, as well as other states, has become a hot topic in the last five years. North Dakota NRCS has always had the imagery available, but with only 14 compliance staff members spread throughout the state, getting this imagery into their hands has not always been an option. This project will assist with the 2015 implemented NRCS State Offsite Methods, which allows the use of normal precipitation year imagery to be used as a component of the certified wetland determination process. “An important feature of this site is that it contains the very images that NRCS uses when we conduct wetland determinations using our state offsite methodology,” says Assistant State Conservationist Jennifer Heglund, and State Wetlands and HEL Compliance Specialist. “Ideally, North Dakota farmers and ranchers can utilize the site to preview potential wetlands on their properties by visualizing the prevalence of wetness signatures. This will help them anticipate the outcome of the certified wetland determination when it arrives. This feature is the catalyst for NRCS’s participation in this effort. It

<https://aerial.swc.nd.gov/>

3 Select Year of Interest



provides a transparent, customer friendly, and understandable product to our clients.”

The historic imagery can be used to determine if areas are expressing wetland signatures or the presence of drainage prior to 1985, which is when crop subsidies became tied to wetland compliance. This helps to streamline our compliance process and allows us to deliver a high-quality product in less time to farmers.

If these images were not preserved, they would be lost to time. By making a digital copy of the historic images, they are now preserved for current and future generations to enjoy, as well as provide invaluable data to be reviewed. Partnerships between local government entities and the federal government are carefully vetted to make sure the project is mutually beneficial for all agencies, as well as the public. NRCS is hoping to continue funding this partnership until all historic NRCS imagery is scanned and uploaded for all to view.

USDA is an equal opportunity provider, employer, and lender.



Figure 1: Construction of Garrison Dam 1952.

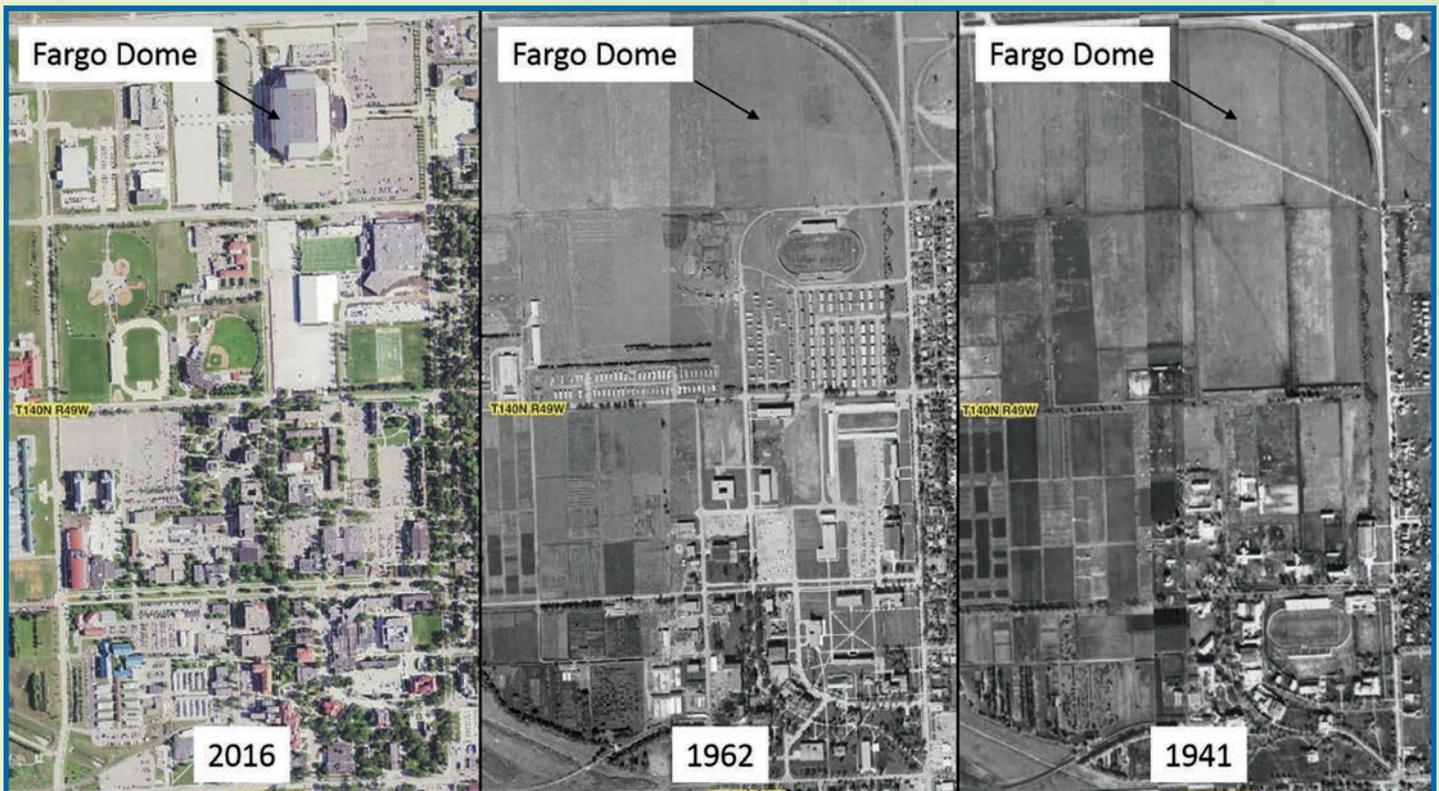


Figure 2: A 75-year comparison of North Dakota State University campus.