## MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA

# RISK ASSESSMENT BEFORE & AFTER CONTROL MEASURES.

## Canberra Model Aircraft Club
## 2026 Risk Assessment & Treatment Plan

| **Risk No 1: Public Safety** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 1:**<br><br>Model hits a member of the public or vehicle on the Monaro highway, or crashes onto the road near a vehicle distracting the driver. | 2 | 3 | 5 |
| **The Consequence:**<br>1. Vehicle accident<br>2. Loss of life<br>3. Serious Injury | | | |
| **Existing Controls/measures**:<br>1. Promotion and enforcement of club flying procedures, requiring all fixed wing flying to be west of the centerline of the runway. Control line and helicopter areas more than 30m from the road.<br>2. Ensure all transmitters range checked and appropriate to type failsafe set.<br>3. Ensure club safety rules are understood and observed.<br>4. All members undertake general peer support & surveillance during flying days. | LIKELYHOOD (L)<br><br>1 | CONSEQUENCE (C)<br><br>3 | REESULTANT (R) (L+C=R)<br><br>4 |
| **Additional Control Measures:**<br>1. Additional separation standards greater than the regulatory minimum applied through the design of the main runway at the field, ie we are further than the minimum distance from the road. | | | |
| | | | |

| **Risk No 1: Public Safety** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 2:**<br><br>Model hits visitors or their vehicle on the CMAC lease | 2 | 4 | 6 |
| **The Consequence:**<br>1. Injury to persons<br>2. Damage to property | | | |
| **Existing Controls/measures:**<br>1. Safety barriers erected and fences to keep visitors away from pits and run-up areas.<br>2. Safety Signage advising visitors of safety rules.<br>3. Ensure club members are aware of their responsibility's with respect to visitors and the proper control and supervision of their access to higher risk areas. | LIKELYHOOD (L)<br><br>1 | CONSEQUENCE (C)<br><br>3 | REESULTANT (R) (L+C=R)<br><br>4 |
| **Additional Control Measures:**<br>1. Additional separation standards greater than the regulatory minimum applied through the design of the main runway at the field. | | | |

| **Risk No 1: Public Safety** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 3:**<br><br>ACT Workers or hikers transiting on public grasslands struck by a model | 1 | 4 | 5 |
| **The Consequence:**<br>1. Injury to persons<br>**2.** Damage to property (vehicles) | | | |
| **Existing Controls/measures:**<br>1. Members not to operate models in areas where workers are present.<br>**2.** Members encouraged to remain vigilant and call out any ACT workers or hikers | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
| **Additional Control Measures:**<br>1. Workers generally carry out activities on weekdays, and not during high activity times.<br>**2.** Workers asked to alert members to their presence prior to entering area. | **1** | 4 | 5 |
| | | | |
| **Hazard 4:**<br><br>Visitor injured on CMAC lease in a non-model related accident | | | |

| **Risk No 1: Public Safety** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| | 3 | 3 | 6 |
| **The Consequence:**<br>1. Injury to persons<br>**2.** Damage to property (vehicles) | | | |
| **Existing Controls/measures:**<br>1. Car parking areas to be clearly marked with suitable barriers and access control<br>2. Stiles to have hand rails and non-slip steps<br>3. Young children to be accompanied at all times<br>4. Dogs not permitted on the site<br>**5.** Buildings designed and constructed to community standards | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
| | 1 | 3 | 4 |
| **Additional Control Measures:**<br>**1.** Fencing to keep visitors in visitor areas | | | |

| **Risk No 2: Member Safety** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 1:**<br><br>Member injured by own model while starting/handling before or after flight | 3 | 4 | 7 |
| **The Consequence:**<br>1. Injury to Member<br>2. Damage to property | | | |
| **Existing Controls/measures**:<br>1. Models required to be positively restrained (MAAA MOP) either by mechanical device or another member while starting (Starting poles provided)<br>2. Encourage use of electric starters or “chicken finger” devices, closed toe shoes are mandatory<br>3. If carrying model from pits to flight line ensure both hands used to hold model (get help with TX if needed for larger models)<br>4. All members generally undertake surveillance during flying days.<br>5. Safety officer appointed, active in messaging<br>6. Ensure first aid kit available at site | LIKELYHOOD (L)<br><br>1 | CONSEQUENCE (C)<br><br>4 | REESULTANT (R) (L+C=R)<br><br>5 |
| **Additional Control Measures:**<br>1. Taxiways installed from run-up areas to the runway strip. Markings show where models must shut down engines<br>2. Dedicated and separate engine testing area<br>3. Documented procedures | | | |
| | | | |

