

Meeting	SPA Policing Performance Committee
Date	17 November 2020
Location	Video Conference
Title of Paper	Remotely Piloted Aircraft System (RPAS) Evaluation Report
Presented By	Chief Superintendent Louise Skelton, Operational Support Superintendent Craig Smith, Specialist Operations
Recommendation to Members	For Discussion
Appendix Attached	Yes Appendix A – Evaluation Report Appendix B – Evaluation Updates

PURPOSE

This report provides an evaluation summary and proposed recommendations following the operational deployment of Remotely Piloted Aircraft Systems (RPAS) by Police Scotland (PS) between 1 May 2019 and 30 April 2020.

Members are invited to discuss the content of this paper.

1. BACKGROUND

- 1.1 RPAS, colloquially referred to as drones, were introduced operationally on 1 May 2019 as an enhancement to the current Police Scotland Air Support Unit (ASU) providing a localised air support capability to the North.
- 1.2 An evaluation was requested by the Scottish Police Authority Policing Performance Committee and as such terms of reference were established:-
- Suitability of aircraft and equipment
 - Resourcing of trained pilots
 - Demand analysis
 - Operational effectiveness

2. FURTHER DETAIL ON THE REPORT TOPIC

- 2.1 RPAS are located at Aberdeen, Inverness and Glasgow. RPAS have completed 426 hours of flying since being delivered to Police Scotland. RPAS accounted for 18% of all air support deployments around Scotland during the evaluation period. There have been no adverse incidents or accidents.
- 2.2 RPAS type is a DJI M210 quadcopter with an endurance of 20 minutes. It is fitted with a dual sensor camera system including thermal image. Despite being advertised as weather proofed, there have been a number of failures of the M210 (not in Scotland) due to water ingress. The National Police Chief's Council lead for Drones is in dialogue with the manufacturers who have undertaken to make adjustments to M210 to address this issue. This will include those operated by Police Scotland.
- 2.3 They are predominantly deployed to missing person searches, however have been used for public order incidents, policing operations and post incident investigation. RPAS are not used covertly and there are no plans to do so as part of the ASU strategy.
- 2.4 RPAS trained officers located at Aberdeen and Inverness within the Operational Support Units (OSU). There have been challenges around availability of these officers due to their core role and competing demands at the OSU.
- 2.5 Demand for air support around Scotland remains high and consistent. There are tasking opportunities for RPAS, particularly in the North.

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The Police helicopter remains the primary air asset, however costs approx. £800 per hour to deploy.

- 2.6 RPAS enhance operational effectiveness, **but should not be considered as a replacement to the Police helicopter**. RPAS have limitations and are not suitable as a spontaneous response to ongoing live incidents such as rapid transport of personnel and a tactical option in vehicle pursuits.
- 2.7 Suitable downlink equipment for RPAS has been identified, which is future proofed and compatible with alternative RPAS. Capital funds have been allocated to OSD and a procurement process is underway. This will deliver a real benefit to event commanders, increase operational effectiveness and widen the scope of deployment opportunities.
- 2.8 RPAS have enhanced Police Scotland air support capability with the ability to deploy, in certain circumstances, when the Police helicopter is unavailable due to competing demand elsewhere. RPAS present a low cost alternative in terms of air support deployment to long term or protracted incidents such as missing person searches.
- 2.9 During the evaluation period the use of RPAS has accounted for 18% of all ASU deployments. The evaluation outlines the areas where there is scope to increase the use of RPAS beyond 18%. However until a more suitable RPAS model is identified then the projected benefits cannot be fully assessed at this time.

