# CTS-PRAS

Cunning Running Software provides innovative bespoke geospatial threat and vulnerability assessment tools. These tools support law enforcement, counter terrorism, and specialist crime agencies, in both the UK and overseas. CTS-PRAS, our Counter Terrorism Search – Position Ranking & Analysis System software, offers functionality and capability for use in Missing Persons Searches, Defensive Venue Analysis and Counter Unmanned Aerial Systems.

CTS-PRAS is used to support specialist teams at tactical, operational and strategic levels, for risk and continency planning using economical evaluation on the desktop or in the field. It has an excellent track record for time and cost savings and efficiency of resources.
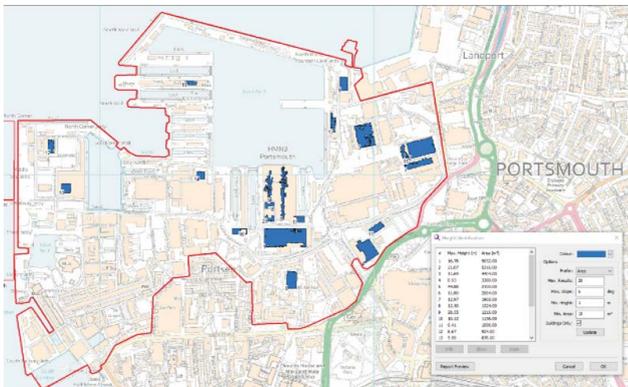
Precise Counter Drone Sensor Planning at a secure Government base
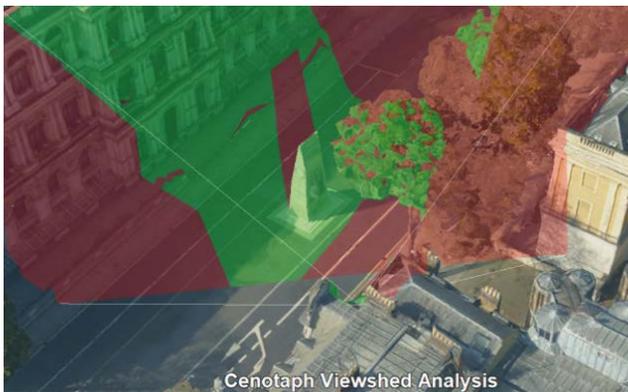
3D viewshed analysis at London Cenotaph to support major event planning
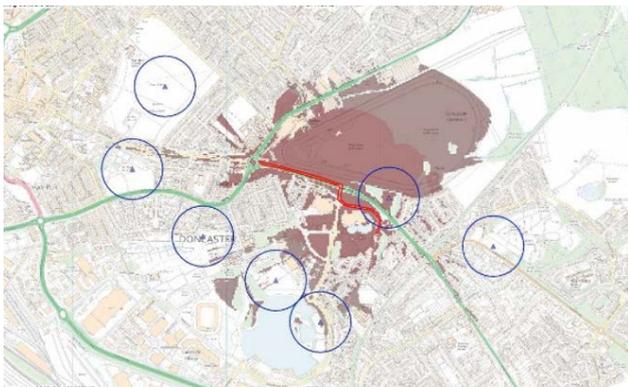
Identification of potential drone launch sites for a major sporting event

Improve accuracy of threat assessments

Use approved specialist weapon and geographic data, calculated using industry endorsed algorithms.

Standardise analysis and reporting

Ensure everyone uses standardised methodology, which can be easily updated over time, producing reports which can be quickly assimilated and used operationally.

Reduce cost and time

Proven efficiencies in reconnaissance, analysis, report production and data dissemination. Releases scarce physical resources, so they can concentrate on tasks that they are better suited for.

Share situational awareness

Ensure everyone quickly understands the immediate threats, risks, and mitigation plans.

Seamlessly share geospatial outputs with other platforms

Easily export to ESRI, Google or Resilience Direct (the UK Cabinet Office collaborative portal for emergency responders).

