

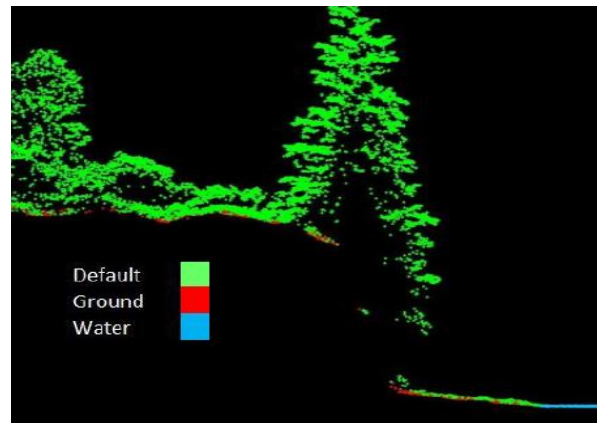
2019 Aerial Photography Report

Project Goal:

The 2019 Aerial and LiDAR project aimed to obtain high quality information that met or exceeded industry and scientific standards, to provide the City of Valdez with quality base information to meet current and future capital facility, planning and development needs. This information is also available for use by the public, and will eventually be accessed through a GIS website that is currently under development.

Aerial photography is used by the City of Valdez in numerous of ways. Historically, the last aerial image update was conducted in 2013 with other years flown in 2009, 2006, 2001, 1989, 1974 and 1964 with each successive project increasing in accuracy and quality due to technological advances.

Topographic information is used to display the changes in land elevation. Determining and measuring changes in elevation is very important when studying floodplains and floodways. Topography data is gathered by the use of LiDAR (Light Detection and Ranging). The surface of the earth is scanned and measured by analyzing the pulse time and quality of the return scan pulse.



RFP and Bidding:

The RFP was posted on June 5th, 2019 and closed June 21st, 2019. The city received 2 qualifying bids and Quantum Spatial was awarded the contract due to their qualifications, experience in Alaska, price and ability to meet the exact project specifications.

A contract was executed with a not to exceed the amount of \$95,277 on July 29th 2019.

Data Acquisition:

Quantum Spatial attempted to gather imagery on 8/21/2019, however due to smoke and haze, the imagery was rejected. On 9/6/2019 Quantum Spatial was able to collect acceptable images during a short smoke/haze free window. LiDAR data collection was captured the following day. Aerial images were gathered with a 260 megapixel UltraCam Eagle camera manufactured by Microsoft.

Data Delivery:

The City received delivery of data on December 30, 2019. No change orders were issued during the project. The QA/QC review process of the data delivered began immediately. Some minor defects were found on the aerial images and they were promptly corrected by Quantum Spatial. Final Acceptance of the deliverables was done on January 15th, 2020. Deliverable items included: aerial tiles, an aerial mosaic image, contour lines, a digital surface model, a digital elevation model, as well as the classified LiDAR point cloud data sets. All data was adjusted to the ground control survey work done by their subcontractor, Wrangell Mountain Technical Services. Other survey points were used for quality control checks during the quality assurance process.