3. FINANCIAL IMPLICATIONS

- 3.1 The Police helicopter has significant capital and revenue costs. The cost to operate RPAS is minimal in comparison to the Police Helicopter. An initial financial assessment suggests the deployment of RPAS can bring significant financial savings, further detail can be provided if required.
- 3.2 Capital funds have already been allocated to OSD for procurement of a downlink system for RPAS. The downlink equipment is future proofed and compatible with alternative RPAS systems.
- 3.3 Future funding will be required when a replacement for the DJI M210 is identified however this cannot be established at this time. The identification of a suitable and sustainable RPAS capability is ongoing and in liaison with the National Police Chiefs Council. Thereafter a robust procurement process will be required to ensure the most

effective model is identified to enhance future RPAS capability and capacity.

4. PERSONNEL IMPLICATIONS

- 4.1 There are 12 police officers trained to operate RPAS; 4 officers at Aberdeen, 4 at Inverness and 4 in Glasgow. The officers at Aberdeen and Inverness are embedded within the OSU and are not dedicated to RPAS operations. During the evaluation, this presented a challenge in terms of their availability given the nature of their core role at the OSU. OSD are reviewing the current resourcing of pilots to explore a more sustainable model and maximise operational availability.

5. LEGAL IMPLICATIONS

- 5.1 Police Scotland RPAS operations are fully compliant with aviation law and mandatory regulations set by the Civil Aviation Authority.

6. REPUTATIONAL IMPLICATIONS

- 6.1 Police Scotland continues to keep pace with industry developments as drone technology evolves. Not investing in emerging technology could reduce operational effectiveness which would potentially have a reputational impact.

7. SOCIAL IMPLICATIONS

There are no social implications associated with this report.

8. COMMUNITY IMPACT

- 8.1 Feedback received from internal stakeholders and the public has been overwhelmingly positive with significant support for use of the technology. This has undoubtedly consolidated public confidence in policing in Scotland. Use of social media to engage with and inform the public of RPAS operations has proved invaluable in this regard.

9. EQUALITIES IMPLICATIONS

- 9.1 There are no equalities implications associated with this report.

10. ENVIRONMENT IMPLICATIONS

- 10.1 Use of RPAS can be considered a 'cleaner' option in relation to the environment as opposed to a helicopter which burns fuel.

RECOMMENDATIONS

Members are requested to discuss this report and the following proposed recommendations: -

1. Police Scotland retain the current RPAS capability and capacity and develop the use of RPAS as part of the future PS ASU strategy.
2. Police Scotland progress procurement of an RPAS downlink system. This will further enhance operational capability and provide a valuable tool for major incidents and events.
3. Police Scotland progress activity to identify options for the procurement of additional RPAS which are fully weatherproof so as to increase operational effectiveness.

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**Operational Support Division
Specialist Operations
Air Support Unit**

Remotely Piloted Aircraft Systems

Evaluation Report

1 May 2019 – 30 April 2020

SPA Policing Performance Committee
Remotely Piloted Aircraft System (RPAS) Evaluation Report
17 November 2020

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1. Purpose

- 1.1 This report provides an evaluation summary and proposed recommendations following the operational deployment of Remotely Piloted Aircraft Systems (RPAS) by Police Scotland (PS) between 1 May 2019 and 30 April 2020.
- 1.2 The report is for the information and attention of PS Strategic Leadership Board and members of the Scottish Police Authority (SPA) Policing Performance Committee.

2 Executive Summary

- 2.1 RPAS are located at Aberdeen, Inverness and Glasgow. RPAS have completed 426 hours of flying since being delivered to PS. RPAS accounted for 18% of all air support deployments around Scotland during the evaluation period. There have been no adverse incidents or accidents.
- 2.2 RPAS type is a DJI M210 quadcopter with an endurance of 20 minutes. It is fitted with a dual sensor camera system including thermal image. Despite being advertised as weather proofed, there have been a number of failures of the M210 (not in Scotland) due to water ingress. The National Police Chief's Council lead for drones is in dialogue with the manufacturers who have undertaken to make adjustments to M210 to address this issue. This will include those operated by Police Scotland.
- 2.3 RPAS are predominantly deployed to missing person searches, however have been used for public order incidents, policing operations and post incident investigation. RPAS are not used covertly and there are no plans to do so.
- 2.4 RPAS trained officers located at Aberdeen and Inverness within the Operational Support Units (OSU). There have been challenges around availability of these officers due to their core role and competing demands at the OSU.
- 2.5 Demand for the Air Support Unit (ASU) around Scotland remains high and consistent. There are tasking opportunities for RPAS, particularly in the North. The Police helicopter remains the primary air asset, however costs approx. £800 per hour to deploy.