| **Risk No 2: Member Safety** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 2:**<br><br>Member injured by own model during flying operations | 4 | 4 | 8 |
| **The Consequence:**<br>1. Injury to Members<br>2. Damage to property | | | |
| **Existing Controls/measures:**<br>**1.** No standing on the strip while flying<br>**2.** No hovering models within 9 meters from self or any other pilot<br>**3.** No fast, low passes closer than the center-line of the runway (9m)<br>**4.** Active verbal coordination of landings, low passes, take-off and touch/go<br>5. Emphasis of safe circuit and landing training for new pilots | LIKELYHOOD (L)<br><br>1 | CONSEQUENCE (C)<br><br>3 | REESULTANT (R) (L+C=R)<br><br>4 |
| **Additional Control Measures:**<br>1. Model proof (crouch) barriers installed between pilots and runway (about 1.4m tall)<br>2. Low passes are called within the flight box | | | |

| **Risk No 2: Member Safety** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 3:**<br><br>Member injured by another person's model in the pits area | 2 | 4 | 6 |
| **The Consequence:**<br>1. Injury to Members<br>**2.** Damage to property | | | |
| **Existing Controls/measures:**<br>1. As for Risk 2 Hazard 2.<br>2. Maintain linear pits area with staring boxes outside of pits separated by fence<br>3. Ensure 30m rule is enforced for members not flying, ensuring greater separation between members and the flight line<br>**4.** Ensure good line of sight from pits area to flight-line to aid in situational awareness<br>5. Ensure models with running engines are under physical control until past the end of the pits | LIKELYHOOD (L)<br><br>1 | CONSEQUENCE (C)<br><br>3 | REESULTANT (R) (L+C=R)<br><br>4 |
| **Additional Control Measures:**<br>1. Model proof barriers installed between the runway and pits area. | | | |

| **Risk No 2: Member Safety** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 4:**<br><br>Member injured by another person's model in the airside area, located to the front of the pilot box and taxiways | 2 | 3 | 5 |
| **The Consequence:**<br>1. Injury to Members<br>**2.** Damage to property | | | |
| **Existing Controls/measures:**<br>1. As for Risk 2 Hazard 2.<br>2. Strip access permitted only after all pilots are aware of intentions and acknowledge<br>**3.** Strip access limited to model retrieval when other models are operating<br>4. Separate taxiways for runway entry and exit at each end of runway | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
| **Additional Control Measures:**<br>**1.** CMAC procedures require that airborne models are operated away from the area when a person is retrieving a model and no take-off or landings are undertaken. Person retrieving to speak with flying pilots and obtain their concurrence to enter runway, then confirm when they have exited and the runway is clear. | 1 | 3 | 4 |

| **Risk No 3: Security of Tenure of Flying Field** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 1:**<br><br>Loss of permission to develop due to environmental concerns | 3 | 2 | 5 |
| **The Consequence:**<br>1. Inability to improve facilities | | | |
| **Existing Controls/measures**:<br>1. Include environmental consideration's in all DAs<br>2. Demonstrate respect for the environment in dealing with authorities.<br>**3.** Include environmental considerations in Risk Assessments | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
| **Additional Control Measures:** | 1 | 2 | 3 |
| | | | |

| **Risk No 3: Security of Tenure of Flying Field** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 2:**<br><br>Loss of tenure due to environmental concerns | 3 | 3 | 6 |
| **The Consequence:**<br><br>1. Loss of flying field location | | | |
| **Existing Controls/measures:**<br>1. As for Risk 3 Hazard 1, and<br>2. Provide fire extinguishers and sand buckets for electric and gas turbine operations<br>3. Document fire response procedure and provide signage, educate members<br>**4.** Ensure operations are completed in accordance with MAAA MOPS<br>5. Minimize excursions into grasslands<br>6. Consider carefully any use of cleaning or other chemicals at CMAC | LIKELYHOOD (L)<br><br>1 | CONSEQUENCE (C)<br><br>3 | REESULTANT (R) (L+C=R)<br><br>4 |
| **Additional Control Measures:**<br>1. CMAC Committee supports ACT government restrictions, deciding that all model operations are banned on Total fire ban days | | | |
| **Hazard 3:**<br><br>Loss of tenure due to operations outside of approved regulations | | | |

