



CASE STUDY - M6, TRAFFIC FLOW SURVEY

WSP, 2018

PROJECT SUMMARY

LandScope Engineering successfully assisted a client with surveying traffic flows at four busy junctions of the M6 in the West Midlands. The project was designed around the use of drones to acquire video footage primarily to visualise the potential queuing and issues caused with traffic weaving and merging at the various junctions. Further to a detailed project planning stage, and taking into account numerous pre-flight considerations working adjacent to the carriageway, LandScope and Blades Aerial Survey carried out the surveys during a predetermined one hour peak slot during the morning and an additional hour in the afternoon.

RESOURCES



FIELD ACQUISITION

DJI Inspire Quadcopter

Litchi Flight Assistance Software



OFFICE PROCESSING

Adobe Premiere Pro

Pix4D Data Processing Software



PROJECT PHASES

- 1 PRE FLIGHT PLANNING**
Identification of appropriate take off and landing locations.
Seeking permission to fly and landowner access permissions.
- 2 FIELD DATA ACQUISITION**
Flying during peak morning and afternoon times at each of the four junctions.
- 3 OFFICE PROCESSING**
Combining flights into two files per junction (one for am and one for pm flight).
- 4 DELIVERY**
Re-rendered 4K videos (mp4).

THE DETAIL

Due to the complexities of flying near busy motorway junctions, planning the data acquisition flights involved a coordinated effort with the client and a third-party company who undertook vehicular counts concurrently with the drone survey.

Careful consideration was given to the cause and effect of the survey to mitigate any disruption concerns. We ensured all the necessary site and flight permissions were obtained from all relevant Authorities and Birmingham ATC, in addition to sourcing all land access permits from identified landowners. Consequently, all flights were very well planned and executed at an altitude of 120m and from points around 40m from the edge of the nearest carriageway.

The setup and configuration of the Quadcopter was essential to the success of this project to ensure we obtained the necessary coverage required at each of the junctions from the established take off positions. A wide-angle lens pointed at 45° with zooming capabilities, in addition to the ability to tilt the camera whilst in motion, proved to be the best approach to obtain the greatest coverage.

Videos with location, date and time code overlays covering each junction were delivered to the client. The 4k resolution offered an enhanced viewing experience with greater ability to zoom into the footage and the overlay information enabled easy identification of specific traffic flows.