Counter-Unmanned Aerial Systems (C-UAS) Assessments:

The C-UAS element of our software is a Counter Drone Vulnerability Assessment Tool. It provides users with the means to identify both the potential drone launch sites and where the pilot may be situated around an event, target area or route. By identifying areas based on the size and maximum permissible slope of deployed C-UAS equipment, the software provides expertise for siting C-UAS detectors, trackers and effectors.
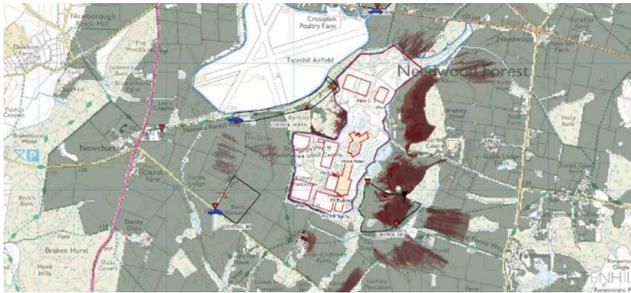

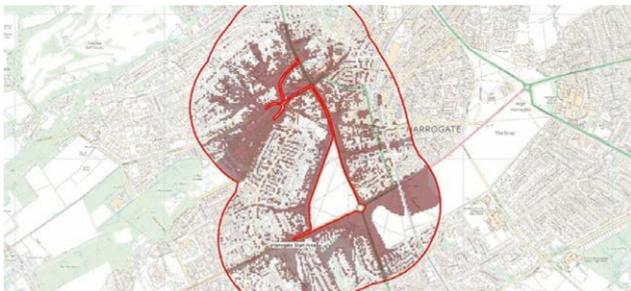*Image showing visibility trace of a drone for C-UAS planning*

Counter Drone Vulnerability Assessments (CDVA) are carried out by specialist officers or provided through our own expertise as a commercial service to efficiently streamline laborious manual work.

They are constructed on specific UAS characteristics, such as battery life, flight time or transmission range. A footprint is then created, based on Beyond, Extended or Visual Line of Sight of the UAS (from the pilot location). Additional rules can also be added to mitigate areas where a pilot may not operate from, based on any specific threat assessment or concern.

*Image showing visibility trace of a drone for C-UAS planning*

The software is ideal for analysis of major events or sports grounds, such as a Premier League stadium, or a pop festival. It was used successfully to support the 2019 UCI World Cycling championships in Yorkshire. Its use provided additional confidence and reassurance against the economic and reputational consequences of a drone incursion.

It identifies any potential UAS Launch Areas, mitigating the risk of UAS operations, such as unauthorized filming or delivery of illegal or hostile payloads. In the event of a live UAS strike, the software will aid in the capture and prosecution of the operating pilots. It can import recovered UAS flight data and display the flight path in both 2D and 3D, providing important legal evidence to support prosecution.

Incident Response Plans (IRP):

Our Incident Response Plans were developed in collaboration with one of our customers, South Wales Police. They can be used for pre planning of operations and use Joint Emergency Services Interoperability Program (JESIP) common symbology. They can be adapted or tailored for each individual project and event.

By utilising detailed geographic data for resilience planning and analysis, an IRP considerably reduces the time and cost of more traditional methods, such as personnel on the ground.
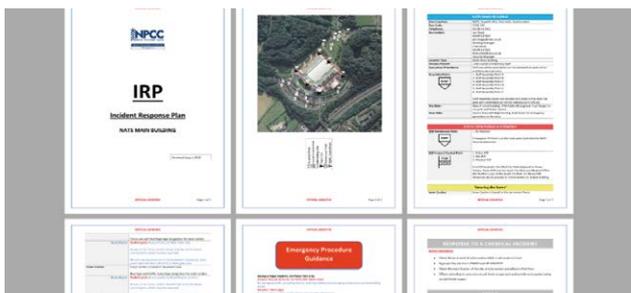
Overview of IRP for a potential critical incident at a Government building

The IRP is a templated document which can be auto filled or manually populated with critical information to be used as an emergency plan, in preparation for a major incident or crisis, or for business continuity.

This could be a Critical Infrastructure Site, pop concert, public building, or shopping centre. Anywhere that a quick and sudden evacuation or operational procedure needs to be implemented.

Shared situational awareness map for a festival at a stately home.