| **Risk No 3: Security of Tenure of Flying Field** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **The Consequence:**<br>1. Loss of flying field location due perceived incompatibility with Canberra Airport/airspace or the Helicopter base<br>**2.** | 3 | 3 | 6 |
| **Existing Controls/measures:**<br>1. Comply with MAAA MOPs<br>2. Only MAAA members permitted to fly at this location under the MAAA relevant MOP's, unless approved otherwise.<br>3. Ensure operations are completed in accordance with MAAA MOPS.<br>**4.** All operations shall be conducted in accordance with:<br>a) CASR 1998 Part 101 Subparts A, B, C and G;<br>b) CASA Advisory Circular AC 101-03v1.1 and Direction 96/17<br>c) The MAAA Manual of Procedures. | LIKELYHOOD (L)<br>1 | CONSEQUENCE (C)<br>3 | REESULTANT (R) (L+C=R)<br>4 |
| **Additional Control Measures:**<br>1. Relationship maintained with Air Services Australia Canberra Tower manager.<br>2. Club has been in existence for over 50 years, and is well known in the area. | | | |

| **Risk No 4: Manned Aircraft Operations in proximity to Canberra Airport & Rescue Helicopter** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 1:**<br><br>Model aircraft collides with full size aircraft as a direct result of the CMAC proximity to Canberra Airport | 2 | 5 | 7 |
| **The Consequence:**<br>1. Loss of all RPAS/Model aircraft elements<br>2. Potential for significant damage to manned aircraft in the area<br>3. Delays to manned aircraft operations<br>4. Non-compliance with regulation, leading to sanctions | | | |
| **Existing Controls/measures**:<br>1. CMAC recommends CASA generates a NOTAM[1] or makes mention of CMAC in ERSA[2].<br>2. A thorough lookout by pilots and members of the airspace shall be maintained prior to members flying (documented procedure)<br>3. Local CMAC rules are advertised prominently on noticeboards for all members and visitors<br>4. 400ft limitation placed on clear signage within the pits area, airspace notice from CASA on notice board explains all altitude restrictions<br>5. No flying is permitted East of the centreline of the runway (documented procedure)<br>6. Only MAAA members and students under supervision are permitted to fly at this location under the MAAA relevant MOP's, unless otherwise approved (eg: police, fire services).<br>7. All operations shall be conducted in accordance with:<br>a) CASR 1998 Part 101 Subparts A, B, C and G;<br>b) CASA Advisory Circular AC 101-03v1.1 and Direction 96/17<br>c) The MAAA Manual of Procedures. | LIKELYHOOD (L)<br><br>1 | CONSEQUENCE (C)<br><br>4 | REESULTANT (R) (L+C=R)<br><br>5<br>SFARP |

[1] Notice To Airmen, published by Authorised Persons appointed by Air Services Australia (usually airfield operators) alerting aviators to local airfield hazards or issues

[2] Enroute Supplement Australia, a document maintained by Air Services Australia detailing information about aviation hazards outside airfields

| **Risk No 4: Manned Aircraft Operations in proximity to Canberra Airport & Rescue Helicopter** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Additional Control Measures:**<br>1. Relationship maintained with Canberra Tower Manager. (02 6268 5850)<br>2. Club has been in existence for over 50 years, and is well known in the area.<br>3. Club annotated on Canberra VTC[3]<br>4. Model aircraft pilots who hear and/or see a manned aircraft in the area are required to descend or land when manned aircraft are nearby (documented procedure) | | | |
| | | | |
| **Hazard 2:**<br><br>Model aircraft flyaway/loss of control, and:<br>1. Travels towards Canberra Airport or Southcare helicopter base; or<br>2. Exceeds 400ft | 3 | 4 | 7 |
| **The Consequence:**<br><br>1. Loss of all RPAS/Model aircraft elements<br>2. Potential for significant damage to manned aircraft in the area<br>3. Delays to manned aircraft operations | | | |
| **Existing Controls/measures:**<br>1. As per Risk 4 Hazard 1 and;<br>2. Members and visitors made aware of how to deal with flyaway scenarios (documented procedure)<br>a. Members must contact Canberra tower for any flyaway deemed to impact the safety of manned aircraft in the area (towards the airport), or,<br>b. Any model aircraft whose position can no longer be determined.<br>3. This will ensure Canberra Tower can separate/delay/maneuver any manned aircraft away<br>4. Canberra Tower phone number prominently displayed on all notice boards within the club.<br>5. Senior members to ensure new members are fully aware of their obligations in relation to manned aircraft operations<br>6. Members to ensure models are not operated outside of prescribed areas. | LIKELYHOOD (L)<br><br>2 | CONSEQUENCE (C)<br><br>2 | REESULTANT (R) (L+C=R)<br><br>6<br><br>SFARP[4] |

