Helicopter Association of Canada

www.h-a-c.ca

Inspector Rob Freeman
Program Manager, Commercial Flight Standards
Tower C
330 Sparks Street
Ottawa Ontario
K1A 0N5

July 15 2014

Inspector Freeman:

Please accept the following comments from the Helicopter Association of Canada (HAC) on the DRAFT Advisory Circular (AC) *on Low Flight, Take-Off and Landing within a Built Up Area* and the companion DRAFT Staff Instruction (SI) on the same subject.

HAC's members collectively account for 85% of the commercial helicopter operations in Canada today. We invited a selected group of nine operators who regularly engage in Low Flying Operations to participate in a Working Group to provide you with some feedback on the DRAFT AC and SI. Let me say first, that there was strong interest from our operator-members in the subject. As you well know, many of the Aerial Work operations conducted by Canadian Part VII Helicopter AOC holders are conducted at low level, and in-or-around built-up areas. This is a very important issue for our operator-members.

Many of our operator-members rely heavily on low-level flights in and nearby build-up areas, including TransCanada Pipelines, CHL, OpsMobil, Talon Helicopters, Valley Helicopters, HYDRO ONE and HTSC to name only a very few. In fact, it would be fair to say that virtually ALL of our operator-members engage in operations calling for the issuance of Low Flying Permits – many of them engage in these operations frequently. It should be understood that these operations have almost universally been carried out safely, and in the absence of any injury or damage to property. We acknowledge that the Cranbrook accident was a horrific exception to this rule, however, the aircraft involved in that accident was not operating with a permit, and the operation took place

over four years ago in an era before these operations were subjected to a Risk Assessment of any description. If Transport Canada really believes in SMS, and intends to formulate National Policy for the issuance of Low Flying Permits, it must use Risk Assessment principles for the purposes of establishing that policy, and the Department should engage with industry to develop it. What's more, HAC believes that Transport Canada should consider the historical safety record of the operators in these operations. We believe that these operations have been carried out over many years – virtually in the absence of any accidents or incidents. As you know, today's helicopters are very reliable, and the probability of an event requiring the use of an emergency landing area is extremely rare – particularly when these low flying operations generally occur while transiting an area rather than during sustained operations.

We acknowledge that Transport Canada is making an effort to standardize the application process for Low Flying Permits across Canada. For many of our operator-members the idea that a permit application would be treated any differently in Atlantic Region than in Pacific region is inconsistent with the treatment of Aviation as a Federal area of responsibility. We are concerned however, that the draft AC and SI were drafted in a very conservative way, and without consideration for the very successful safety experience that the Canadian helicopter industry has had with these operations over the last 30 years. Notwithstanding our successful experience, our members have commented that even where permits are issued to *ME aircraft* conducting low flying operations, the permits have become more and more conservative over time. There is one region that will not even issue a permit to a ME helicopter over a built up area at less than 500 feet above the highest obstacle. The same region will not issue permits on long weekends.

Let me say first that HAC was disappointed that operator-representation was not permitted on the internal Transport Canada Working Group tasked with an examination of these issues. Sadly, developed in isolation, and in the absence of any input from the day-to-day users of the system these two documents contain some glaring problems that do not serve Canada's helicopter operators *or* the members of the public. Developed over a year of internal deliberations, there is now an investment in the draft documents by Inspectorate Staff, and we believe that there will be a reluctance to reverse-course for the purpose of considering its underlying policy and assumptions. We urge you to reconvene the Working Group with industry representation. Our members feel very strongly that the DRAFT AC and SI are flawed documents that require major revisions.

While we appreciate that the issuance of Low Flying Permits is discretionary in the Minister, the Canadian industry has evolved in an environment where operations (many of them safety-related) conducted at low-level in built-up areas are carried out by helicopter, including pipeline patrol, power line patrol, power line maintenance and repair, and mosquito control - to name only a few. In many cases, alternative methods to carry out the same work are either very hazardous or extremely inefficient. Absent from both the AC and the SI is any meaningful consideration of the Public Interest in having the operation carried out by helicopter – even from a Public Safety perspective.