- 2.6 RPAS improve operational effectiveness, but should not be considered as a replacement to the Police helicopter. RPAS have limitations and are not suitable for certain incidents such as rapid transport of personnel and a tactical option in vehicle pursuits.
- 2.7 Suitable downlink equipment for RPAS has been identified, which is future proofed and compatible with alternative RPAS. Capital funds have been allocated to OSD and a procurement process is underway. This will deliver a real benefit to event commanders, increase operational effectiveness and widen the scope of deployment opportunities.
- 2.8 RPAS have enhanced PS air support capability with the ability to deploy, in certain circumstances, when the Police helicopter is unavailable due to competing demand elsewhere. RPAS present a low cost alternative in terms of air support deployment to long term or protracted incidents such as missing person searches.

3 Introduction

- 3.1 RPAS, colloquially referred to as drones, were introduced operationally on 1 May 2019. RPAS are located at Aberdeen and Inverness providing a localised air support capability to the North. A third RPAS based at Glasgow is now also being deployed operationally and has been integral to the evaluation process.

4 Terms of Reference

- 4.1 To assess the benefits of RPAS to policing and to conduct an operational evaluation, the following terms of reference were established:
- Suitability of aircraft and equipment
 - Resourcing of trained pilots
 - Demand analysis
 - Operational effectiveness

5 Operational Evaluation

- 5.1 RPAS operations commenced on 1 May 2019, forming part of the PS ASU capability. Prior to launch date, key internal stakeholders including local policing and specialist departments were informed of

the RPAS capability through internal messaging and face to face briefings. Engagement also took place with SPA and other external stakeholders.

- 5.2 The evaluation was conducted by dedicated RPAS officers from the ASU. The work was overseen by the officer in charge of the ASU who is also designated Accountable Manager for PS RPAS operations. The accountable manager post is a mandatory requirement from the Civil Aviation Authority (CAA).
- 5.3 The evaluation considered a wide range of factors which directly and indirectly impacted the deployment of RPAS, however the outlined terms of reference formed the basis of the evaluation.
- 5.4 The evaluation also encompassed training flights and RPAS activity through research collaboration work with University of West of Scotland. Each RPAS flight was recorded and analysed which included initial tasking, pre-flight planning, deployment and outcome.
- 5.5 By way of example, an operational tasking request is received at the ASU in Glasgow in relation to the search for a missing person north of Inverness. Based on the nature and location of the search, officers at the ASU determine the most appropriate air asset to deploy, whether that be the Police helicopter or RPAS. When weather conditions between Glasgow and Inverness are found to be below legal flying limits for helicopter operations RPAS can be considered. RPAS trained officers are contacted and provided with the details of the task and commence pre-flight planning. This includes a site recce and risk assessment of the search area identification of suitable take-off and landing sites, safe distances from buildings and obstacles, ensuring the flight can be made safely at all times and full complying with aviation law. Weather conditions, environmental factors and community impact are also considered during the pre-flight planning phase. This is an example of a typical air support RPAS task and demonstrates the preparation required before undertaking the flight. This preparation ensures maximum safety and is required in terms of the operational authorisation granted to PS by the CAA.

6 Suitability of aircraft and equipment

- 6.1 The RPAS type used operationally is the DJI Matrice M210 quadcopter fitted with an infrared (thermal image) sensor and optical daylight camera (see diagram 1). The M210 is well suited to police air operations being user friendly and simple to set up ready for flight.

