



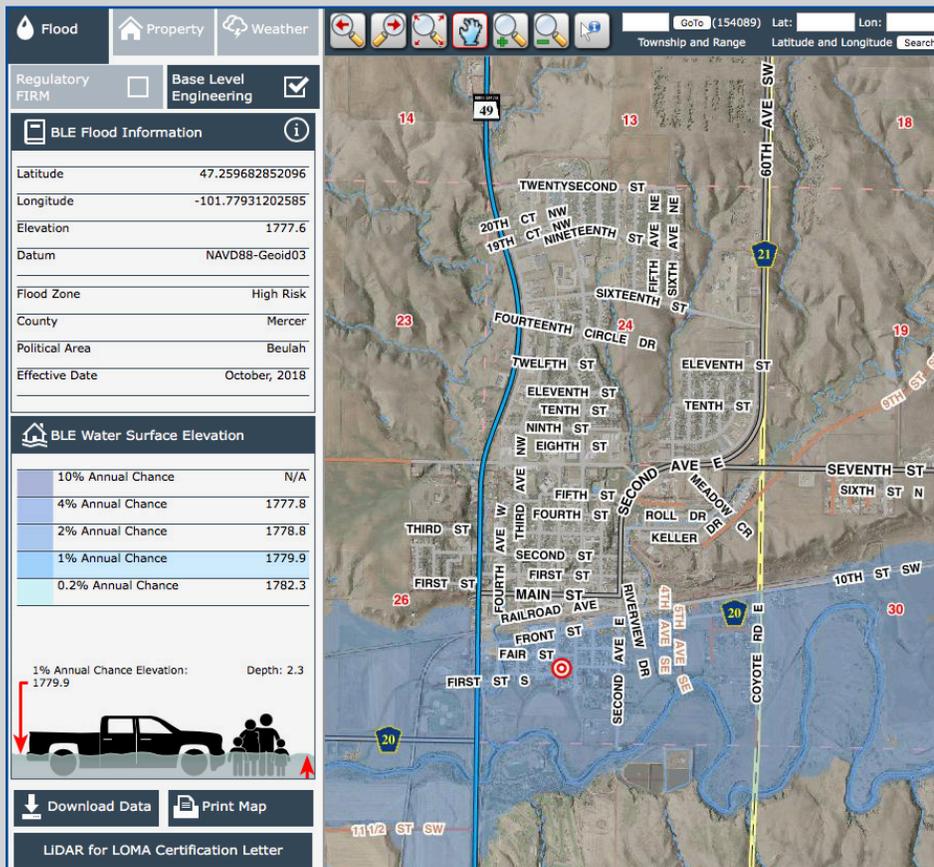
North Dakota has a long history of large scale flood events. Minot was inundated with flood waters in 2011.

NORTH DAKOTANS TO BENEFIT FROM FLOOD MAPPING TECHNOLOGY

The Federal Emergency Management Agency (FEMA) has completed a Base Level Engineering (BLE) effort in North Dakota, resulting in flood-risk data for every county in the state. The finished product will allow communities to understand their flood susceptibility, which can be used to better advise citizens about flood risk; a difficult and often costly task in areas with insufficient or non-existent data. Over \$6 million in federal funding for the project was provided by FEMA Region VIII with support from the Cooperating Technical Partners (CTP) Program, a partnership between FEMA and the State Water Commission.

WHY NORTH DAKOTA?

Since the early 2000s, the State Water Commission has strategically partnered with local and federal agencies in an effort to fund Light Detection and Ranging (LiDAR), resulting in coverage for the entirety of North Dakota. The state's substantial LiDAR data enabled FEMA to begin developing BLE data in late 2016, through its completion in summer 2018. In addition, the State Water Commission is uniquely structured to administer the BLE data, with staff including IT and GIS specialists, water resource engineers, and certified floodplain managers.



BLE DATA DISPLAYED

The graphic to the left uses the city of Beulah to demonstrate how the BLE data will be displayed using the Water Commission's map service. Users will be able to choose a property and the map service will provide relevant flood risk data. In this example, the small "target" at the bottom-center of the image represents the property chosen, and the left-hand side of the screen automatically populates with information including elevation, flood zone, water surface elevations, and even flood depth during a 1%-chance event. This BLE data meets the specifications and guidelines of a FEMA approximate study.

Using a large-scale, statewide dataset for hydrologic analysis has its advantages, as water does not follow political boundaries. Watersheds often cover areas of multiple cities, townships, and counties. FEMA's BLE method not only reduces inconsistencies compared to a city-to-city approach, but also results in significant cost savings for smaller communities across the state.

CITIZEN BENEFITS: DATA SHARING & MITIGATION

Many North Dakota communities currently regulate their floodplains with dated Flood Insurance Rate Map (FIRM) products, or are located in areas where FEMA has yet to determine flood risk. With BLE data, approximate floodplains can now be generated to reflect current flood risks for a given area, and the supporting technical engineering information supports floodplain delineation.

Communities can benefit from BLE datasets in a number of ways. For instance, the data can be used as a planning and zoning guide when considering future development. The digital format will simplify the process of public education and outreach, and make information more accessible. Elected leaders and public officials will also be better positioned to establish higher regulatory standards

or apply for hazard-related funding. Ultimately, the BLE project provides the information needed to increase flood risk awareness, and serves as a foundation for future detailed mapping.

DELIVERING THE NEXT LEVEL

The State Water Commission is in the final stages of developing a digital platform that will allow free public access to the BLE and LiDAR data via a user-friendly map service. The platform integrates existing FEMA regulatory information with BLE information, providing a statewide flood risk repository.

By entering a property address, stakeholders will be able to access LiDAR information specific to that location. Further functionality allows users to view FEMA regulatory floodplain data (where available), and the statewide BLE data. A final feature will display real-time weather warnings across the state, courtesy of the National Climatic Data Center's Next Generation Weather Radar (NEXRAD). The Water Commission plans to formally launch the platform and BLE dataset later this year. Questions regarding the platform can be forwarded to Laura Horner, North Dakota's Risk MAP Coordinator at 701-328-2759 or lmhorner@nd.gov.