Inspectors should be urged to consult with the service provider or the customer to determine the alternatives that have been considered. It is unreasonable to expect inspectors to possess this level of understanding without the assistance of others. Furthermore, many other operations including aerial photography or filming, traffic reports, and aerial construction that do not provide a public service strictly-speaking, provide important services to their customers that may be impractical or impossible to provide *except* in a helicopter. The Minister is still obliged, under the terms of the Aeronautics Act to *promote* Aeronautics, and some of the elements of the DRAFT AC and SI, HAC believes, run contrary to this principle without enhancing safety in the process.

I will start with some general observations raised by the HAC member-operators, and then move on to comment on the specific elements of the DRAFT AC and then the SI – in that order.

GENERAL OBSERVATIONS

Commercial operators, we believe, have the right to expect Transport Canada to respect certain principles, even when they are exercising their discretionary authority to provide relief from the CARs.

Transparency

Operators have a right to understand in advance, how their applications are going to be evaluated by the Minister. They need to advise their customers, to ensure that false expectations are not raised, and they need to understand how to structure their business affairs so that they can properly prepare themselves to make a credible application under appropriate circumstances. We appreciate that some delays processing these time-sensitive applications are attributable to shortcomings in the applications themselves however, in the absence of clear guidance from the Department to both the Industry and Departmental Staff, the process will result in wasted time and effort for affected operators *and* Transport Canada.

Risk-Based Evaluations

Operators have the right to expect that their applications will be evaluated using Risk Assessment principles where the probability of an event occurring will be evaluated against its consequences. In simple terms, no risk assessment should *assume* than a catastrophic failure has occurred. To consider otherwise, would render exposure time, irrelevant, for example. If the probability of an engine failure is very low – the probability of an engine failure occurring during a 10-minute exposure window while operating at low altitude in a built-up area is astronomically low. We would like to suggest that the issue should be re-examined by Transport Canada with a view to distinguishing two types of operations:

1. Operations that transit the built-up area of any city or town at low altitude for a pre-determined short period of time (notionally, 15 minutes or less) where the emergency landing areas would need to be identified, but would not be a limiting factor, or;

2. Extended low level operations over the built-up area of any city or town (notionally, more than 15 minutes), where emergency landing areas would need to be identified for SE aircraft, or the use of ME aircraft would be mandatory.

When considered together, both SMS and the trend of the Department to put more responsibility on the shoulders of the AOC holder to ensure that the operation is conducted safely, we see no reason why the terms of Ops Spec #49 and the elements of 722.22 of the CASS should not continue to be employed.

Reasons

Operators have the right to expect that their applications will be responded to in writing, and that the Minister will provide an explanation of which specific parts of the proposed risk mitigation are unacceptable, and more importantly, *why* they are unacceptable. In this way, the operator can revisit the problematic areas and possibly provide further risk mitigation, while carrying out operations along other segments of the proposed route in built-up areas. Furthermore, the operator will be able to structure future applications with a better understanding of how they will be evaluated.

We do not believe that written applications should be responded-to over the phone, or in a letter that in-so-many-words says, “Denied”.

The Public Interest in the Work Being Carried Out and the Risk Associated with Other Means to Carry Out the Work

Some types of operations either cannot be carried out using other means, or cannot practically be carried out using other means. For example, long pipelines and power lines are frequently inspected for damage or leakage by air when experience has shown that alternate methods are extremely inefficient or impossible to employ. This concept is alluded to in section 5.0 (4) of the DRAFT AC, but some examples should be provided for the assistance of Air Operators who are preparing their applications, and for Inspectorate staff in the SI to make sure that they are aware of these types of operations.