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The M210 has a number of safety redundancies/features which aid the operator and the safety of the flight. It requires very little maintenance other than regular firmware updates via the internet. PS experienced no failures of the equipment.

- 6.2 The M210 is a stable platform which performed well during search missions. For example a search of a ploughed field, roughly the size of 4 football pitches, can be searched using RPAS in under 1 hour including hedge rows, stone walls etc. The same area would take officers on foot 2 to 3 hours to complete with the same level of assurance. The Police helicopter would complete this search in 15 minutes.
- 6.3 Whilst well suited to police air operations, following purchase of this model, other emergency services users reported that the machine suffered from water ingress and is not as weatherproof as was first advertised. This is suspected to be a manufacturing fault and resulted in the loss of several police M210 drones in England and Wales. PS took the decision early on to cease all operational deployments during wet weather. As a result of this there have been no issues with PS RPAS, however operations are restricted to fair weather only, which had an operational impact.
- 6.4 The NPCC lead for Drones is in dialogue with manufacturers who have undertaken to make adjustments to M210 to address this issue which will include those operated by PS. PS are represented on the NPCC Strategic Drones Working Group.
- 6.5 An additional issue had been identified with M210 battery performance which was attributed to several aircraft losses throughout the UK. The manufacturer eventually resolved the issue, however this resulted in significant reliance on battery monitoring and ensuring regular firmware updates.
- 6.6 Market research and engagement with other emergency service RPAS users has identified a number of newer systems now available that will operate during inclement weather. A fully weatherproof system would improve operational effectiveness.



Diagram 1 – DJI Matrice M210

- 6.7 The M210 has an estimated lifespan of 5-10 years, however due to the issues mentioned some users are already seeking alternative machines. Both camera systems fitted to the M210 are also not weatherproofed, however have performed well during RPAS operations.
- 6.8 PS RPAS are not currently capable of downlinking to a Police control/ event room i.e. beam live footage from the RPAS camera. This ability is crucial to critical operations assisting Police commanders to make decisions on tactics and deployment of resources. This would further increase RPAS operational effectiveness, potentially negating the need to utilise the Police helicopter at major events. A suitable downlink system has been identified and work is ongoing to progress procurement. The system identified is future proofed and compatible with other RPAS systems.
- 6.9 Notwithstanding the outlined issues, the M210 is still considered a robust aerial platform with sufficient flight safety features and suitable for police air operations, albeit in dry weather conditions. It would be prudent to continue to explore additional RPAS that offer all weather capability, better performance and reliability.

7 Resourcing of trained pilots

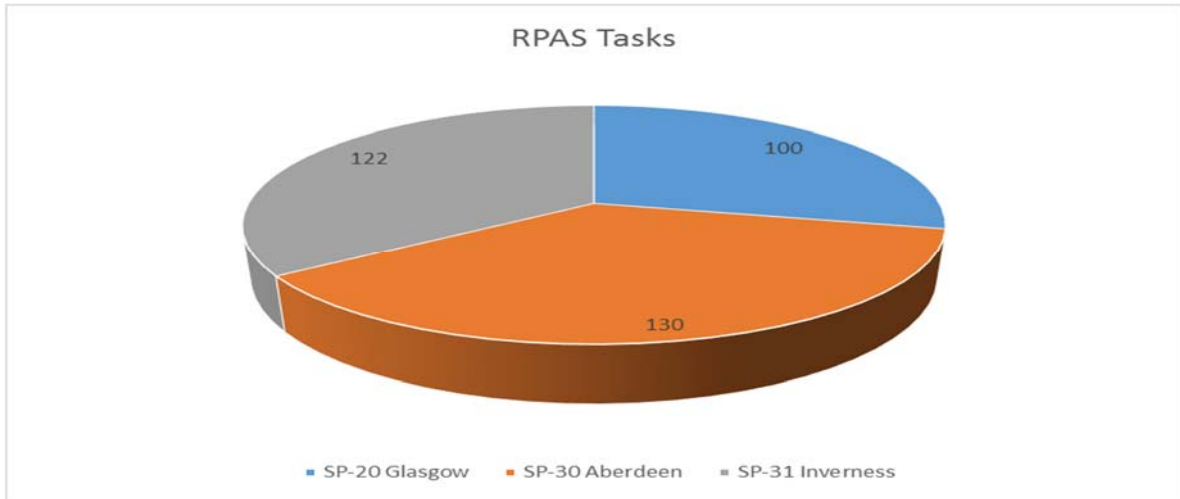
- 7.1 There are 12 police officers trained to operate RPAS; 4 officers at Aberdeen, 4 at Inverness and 4 in Glasgow. The officers at Aberdeen and Inverness are embedded within the OSUs and are not dedicated to RPAS operations. During the evaluation, this presented a challenge in terms of their availability given the nature of their core role at the OSU.

