UAVs

Registered with the FAA in Kenton County

Unmanned Aerial Vehicles (UAVs) are becoming more prevalent in all facets of modern life. PDS uses this technology to improve data for various planning studies, to supplement data contained in its GIS, and to document current-day conditions on the ground across Kenton County. This project helps to illustrate what UAVs can do and to explain the restrictions and limitations on their use. PDS' UAV use is considered commercial. More information can be found in the Story Map at: linkgis.org

Drone2Map™ GIS Software

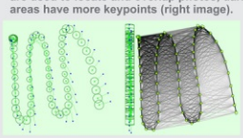
- Drone2Map is a software package that works with our partnership's enterprise GIS system.
- The software can create orthomosaics, 3D meshes, and more, using only UAV-captured still imagery.
- Drone2Map streamlines the creation of professional imagery products from UAV-captured still imagery for visualization and analysis in GIS.

Basic Operator Restrictions

- Recreational UAVs may not fly more than 400 ft above ground level.
- Operator must maintain a line of sight (LOS) at all times with their UAV.
- Must keep UAV at least 25 feet away from individuals and vulnerable property.

Drone2Map™ Flight Path and Image Calibration

- In this project 66 separate images have their positions calibrated to actual ground location (left image).
- Over 392,000+ keypoints (unique locations) are used to locate and overlap photos, darker areas have more keypoints (right image).



Commercial vs Recreational Use

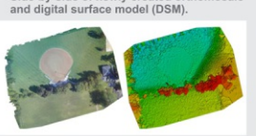
Commercial use of a UAV is any use in connection with a business, including:

- Selling photos or videos taken from a UAV.
- Using UAVs to provide contract / professional services, such as inspections or security.
- Professional real estate or wedding photos.
- Professional film / TV cinema photography.
- Providing contract services for mapping or land surveys.

Using a UAV to take photographs for your own personal use would be considered recreational; using the same device to take photos or videos for compensation or sale to another individual would be considered a commercial operation.

Drone2Map™ Aerial and Surface Data

- Creates an orthomosaic photo of the project area (center of photo has 5+ overlapping images, edges may have only 1 or 2 images).
- Calculates the X,Y,Z (Latitude, Longitude, Elevation) for 2.7 million points in the point cloud; average density of 366 points / m^3
- Side-by-side of newly created orthomosaic and digital surface model (DSM).



Know Before You Fly Awareness Campaign

- Insurance may be required to operate a UAV, especially for commercial uses.
- Commercial UAV operators are required to be licensed (FAA Part 107).
- Knowbeforeyoufly.org is an educational campaign for all things UAV related.
- You are required to report UAV accidents with damages over $500 (excluding UAV).

Drone2Map™ 3D Mesh

- Another derivative product is a 3D mesh of the project area. A 3D mesh is a model made of lots of individual polygons. 3D meshes use reference points (X, Y, Z) to define shapes with height, width and depth.
- It can take large numbers of polygons to make a 3D mesh look real, but these relatively simple shapes allow for faster processing than other techniques.

NKYmapLAB

August 2017 Volume 3: Map 5

Registered UAVs

- 11-15 Registered
- 8-10 Registered
- 4-7 Registered
- 1-3 Registered

Locator Map

Featured Data Sources

www.faa.gov (2016 database)
www.linkgis.org
www.pdskc.org
www.arcgis.com

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PDS

NKYmapLAB Awards

2017 ESRI UC Story Map Gallery | 2016 KY GIS Map Gallery | 2016 KYAPA Outstanding Tech | 2015 KY GIS Map Gallery | 2015 ESRI UC Map Gallery

direction 2030

Your Voice. Your Choice.

Goals and Objectives

C Community Identity
E Economy
G Governance
H Health
HC Healthy Communities
M Mobility
N Natural Systems
Primary Goal
Secondary Goal

How Does This Topic Apply to Direction 2030?

N **Strive to achieve a balance between development and preservation.**

HC Encourage innovative design on sites with constraints based on the presence of natural systems and incentivize the protection of quality open space.

G **Encourage cooperative governance.**

E Continue to encourage the sharing of technical tools and resources effectively reducing the cost of the system.