Consideration of Rotary-Wing Applications by Rotary-Wing Inspectors

The operator-members of our Working Group commented that applications for low flying permits should be considered by Inspectorate staff with a reasonably current rotary-wing operational background. With respect for the knowledge and expertise of fixed-wing or airline Inspectors or TIs, many of them simply do not understand the helicopter industry, and the type of low-level operations that are conducted. Operators have a right

to have their applications considered by Inspectorate staff who understand the risks and benefits of helicopter operations. If the Inspectors that review these applications do not understand our industry, then they will be evaluated in an ultra-conservative way.

General Observations

The content and format of the DRAFT AC and SI seemed to be complicated, and difficult to understand. What's more, in many cases, elements of the documents simply duplicate obligations that exist elsewhere in the regulations or are part of good airmanship (i.e. essential crew members-only for Aerial Work operations, requirement to coordinate operations with the local ATC Unit, aircraft must be flown in compliance with the FOM, etc.). Both the DRAFT AC and SI should be examined and edited with these issues in mind. They will not all be identified specifically in this submission.

We believe that the content of each document could be made more clear through the use of a matrix. Not only would this presentation be more clear, but it would ensure that the substantive operational requirements would be exactly the same for both Inspectorate Staff and Operators, and similar operational circumstances and risks would be addressed in precisely the same way.

As currently drafted, our members feel as if the most conservative standards from across the country have been added to the DRAFT SI and particularly in the Additional Mitigation Section as part of a shopping list of conservative limitations, without providing any guidance to the Regions about when they should be applied. In its current form, we believe that the Regions that have historically applied a very conservative policy on this subject, will select from the most conservative available limitations, and other Regions will do less shopping from that list. In short, we are concerned that the DRAFT SI in its current form will not serve to mitigate the inconsistent rulings that are occurring across the country on this subject – which is of course, right back where we all started.

We believe that industry and government could benefit from a jointly developed risk-based policy on the subject of SE and ME operations in a built-up area, so that the regulations could flow naturally from the policy. In this way, the regulator and operators could defend their decisions, based on ONE jointly-developed rational risk-based model. Surely, using risk-based principles the regulator and the operational community can come to some common understanding of the tolerable risks. Admittedly, the Minister will be answerable to the public, but AOC holders carry the responsibility and liability for operations that cannot be defended using a risk-based analysis. It seems to this association, that this approach is entirely consistent with SMS principles and consistent with evolving policy inside the Department that places more responsibility on the shoulders of the operational community to manage their own risks – subject to audit by Transport Canada.

Finally, HAC would like to receive the Risk Assessment used by the Transport Canada internal Working Group, referenced at item (n) in the DRAFT SI at section 2.1 as "Low Flying Authorization Pacific Region Helicopters - RDIMS 8111402. Please forward it to

HAC at fred.jones@h-a-c.ca at your earliest convenience. We believe that the Risk Assessment process used to arrive at the AC and SI should be transparent, too.

Specific Comments on the DRAFT AC

2.3 Definitions and Abbreviations

(o) "Within"

HAC's members do not believe that this section provides a practical definition of "built-up area". We do not believe that overflying a single structure presents a hazard, and that the Department should make reference to some of the case law on the subject of "built-up area", rather than provide a definition of its own. We do not believe that the definition reflects the current definition for built-up area that has evolved through the case-law.

1.2 Applicability

Based on this section, it appears that the AC and SI will apply to both fixed-wing and helicopter operations. We expect that there may be some interest from the fixed-wing aerial work community (aerial photography, aerial survey, aerial application etc.) in the terms of the SI and AC, although we are not aware that they are being consulted on the content of the SI and AC. The Department may want to consider limiting its application to helicopter operators, initially. We see some complications arising if a single AC and SI are developed for both aeroplane and helicopter operations.

6.1 Permissible low altitude flight/take-offs, approaches and landings within a built-up area of a city or town

(2) HAC does not believe that ME aircraft should be required for flights transiting a built-up area at low altitude, but only where extended operations over built-up areas are concerned under circumstances where there is no suitable emergency landing areas. We know that there are thousands of operations at Canada's urban airports each day, where single engine aeroplanes and helicopters approach to land and take off without incident while operating beyond gliding distance from an emergency landing area. We fail to see how other operations at low level over a built-up area by a helicopter are any different, or somehow less-safe.