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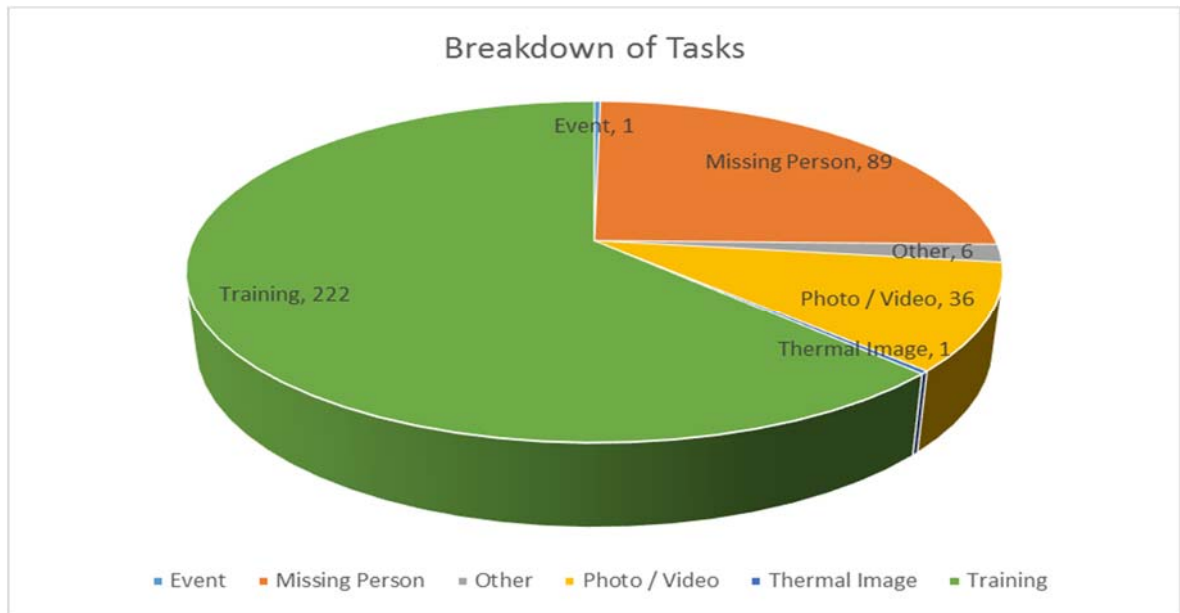
- 7.2 2 officers at Glasgow are full-time dedicated to RPAS and carry out a number of duties including technical support, regulation & compliance, policy & training, research & development as well as operational deployments.
- 7.3 The Inspector and Sergeant of the ASU are also trained RPAS pilots and fulfil management and governance roles as per CAA regulations.
- 7.4 OSD are reviewing the current resourcing of pilots to explore a more sustainable model and maximise operational availability.