[3] Visual Terminal Chart, a map used by aviators which includes hazards

[4] So Far as Reasonably Practical, a term also further defined in the Australian Standard on risk management

| **Risk No 4: Manned Aircraft Operations in proximity to Canberra Airport & Rescue Helicopter** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| 7. Pilots to follow flyaway aircraft (where safe and possible) to ensure unrelated persons can be alerted to the situation.<br>**8.** Failsafe to be set appropriate to the model type. | | | |
| **Additional Control Measures:**<br>1. As per Risk 4 Hazard 1.<br>2. CMAC members support each other in the interest of safety when challenging situations arise. | | | |
| **Risk No 5: Self-Guided Model Aircraft Operations (SGMA)** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
| **Hazard 1:**<br><br>SGMA Operations create increased risk of operations. | 2 | 4 | 6 |
| **The Consequence:**<br>1. SGMA increased risk to all operations<br>2. SGMA mode awareness<br>3. SGMA workload management<br><br>**SGMA at CMAC have documented/proven reliability statistics greater than that of other model aircraft when operated in accordance with manufacturers (software developers) policy and procedures.** | | | |
| **Existing Controls/measures**:<br>1. As per Risk 2 Hazard 3 and<br>2. SGMA aircraft are operated with a manual takeover, without the need to select any switches (simply fly the aircraft on the transmitter to takeover). By CASA definition they are not SGMA<br>3. Pilots read and follow documented safety procedures for SGMA equipment<br>4. Pilots enable and test relevant failsafe features in their SGMA firmware<br>5. Pilots follow pre-flight test procedures to ensure correct hardware operation<br>6. Pilots check for firmware updates that may impact on safe operation<br>7. “Maiden” SGMA flights are completed with only one model aircraft in the air and with more than | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |

| **Risk No 4: Manned Aircraft Operations in proximity to Canberra Airport & Rescue Helicopter** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| one pilot present.<br>8. Pilots aware of procedures for contacting ATC in case of flyaway<br>9. Redundancy of systems incorporated into all large models<br>10. “Heavy” SGMA remain subject to MAAA heavy model inspections and certification. | 1 | 4 | 5 |
| **Additional Control Measures:**<br>1. SGMA are operated in accordance with MAAA MOP066<br>2. Pilots enable R/C failsafe auto-land capability to designated airside areas<br>3. Pilots use geo-fencing functions (where available) to confine models to the CMAC lease. | | | |
| | | | |

| **Risk No 6: Night Operations** | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
|---|---|---|---|
| **Hazard 1:**<br><br>Operations at night, decreasing standard safety. | 2 | 4 | 6 |
| **The Consequence:**<br>1. Increased risk of aircraft disorientation, loss, crash<br>2. Increased risk of member injury from tripping (etc)<br><br>Manned aircraft risks have been considered, are captured by Risk 4 noting;<br>a) The CMAC area of operations is below the MORA/LSALT/MSA for manned aircraft<br>b) Manned aircraft must comply with instrument approach procedures or visual approach criteria by night<br>c) CMAC does not impact these areas. | | | |
| | LIKELYHOOD (L) | CONSEQUENCE (C) | REESULTANT (R) (L+C=R) |
| **Existing Controls/measures**:<br>1. As per Risk 4<br>2. Compliance with MAAA MOP 18 including;<br>a. Adequate lighting on the aircraft<br>b. Runway lights<br>3. Clubhouse lights are to be left on at all times | 1 | 4 | 5 |
| **Additional Control Measures:**<br>1. Torches can be carried by pilots | | | |
| | | | |