(2) (b) HAC believes that the AC should make reference to Ops Spec #49 in this section. We see no reason why a full submission according to the terms of the AC should apply to Ops Spec #49-circumstances or to a renewal of an existing Ops Spec.

8.0 Application Process

(4)(a)(ii) Operators depend on the timelines articulated in Transport Canada documents, however, sometimes these applications have taken up to 3 months to be processed. Our members commented that perhaps the authorization process should contemplate the issuance of a permit for a broader period of time, so that it could mitigate the need for multiple applications or renewals – under potentially time-sensitive circumstances. If there is any potential that an extended period of time may be required, then the permit should contemplate a lengthy validity period or specifically address a short-form renewal process.

(9) This section perpetuates the need for multiple authorizations on a region-by-region basis, and a very bureaucratic process. This can only create delays for the operator, and raises the very real potential that there will continue to be inconsistent decisions. Is there no way that a single application can be submitted to the AOC-holder's home-region, and then evaluated nationally for the same operation that occurs in multiple regions? This has been one of the most significant problems for our operators, and the terms of the DRAFT AC and SI simply perpetuate it, rather than resolve it.

(10) This section should make it clear that the applicant must be provided with a written explanation relating to the reasons for the denial, including an explanation of the specific route segments or areas that are a source of concern – and *why* they are a source of concern. This section should also make it clear that one route segment may be approved, while another may be rejected - with reasons.

8.1 Best Practices

This section should make it very clear that the suggestions outlined will not be evaluated as part of the assessment process by Transport Canada. A number of them are vague, and are not required by regulation, and could be very costly (i.e. "Advise the local population…")

9.0 Authorization Process

(2) This section should make it clear that any rejection of the application will include segment-specific reasons for the refusal, and could be partially authorized if other sections contain acceptable risk mitigations. HAC believes that a denial by Transport Canada with respect to any segment of the application should automatically include the internal RA conducted by Transport Canada, and not just the "reasons for the refusal" as set out in 9.3(2). Without reasons and an RA, it too easy just to say "no".

If possible, the operator should be given an opportunity to address the mitigations, while the application is still actively being considered by Transport Canada and before the application file is closed, to avoid the potential that a new application will be have to be submitted – and the "clock starts again".

12.0 Appendix A – Notification and Application for Low Flight, Landing and Take-Off in a Built-Up Area – (CARS) 603.65, 702.22, 703.36, 704.31

Operators submitting an application should have access to the TC Internal Risk Assessment, so that they can consider the analysis conducted.

Comments on the DRAFT SI

Each substantive element of the DRAFT AC should be reflected in the DRAFT SI to avoid raising false expectations on the part of the applicant. There should not be any "secret" standards or Additional Mitigation strategies contained only in the SI for any given operation. Furthermore, no additional mitigation strategy should be provided in the SI without specific guidance on how it should be applied.

No substantive element of the SI should be excluded from the AC. That is, applicants should be completely aware of how their applications will be evaluated, in fact, HAC would argue that they two documents could be virtually identical, but for the administrative elements (i.e. "Each SFOC must have a unique number… etc.)

The SI should make it clear that applicants must have access to any Risk Assessments conducted by departmental staff. This will ensure that the regions conduct credible RAs of their own.

Our comments on text in the DRAFT AC that are also contained in the DRAFT SI, also apply to the SI. We will not repeat them, below.

5.0 Risk

(1) It is unclear what "…reducing the frequency…" means in the context of the SI. We would wholeheartedly support an instruction to staff that would incorporate our comments in 6.1(2), above, because we believe that you meant to write "exposure time" which would capture frequency. The frequency of the operation is dictated by the operational requirements, and should not be modified by departmental staff – however, it does affect the level of risk. To be clear, a flight transiting a built-up area at low altitude would have a lower level of risk than extended low-level operations over a built-up area while orbiting, for example.