8 Demand analysis

- 8.1 All tasking for police air support is received at the ASU in Glasgow. As well as ensuring effective deployment, it also helps inform demand analysis. All information is recorded electronically and provides an accurate picture of demand for police air support throughout Scotland.
- 8.2 RPAS operations accounted for 18% of ASU activity during the evaluation period. There were a total of 1,577 recorded tasking requests for police air support from 1 May 2019 to 30 April 2020. Of this, 261 tasking requests were declined, however 1,316 led to operational deployments by the ASU. This accounted for a total of 961 hours flying time.
- 8.3 RPAS have attended 352 incidents and a total of 176 hours flying time. SP-30 (Aberdeen) conducted 130 tasks and flew for 45 hours. SP-31 (Inverness) conducted 122 tasks and flew for 49 hours. SP-20 (Glasgow) conducted 100 tasks and flew for 82 hours. This includes training.



8.4 The diagram below provides a breakdown of each task where RPAS was deployed. The majority of flying time is attributed to training. Each RPAS pilot must complete a minimum of 1 hour flying per month. This can be either training or operational flying. This more than satisfies and complies with CAA regulations. Missing person searches accounted for 49 hours of flying time. 13 hours flying obtaining evidential aerial imagery. Many of these tasks include multiple flights.



8.5 Demand for the ASU remains high and consistent year on year. The Police helicopter is not always able to reach the all parts of the country due to inclement weather or competing operational demands elsewhere. Prior to the introduction of RPAS, ASU would not have been available in these circumstances, crucially reducing the

effectiveness of the police response particularly in threat to life incidents.

9 Operational effectiveness

9.1 Use of RPAS in operational policing is in its infancy and PS continues to realise the benefits. This can only be achieved by maximising every opportunity to deploy RPAS to a variety of incidents and environments. This will influence future deployments taking cognisance of the capabilities and limitations of the aircraft, equipment and pilots.

9.2 The Police helicopter remains the primary air asset. RPAS are limited to specific tasks, and cannot be deployed to incidents which are mobile e.g. vehicle pursuits. RPAS cannot replace the Police helicopter. Weather conditions are a significant factor in RPAS deployment. Below is a summary of typical tasks which are best suited to RPAS and some examples of operational deployments.

9.2.1 Missing Person Searches

There have been 89 flights in relation to missing person searches undertaken by the RPAS teams in the past 12 months, the majority of which were long term investigations. The ability to deploy RPAS to long term or protracted enquiries has proved particularly beneficial, providing dedicated air support over a period of a number of days or weeks thus negating the need to utilise the helicopter on every occasion. This is a significant cost saving and ensures the helicopter is available for other critical tasking. RPAS delivers the same level of assurance during searches as the helicopter, albeit searches using RPAS take longer.

9.2.2 Fire Investigation

RPAS have been deployed to assist at the sites of 8 fires at locations in Inverness, Edinburgh, Perth and Glasgow. Evidential images and video footage were taken in support of both PS and Scottish Fire and Rescue Service investigations and have included fatal fires in Edinburgh, Inverness and Perth and larger incidents such as Lancefield Quay in Glasgow.

9.2.3 Murder Investigation

Aerial imagery has been obtained through use of RPAS during several recent murder enquiries to provide evidential photographs but also crucially in the search for victims. For example, RPAS officers in Inverness assisted with the review of the enquiry into the death which

had occurred in Caithness by providing aerial imagery for the enquiry team. Imagery was also provided to the investigation team in relation to a historical murder enquiry. RPAS officers from Glasgow spent several days along with search trained officers and the dog branch in the Galloway Forest area assisting in the search for a victim. They also assisted with crime scene analysis by providing aerial imagery and support to the crime scene manager.