The IRP contains information such as detailed mapping, evacuation methods, rendezvous points, cordons, traffic control points, diversions, and site risks. It enables rescue services to interact and perform the task in hand correctly, and efficiently.

It is an ideal briefing tool for multi-agency collaboration, to be used in a time of crisis or concern and can be easily printed, exported, or shared.

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Technical Surveillance Planning:

The software has demonstrated excellent time and cost savings for UK Policing where surveillance can be undertaken via desktop investigation reducing physical ground footprint.

When supporting covert operations, it can greatly reduce the time of manual preplanning tasks, from several days to around one hour. Through plotting or knowing the capabilities of specific sensors and cameras, an operational picture can be quickly assembled. The optimisation of sensor position and coverage can be understood and either designated for search, or upscaled for improved coverage.
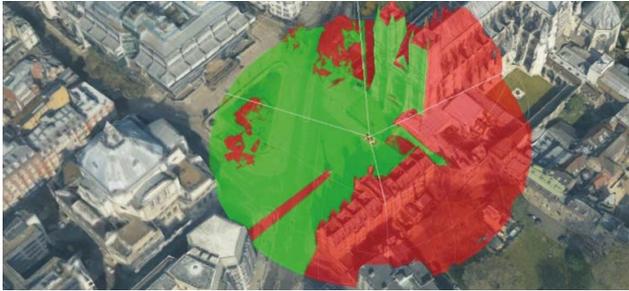
Limousine with VIP shown parked outside Westminster Abbey

CTS-PRAS reduces operational cost and the likelihood of mission compromise, by plotting where you can place cameras at target locations. It also allows the user to analyse sensors and CCTV, to show their detect, recognise and identify ranges, based on camera characteristics, and any overlapping coverage.

Any areas not covered are also identified and understanding built of ideal positions to watch a target, to position friendly fire, or to carry out optimum covert operations. The surveillance plan can be shown in 2D or 3D.

Defensive Venue Assessments:

Developed in collaboration with our customers such as the UK National Counter Terrorism Police, the software gives the user a detailed vulnerability assessment of the surrounding terrain. This will help to identify viable direct and indirect firing positions, reducing the threat and operational risk.

Mitigation can be planned for VIP visits, Nuclear (or high value) convoys, Critical National Infrastructure and Crowded Places, amongst others, assisting security teams to carry out effective, and systematic protection of specific sites.

Assessment of a moving target (in red) from Buckingham Palace to Horse Guards Parade

A Defensive Venue Assessment can plot sniper positions, identify and build counter sniper towers/positions, carry out and verify ground searches and provide IED cordons and safety zones.

It can also provide Counter Sniper Positions for a major event or VIP visit. It can show the height requirement of a tower prior to build and show the area it will survey, including any blind spots.

High profile events where the software has been used include NATO conferences, US Presidential visit, the British Grand Prix and D-Day commemorations in Portsmouth.

Missing Persons Search:

Hundreds of people are reported missing every week in the UK and whilst most are found or located relatively quickly, some are not and therefore complex and detailed investigations will begin. Police Search Advisors (PolSAs) are the specialist officers responsible for coordination of searches for high risk missing persons and our software is often used to assist them to carry out their work.

To do this quickly and efficiently, they need maps, aerial photography, and geo-spatial tools, alongside the integrated historical databases, to quickly provide information of the best places to deploy search resources.
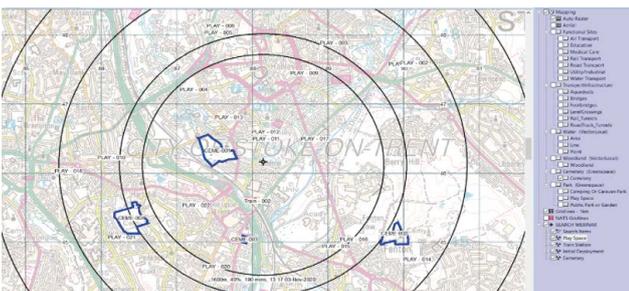
Search area shown with identification of vectors within search rings

Our software provides quick Identification of search areas, assessment of relevant data and leads to rapid deployment of search teams. Grids can be created and divided into sectors, with relevant areas prioritised. Through the querying of the iFind and Grampian datasets and querying of spatial information, such as water, parks, play areas and cemeteries, detailed knowledge of a location is not required to identify the search areas.