The evaluation of "Risk" by TC Inspectorate staff is central to the decision making process on these applications. The current "Risk" section is very vague, and should contain more specific guidance to Inspectors that, HAC believes should include:

While Single-Engine helicopters are very reliable, there is a very remote but real possibility that an engine or critical component failure could occur while operating at low altitude. This risk of this occurring can be evaluated and mitigated by considering the following general factors:

The amount of time that the aircraft will be conducting operations in the area at low level – i.e. Will the aircraft be conducting extended low-level operations in this area, or

transiting the area briefly? For transiting SE aircraft, they would only need to identify all emergency landing areas. Only SE aircraft conducting extended operations (> 15 minutes) would be required to identify *and access* emergency landing areas from any point along the intended route. ME aircraft transiting the area or conducting extended operations would not require the identification of emergency landing areas (External Load operations and areas to jettison external loads would be an exception to this general principle).

Has the SE operator identified available emergency landing areas that are suitable for the type and size of aircraft being operated, for extended operations?

Consider and document in a narrative form the risk that NOT CONDUCTING the operations by helicopter would present. This information may be available through the operator or customer. You should also document the challenges associated with conducting the operation, other-than from the air. If for example, TCPL is required to inspect 2000 miles of pipeline every two days, to protect the public from the risk of a gas or oil leak, is the public located in a built-up area exposed to more risk by prohibiting them from conducting an aerial inspection by helicopter? Departmental staff may should contact the operator or the customer to inform themselves on these issues.

18.0 List of Events

There appears to be a number of errors in this section attributable to the indiscriminate use of “cut and paste”.

18.1 Aerial Application Drying Products and Spraying – Single Engine

(14) This section makes reference to “…safely continue flight in the event of an engine loss”, which would not apply to a Single-Engine aircraft.

(15) For some helicopter operations, the flight path may be difficult to predict in advance. Factors affecting the most appropriate flight path may only be evident as the date of the flight approaches (ie. Winds affecting the flight path for aerial application, for instance). In the permit, the operator should be given some discretion to modify the flight path according to the prevailing circumstances, day-of.

It is not reasonable to impose a “no hazard created” standard on the operator. They should be expected to “minimize the hazard” to persons or property on the surface.

(18) Some latitude should be provided to the operator of the aircraft to change the routing for safety reasons (i.e. conflicting aircraft or an instruction provided by the Tower).

18.2 Aerial Advertising – Class B External Load – Multi-Engine

It is unclear why this activity is not available to SE helicopters. Single-engine aerial advertising operations are regularly carried out by SE aeroplanes over built-up areas.

18.3 Aerial Construction, Class A, External Load, Multi-Engine

(38) Our operators saw no reason why Transport Canada would require "identical" high visibility vests.

(45) Where Class A loads and aerial filming are concerned, the requirement in this section to close all roads and walkways and trails and overpasses is impractical, unnecessary, and may be inconsistent with the purpose of the film. The camera is fixed to the aircraft and would be unlikely to be "released" intentionally or unintentionally. We also see no reason why Class A Aerial Filming operations could not use SE aircraft under appropriate circumstances – see also 18.8, below.

18.4 Aerial Construction – Class B External load – Multi-Engine

(56) This section seems to suggest that only CAT A multi-engine aircraft may be used for these operations, which is impractical, and it has not been past-practice. The section also does not contemplate the jettisoning of the load in the event that an engine fails.

18.5 Aerial Construction, Class C, External Load, Multi-engine

HAC does not understand why single-engine aircraft could not be used for these operations or why the aircraft (SE or ME) would have to be operated "in compliance with the Height-Velocity Diagram". Only a CAT A aircraft could maintain altitude in the event that there is an engine failure in all phases of flight.

18.6 Aerial Construction, No external load, No landing, Multi Engine

This section appears to have some problems owing to the indiscriminate use of "cut and paste". It is unclear how the aircraft would be involved in aerial construction without having an external load.

18.7 Aerial Inspection (Aerial Inspection) – Multi-Engine Required

HAC sees no reason why SE aircraft could not be used in aerial inspection operations, if for example they are transiting the area briefly or if there are suitable emergency landing areas for extended operations.