9.2.4 Public Order

Overtly supporting local policing teams during pre-planned policing operations targeting criminality. RPAS officers provided air support to a public order operation in Inverness by providing an overview of the area during the police operation and subsequent intervention. The RPAS platform provided a visual containment of the area and assisted in the prevention of suspects leaving the locus. Similarly, RPAS officer assisted in support of a large scale drugs operation in Greenock by providing an aerial overview as specialist teams gained entry to several properties. During this operation, using thermal imaging, the RPAS crew identified a suspect attempting to escape the dwelling by climbing onto the roof. The suspect was subsequently detained by public order officers.

9.2.5 Demonstrations

RPAS was deployed by officers from Inverness to provide aerial imagery during the Greenpeace protest aboard an oil rig in the Cromarty Firth.

9.2.6 Industrial Accidents

RPAS officers have provided aerial imagery of several industrial accidents where tragically lives have been lost. The ability to deploy the RPAS prevented the need to have photographers placed in a dangerous environment and provided images that would not normally have been possible.

9.2.7 Collision Investigation

Several flights have been undertaken in support of Roads Policing in relation to fatal road traffic collisions. This has allowed the enquiry officers additional imagery in support of their investigation and subsequent criminal proceedings.

9.2.8 Planning

A number of flights have taken place in order to obtain images for emergency planning and the planning of major events.

9.2.9 Events

RPAS officers provided air support to an operation on Troon Beach that saw large numbers of youths congregate in what has become an annual event and has often seen scenes of drunken disorder. Officers were able to provide an overview of the beach area that allowed the incident commander to deploy resources appropriately and proportionately.

9.3 PS did not deploy RPAS as a policing tool to COVID-19 related incidents. Indeed many of the RPAS trained officers were abstracted to other policing duties in response to the COVID-19 pandemic in Scotland. This had an impact to the latter period of the operational evaluation from March to May 2020. The Police helicopter was still available for air support tasking around Scotland during this period.

9.4 PS does not deploy RPAS covertly and has no plans to do so. Due to the limitations of the equipment and aviation law, covert operations would not be possible.

9.5 The 3 RPAS have collectively flown 426 hours without incident since being delivered to PS. There have been no complaints from members of the public. The teams have been encouraged to engage with the public and to answer any questions that they have and where appropriate and safe to do so demonstrate the capabilities of the RPAS. Any operations that require flights to take place near to people or private dwellings have involved engagement with householders or business owners and again these interactions have been positive.

9.6 The operational deployments demonstrate the benefits of deploying RPAS as a front line policing air asset. Feedback received from internal stakeholders and the public has been overwhelmingly positive with significant support for use of the technology. This has undoubtedly consolidated public confidence in policing in Scotland. Use of social media to engage with and inform the public of RPAS operations has proved invaluable in this regard.

10 Conclusion

10.1 The introduction of RPAS has enhanced PS ASU capability together with increased operational effectiveness. They have been deployed to a wide range of policing incidents providing specialist support.

10.2 The evaluation was at times impacted due to RPAS officers being abstracted to other duties. The continued high demand for PS ASU

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around Scotland indicates that there are tasking opportunities for RPAS which could be exploited.

- 10.3 There are cost savings to be made by deploying RPAS where and when appropriate. The Police helicopter costs approximately £800 per hour to operate. RPAS have no operating costs.
- 10.4 RPAS could not replace use of the Police helicopter as they are unable to meet many of critical PS ASU support requirements – e.g. rapid transport of personnel, vehicle pursuits. Despite RPAS limitations in terms of endurance and weather, they can reduce the need for the helicopter in pre-planned operations or events but not spontaneous incidents requiring air support.
- 10.5 During the evaluation period the use of RPAS has accounted for 18% of all ASU deployments. The evaluation outlines the areas where there is scope to increase the use of RPAS beyond 18%. However until a more suitable RPAS model is identified then the projected benefits cannot be fully assessed at this time.