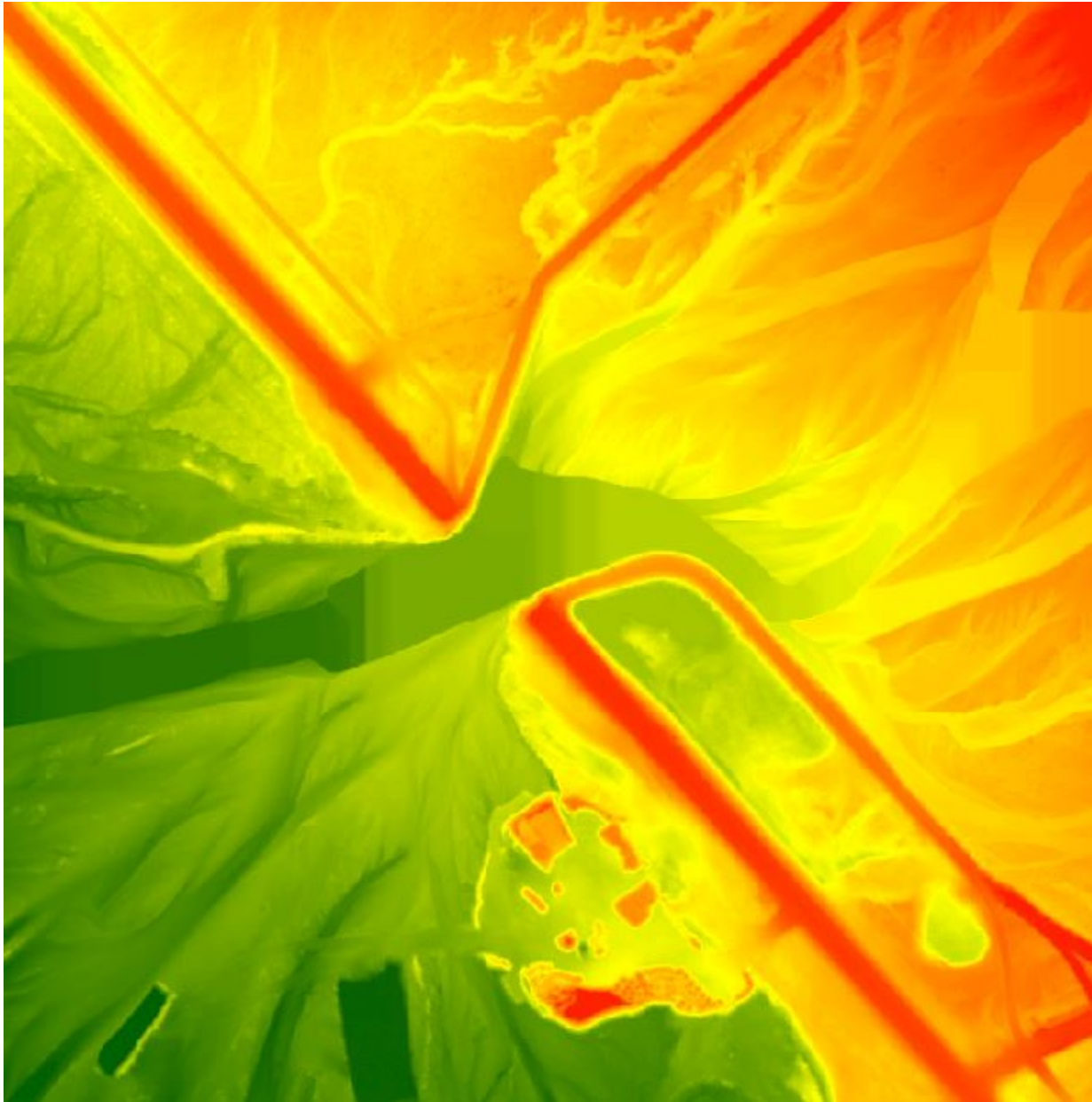
The final aerial images were delivered with a horizontal accuracy of ± 0.26 ft. and encompassed an area of 27,022 acres (42.2 sq. mi.). Areas included the project area were the Valdez Marine Terminal, Keystone Canyon and Valdez Glacier Lake.



Aerial Image at the South Boat Harbor near Hotel Hill with LiDAR derived contours with a 2' interval overlay.

The LiDAR derived products were specified to meet or exceed the FEMA 2016 Elevation Guidance for Flood Risk Analysis and Mapping and the USGS 2018 LiDAR Base Specification Version 1.3. These standards and methods ensure the highest quality data was returned to the

City with the best possible degree of accuracy. A high degree of accuracy is need to help our engineers and consultants to model and design our flood control projects and help planning staff make credible and reliable floodplain determinations based on the best available data.



The digital surface model (DSM) colorized to show the hydro-flattened water surface at Valdez Glacier Stream Bridge.



The digital surface model (DSM) colorized to show the flood control structures a 10 Mile. The GIS parcel layer is shown for reference.