(105) Aerial Work operations in SE aircraft are habitually carried out in built-up areas at altitudes lower than the altitudes specified in this section ("at least 300 feet above the highest obstacle and 500 feet horizontally"), particularly if the aircraft is transiting the area or if there are suitable emergency landing areas available. We see no reason, for example, why a SE helicopter conducting aerial inspection over a pipeline right-of-way in a built-up area, with constant access to a landing area on the right-of-way, would not

be permitted to operate at a lower altitude, for example – even during extended low-level operations.

18.8 Filming – (Multi-Engine) T/O and Land – Day or Night

(116) Again, we see no reason why all roads, trails and overpasses need to be closed to vehicles and pedestrians, as explained above.

18.9 Filming – take-off and landing – 603.67, 702.22(2), 703.36, 704.31, Single Engine

(138) We see no reason why all roads, trails and overpasses need to be closed to vehicles and pedestrians, particularly if there are emergency landing areas identified.

(134) We see no reason why the individual pilots need to be identified at all if they are appropriately licensed and otherwise qualified. The section seems to contemplate this, but the requirement to specifically identify by-name qualified crewmembers should be deleted altogether.

(142) We see no safety-reason for the 500-foot limitation set out in this section given the other limitations under consideration.

18.10 Filming – Take-off and landing- Single Engine – 603.67 – 702.22(1) – 703.36 – 704.31

(150) "…safety continue flight in the event of an engine loss…" is inconsistent with the use of SE aircraft in this section. This appears to be a cut-and-paste issue.

(152) If the aircraft is capable of reaching an emergency landing area to protect persons and property on the ground, the operation should not be limited by the Height-Velocity Chart. Aerial Work helicopters habitually fly quite safely "in the curve" while conducting a variety of operations, and the H-V Chart is not a "limitation" in the FOM.

(158) We see no reason for compliance with airport certification standards for the approach and departure paths, as this would be very limiting for many operations in built-up areas – already by-definition populated with structures.

(159) & (160) This section should call for the operator to "minimize" any flight over built-up areas or assemblies of persons. To expect them to "not" to fly over these areas would defeat the purpose of the permit since they are presumed to be occurring near or inside the built-up area of a city or town.

(162) Please see our comments at (138), above.

(165) The transit route should be able to be varied by the pilot for safety-related reasons, as discussed above.

(167) Please see our comments in (151), above.

(168) Please see our comments at (134), above.

18.11 Take-off and Landing – Multi-Engine required – 603.67 – 702.22(1) – 703.36 – 704.31

(166) This section seems to suggest that only CAT A aircraft will be permitted, and inconsistent with the use of SE aircraft, authorized elsewhere.

(175) & (176) Please see our comments at (159) and (160).

(181) Again, this section seems to suggest that only CAT A aircraft would be permited – "…safely continue flight in the event of an engine loss..".

(182) Again, the transit route to and from the site should be allowed to be varied by the operator based on day-of safety considerations (i.e. weather and ATC instructions, traffic avoidance etc.)

19.0 Additional Mitigation

This section should be deleted altogether, except for (184), (185), (191), (192), (196) which should be inserted with guidance about their use in both the AC and SI. As discussed previously, we see no justification for items that are inserted ONLY in the SI. To suggest otherwise defeats the purpose of providing industry with AC guidance, when different and secret standards are applied internally by the Department. In its current form, it will allow the most conservative regions to regress to policy of their own that will result in a patchwork of rulings on this subject across the country.

Some of the items in section 19.0 are completely impractical (199) HUMS, (197) NVG, (201) Jettisoning banners, or already in place as part of an AOC holders responsibility (193) Fuel Management, (203) Emergency Response Plan, (205) low-level hazard awareness for aerial applicators, (207) Persons not essential, etc.

We would be pleased to answer any questions you may have.

Thank-you for the opportunity to comment.

Regards

Fred L. Jones BA LLB
President & CEO