Updates and progress can be communicated to the Senior Investigating Officers and command chain. The tools allow a clear audit trail of decisions which are documented along with their rationale, often taken under difficult conditions and tight timescales. It is used to help with many searches for children and those with depression, dementia, or suicidal thoughts, including several high-profile cases.

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MANPADS, Rockets & Mortar attacks:

Our early software versions enabled the modelling of potential attack from stand-off weapons around military and later, civilian airports. This is still a key functionality of our offering. CTS-PRAS can consider changes in flight paths, terrorist tactics and cloud cover on the area where effective engagements could occur. Any subsequent analysis can be discussed and mitigated with aircrew and ground protection personnel, thus minimising potential threats to aircraft.

Aviation assessment for possible MANPADS launch position at a UK airport

Our software solution is used worldwide in counter-terrorism situations.

The patrol planning capability it provides ensures that high-risk sites are frequently visited to maximise the chances of uncovering and disrupting terrorist activity.

It has evolved to meet new threats to aircraft, such as laser strike, which analyses patterns from aircrew laser strike reports. This capability has recently led to the successful identification of perpetrators and their subsequent arrest.

3D Mapping with enhanced data capture & capability:

The software we provide is agile and constantly adapting to the ever-changing needs of our customers. The enhanced 3D capability shown here, will add another level to the analysis that can be achieved through simple visualisation.

Our in-house drone capability allows us to capture detailed mapping quickly and economically, and we can ingest data from other drone sources as required.

Other tools include converting and importing drone flight tracks and we are working on including drone mission planning, all aimed at enhancing the user experience and providing more timely and relevant information to the end user.
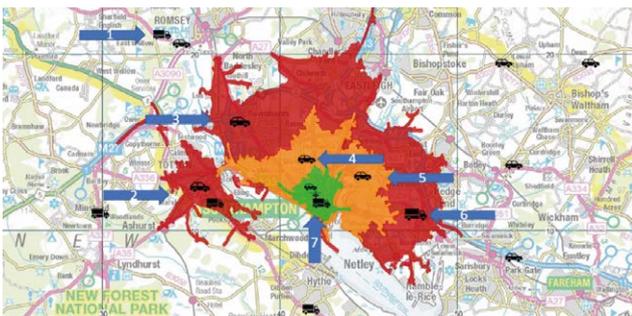
Our new enhancements provide powerful tools in a high-resolution 3D environment in which the user can view, query, analyse and present geospatial data. This provides extensive capabilities to easily process and disseminate 3D geospatial content to key command teams and end users.

The second image shows intelligent travel times and works with third party information, such as CCTV, ANPR and average travel mode speeds, to look at the likelihood of where an offender may have travelled to or from to commit crime, using a Red/Amber/Green system.

The tool will aid investigations and categorise calls from the public, who wish to help with information they believe is potentially valuable.

Summary

The wide range of informative information provided by Cunning Running's software, along with an intuitive user experience, will enable any law enforcement or counter terrorism professional to develop plans in a fraction of the time that would be required if the work were carried out manually.

The assessments, analysis, and response plans, along with many other capabilities, can be used to brief the full chain of command, from strategic leaders to tactical ground patrols, thus enhancing shared situational awareness. When required, reports are easily created in standard or bespoke formats and can be easily understood and support decision making.

As well as offering full training and support for the software, we also carry out assessments using our experienced security cleared staff, giving you the option of hands-on usage, or working with us to obtain delivery of a project.

With over 30 years' experience in supporting Counter Terrorism capabilities in the UK and globally, we pride ourselves on working with our customers to ensure they have the right tools at the right time, to assist in preventing hostile activities and reduce the likelihood of an attack.

Threat Visualisation for the Real World

Cunning Running Software Ltd, Bell House,
32 Bell St, Romsey, Hampshire, SO51 8GW

Tel: 01794 834750
Web: www.cunningrunning.co.uk
E-mail: sales@cunningrunning.co.uk

Note: All imagery is unclassified and users generic weapon data.
Mapping provided by Ordnance Survey and Skyline Software Inc.