RISK ASSESSMENT MATRIX - LEVEL OF RISK

Table 1 - Consequence Values

| | Consequence | | | | | |
|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 |
| People | No injury | Minor injury that does not require medical treatment | Minor injury that requires first aid treatment | Serious injury causing hospitalisation or multiple medical treatment cases | Permanent injury or disability (including blinding) that may result in hospitalisation of at least one person | One or more deaths, multiple severe injuries or permanent total disability |
| RPAS | Any element of the RPAS is degraded but task unaffected | A failure not serious enough to cause RPAS damage but which will result in unscheduled maintenance or repair or incomplete task | Minor RPAS damage resulting in damage to components, incomplete task and future unserviceability of RPAS | Significant RPAS damage but repairable | Complete loss of or destruction of a RPAS component (RPA, camera transmitter, sensor, etc.) | Loss of all RPAS elements |
| Reputation | Small delay, internal inconvenience only | May threaten an element of the service resulting in the task or objective being delayed | Risk does not violate any law and can be easily remedied. It has some effect on reputation and/or external stakeholders | Risk does not violate any law and can be easily remedied. It has some residual effect on reputation and/or external stakeholders and while reputation is damaged it is recoverable | Risk violates a law but can be remedied. It has a residual effect on reputation and/or external stakeholders and may result in damage to reputation | Risk violates a law and is unable to be remedied. It has a significant impact on reputation and/or external stakeholders and will result in loss of reputation |
| Cost/Property Damage | Negligible | Less than $1,000 | More than $1,000 less than $10,000 | More than $10,000 less than $100,000 | More than $100,000 less than $1,000,000 | Loss or damage exceeding $M1 |
| Airspace | No aviation airspace safety implication | Minor breach of aviation safety regulations or RPA Area Approval | Serious issues of compliance with aviation safety regulations, RPA Area Approval or operations resulting in potential avoiding action by a manned aircraft but no collision | Serious issue of compliance with aviation safety regulations or operations or the loss of separation resulting in the potential for a collision with a manned aircraft but the manned aircraft is able to land with no serious injuries or fatalities | Potential for aviation safety incident/s involving multiple life threatening injuries, or fatalities, to less than 10 people | Potential for multiple fatal aviation safety incidents causing multiple fatalities, to 10 or more people |
| Equitable access of airspace | No effect on access to airspace users | Some users of the airspace may perceive or experience airspace inequality resulting in between 5 to 10 minute delay or minor detour | Some users of the airspace may perceive or experience airspace inequality resulting in more than 10 minute delay or major detours | Most users of the airspace will experience airspace inequality resulting in long delay (>30 minutes) or major detours | All users of the airspace will experience airspace inequality resulting in long delay (>30 minutes) or major detours | Airspace users are prohibited from operating in the airspace causing significant disruptions to operations and financial cost |

Table 2 - Likelihood

| | | | | |
|---|---|---|---|---|
| Likelihood | Almost Certain | 5 | >1 in 10 | Is expected to occur in most circumstances |
| | Likely | 4 | 1 in 10 – 100 | Will probably occur |
| | Possible | 3 | 1 in 100 – 1000 | Might occur at some time in the future |
| | Unlikely | 2 | 1 in 1000 – 10000 | Could occur but considered unlikely or doubtful |
| | Rare | 1 | 1 in 10000 - 100000 | May occur in exceptional circumstances |
| | Extremely Rare | 0 | < 1 in 100000 | Could only occur under specific conditions and extraordinary circumstances |

Table 3 – Risk Rating

| | | | Consequence | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 0 | 1 | 2 | 3 | 4 | 5 |
| Likelihood | Almost Certain | 5 | 5 | 6 | 7 | 8 | 9 | 10 |
| | Likely | 4 | 4 | 5 | 6 | 7 | 8 | 9 |
| | Possible | 3 | 3 | 4 | 5 | 6 | 7 | 8 |
| | Unlikely | 2 | 2 | 3 | 4 | 5 | 6 | 7 |
| | Rare | 1 | 1 | 2 | 3 | 4 | 5 | 6 |
| | Extremely Rare | 0 | 0 | 1 | 2 | 3 | 4 | 5 |

**Untreated Risk Scores**

8,9,10 (Extreme risk) - Task is not permitted. Risk controls are required to ensure residual risk is acceptable.

6,7 (High risk) - Task is not permitted. Risk controls are required to ensure residual risk is acceptable.

4,5 (Medium risk) - Task may proceed, however, risk must be reduced to 'as low as reasonably practicable' (ALARP).

1,2,3 (Low risk) - Task may proceed.