



Bradfield Canal Road Study - LiDAR and Aerial Mapping, Wrangell, AK; Federal Highway Administration – Western Federal Lands Highway Division

White Shield provided aerial mapping services for this project using LiDAR (helicopter platform) and airborne GPS aerial photography for the Bradfield Road Study area, located approximately 30 miles east of Wrangell, Alaska. The project followed the North Fork of the Bradfield River in a northerly direction to the headwaters, and then followed the Craig River in a northeasterly direction to the Canadian Border. The proposed route is approximately 27 miles long and has varying widths of coverage. Specifically, the services involved the acquisition of high resolution LiDAR and orthophotography. High resolution LiDAR data was obtained in an approximately 47 square miles project area. The project was in support of a feasibility study for construction of a new road that would connect the Bradfield Canal area to the Canadian road system.



Field surveys included placement of permanent monuments to control the LiDAR and aerial photography missions and to facilitate the establishment of additional control for subsequent survey work. The GPS network was tied to 4 NGS HARN/CORS in the area. Control points were set to second order, Class II survey standards. Approximately nine miles of profile lines were run on gravel bars as a Q/C check of the LiDAR TIN/DTM.

LiDAR data was at vertical accuracy 0.5 ft. at a 90% confidence interval on hard surfaces, and the high resolution LiDAR data was used to produce a Digital Terrain Model (TIN/DTM). The data was "bald earth" at an approximate 3 ft. interval where the data penetrated the tree and vegetation canopy. Aerial photography included orthophotography flown at 9,600 feet above the average ground elevation with a photo scale of 1:19,200, and digital orthophoto mosaics having a pixel size of 1.0 ft. which were geo-referenced and scaled to within 2.0 ft. of the points collected with LiDAR and ground GPS surveys.