

Ad Hoc Technical Support Group for the BC Network of Lead Communities Investigating Missing Children from Residential Schools

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A DRAFT summary of Drone analysis for communities, by Andrew Martindale, UBC.

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The use of drones is often mentioned as a way of locating information about places where missing children are buried. This document outlines what drones are and how they can be used in ground searches and with **GIS** systems.

What are Drones?

Drones, also known as UAVs (unmanned aerial vehicle) or RPAs (remotely piloted aircraft) are small flying platforms that are controlled remotely by an operator. Drones are battery powered aircraft that typically have 4 or more propellers. They can be piloted manually, with the operator controlling their movement, or automatically, where a computer does the piloting. Drones are used in ground searches to make photomaps and **LiDAR** models of areas where ground searches are conducted. They can be used to help locate burials that are visible with marked or by their surface shape, or they can locate the places where other methods are used, such as GPR grids.

What Role Can They Play in Identifying Missing Children?

The search for missing children includes building maps of the modern landscape. Drones can be used to create photomaps, which are like satellite images but with much more detail. Drones can also be used for **LiDAR**, which creates models of the surface of the land, even beneath vegetation. These maps and models can sometimes identify burials themselves or are used to locate places where other technologies are used, such as **GPR**.

Drones can be used to make maps with different sensors, and there are many of these. Cameras create photomaps that look like high resolution satellite images. **LiDAR** sensors create 3D models of the landscape. Thermal sensors create heat maps of the land. Drones are used to fly the sensors over a landscape. The sensor sends out signals and/or collected reflections. These reflections are then turned into maps of different qualities of the land using specialized software.

Mapping with drones involves two steps: flying the drone and processing the results. Flying a drone large enough to carry a sensor requires special training and licensing from the government, because drones are considered aircraft. Most drone pilots take courses to become licensed. Flying drones is a regulated activity, but one that can be done with a small team of 2-3 people. Processing data from drone surveys is also specialized and requires training and specific software. The result are maps that can be used in GIS systems to assist in the location of missing children.

What Are the Challenges of Drone Analysis?

Drones require training and licensing to operate; processing data from drone sensors is a technical skill that uses special computer software. The resulting maps from drones are usually used in **GIS** systems, another specialized skill that uses specific software. Drone surveys can produce different results depending on the local conditions.

This document is one of a series that the British Columbia Technical Working Group on Missing Children and Unmarked Burials has created to help those involved in ground searches for missing children

The BC Technical Working Group includes: Dave Schaepe (chair), Anne Atleo, Sarah Beaulieu , Remy Benoit, Kathleen Bertrand, Cara Bendzy, Hugo Cardoso, Lisa Davidson, Shannon Enns , Colin Green, Erica Kay, Amber Kostuchenko, Hudson Kunicky, Kim Lawson, Andrew Martindale, David McAtackney, Ivy Peers, Whitney Spearing, Nick Weber, Vicky White, Brian Whiting, Ashley Whitworth, Megan Whonnock.

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