11 Recommendations

- 11.1 Recommendation 1 – Police Scotland retain the current RPAS capability and capacity and develop the use of RPAS as part of the future Police Scotland ASU strategy.
- 11.2 Recommendation 2 – Police Scotland progress procurement of an RPAS downlink system. This will further enhance operational capability and provide a valuable tool for major incidents and events.
- 11.3 Recommendation 3 – Police Scotland progress activity to identify options for the procurement of additional RPAS which are fully weatherproof so as to increase operational effectiveness.

Submitted for information
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APPENDIX B

RPAS EVALUATION – UPDATES AS OF OCTOBER 2020

12 Operational Deployments

- 12.1 A new deployment model is currently being progressed to enhance the capability of the RPAS throughout the country with dedicated officers making best use of this technology.
- 12.2 A number of additional flying hours have now been completed where the deployment of RPAS has supported a number of operational incidents with a summary provided below.
- 12.3 Aberdeen - Support to Road Policing in relation to several fatal RTC's. Support to CID and MIT Officers by obtaining images of a crime scene in relation to a murder enquiry as well as a fatal fire. Numerous deployments in support of the search and recovery phase at the train derailment major incident near Stonehaven. Support for several missing person searches in challenging and remote environments.
- 12.4 Inverness - Support to Road Policing at several fatal RTC's. Support to a public order operation by providing an overview of the general locality in live time in order to prevent persons leaving the designated area. Support has also been provided in relation to a recent murder enquiry, other sensitive operations and numerous missing person searches.
- 12.5 Glasgow - Similar to the teams in the north the team have supported several missing person searches and have also assisted in a number of significant murder enquires both recent and historic. They have also undertaken several tasks in support of road policing in relation to serious and fatal RTC's. There have been a number of requests to assist colleagues and the fire service with imagery in relation to numerous serious fires, some of which involved fatalities.
- 12.6 Overall the number of tasking requests has increased throughout the country as more specialised departments become aware of the capabilities of the RPAS.

13 Technical Issues Update

- 13.1 The first issue concerned the TB55 batteries used to power the machine itself. The aircraft requires 2 batteries to fly and carry payload. Some Police Forces in England & Wales experienced total losses when their aircraft departed controlled flight and crashed without warning. This did not happen to Police Scotland, however on becoming aware of the issue all TB55 batteries used by Police Scotland were rigorously tested and faulty ones returned to the supplier. The manufacturer DJI identified a firmware problem which was eventually rectified and all batteries now perform as they should.
- 13.2 The second issue to occur, again resulted in high profile crashes in England & Wales and some in the commercial sector around Europe. The common trend appeared to be propulsion failures in flight. The M210 is advertised with an IP rating of 43 meaning it can be flown in rain (particles smaller than 1mm in diameter). However the crashes were due to suspected water ingress to the electronic speed control unit (ESC) - that part that controls the rotor blade. Police Scotland immediately made the decision not fly in rain as a safety precaution until an investigation had been complete. The NPCC lead for aviation together with the CAA lobbied DJI to identify the issue and provide a suitable fix. This was not a quick process as emergency services users in the UK represent a tiny proportion of DJI customers globally. Eventually DJI recognised that the design of the ESC was not appropriate and have recalled all M210 in the UK to be fixed. This involves a small water tight gasket be fitted to prevent water ingress.
- 13.3 All Police Scotland machines have had this repair carried out by our supplier in Leeds (COPTRZ).
- 13.4 There have been no further reported incidents regarding this issue with the M210 in the UK and Police Scotland will continue to fly the M210 in dry conditions as a safety precaution.

14 RPAS Downlink to Area Control Rooms

- 14.1 Following a tender process in October this year, 4 downlink boxes will be delivered to Police Scotland in early 2021 which will enable RPAS to stream live footage to Area Control Rooms and any Police Scotland networked computer. Furthermore the equipment will also bring additional operability and be capable of relaying live footage from the Police helicopter via a RPAS support vehicle to any Police networked computer. This facility is not possible with the current helicopter downlink infrastructure.