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## ENHANCING RCAF PROCUREMENT THROUGH CONCEPT DEVELOPMENT – FOCALISATION OF THE FAOC REQUIRED

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## ENHANCING RCAF PROCUREMENT THROUGH CONCEPT DEVELOPMENT – FOCALISATION OF THE FAOC REQUIRED

### AIM

1. The aim of this service paper is to propose a way forward to further develop the Future Royal Canadian Air Force (RCAF) Functional Areas<sup>1</sup> described in the *Future Concepts Directive (FCD) part 2: Future Air Operating Concept (FAOC)*. Providing well-articulated functional concepts at the onset of the *conceive-design-build-manage* force development (FD) cycle will enhance the procurement cycle for future RCAF capabilities. Amalgamating the functional areas around five main themes and providing overarching focal points would enable the formulation of relevant functional concepts from which more granular enabling concepts could be developed later on.

### INTRODUCTION

2. Having recently renewed its doctrine and promulgated an articulated strategy, the RCAF is poised to take a leadership role in the delivery of *Strong, Secure, Engaged: Canada's defense policy* (SSE). With the recent publication of SSE, the Canadian government has provided the Department of National Defense (DND) and the CAF the strategic guidance on its national security strategy<sup>2</sup>. The RCAF needs to leverage this policy to develop functional concepts and lead the debate on future capabilities in support of Canada's national military strategy.

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<sup>1</sup> Royal Canadian Air Force, *Future Concepts Directive Part 2 : Future Air Operating Concept* (Ottawa : DND Canada, 2016), p. 12.

<sup>2</sup> Department of National Defence, *Strong Secure Engaged : Canada's Defence Policy* (Ottawa: DND Canada, 2017), p. 59.

3. Although critics argue the announced defense spending will not materialize until the next election<sup>3</sup>, chapter 5 of SSE provides very clear direction on the level of ambition of the government's policy. This direction does not differ much from the previous government's defense policy. *Strong at home, Secure in North America and Engaged in the world*<sup>4</sup> was previously described as *Defending Canada – delivering excellence at home, Defending North America – a strong and reliable partner and Contributing to international peace and security – projecting leadership abroad*<sup>5</sup>.

4. These expressions of the broad strategic goals of the Canadian government have not changed much over time. The RCAF evokes them in its FAOC and the eleven functional areas result from it.

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|--|--|--|---|
| National Military Strategy - 3 Key Roles | Defending Canada   | Defending North America  | Contributing to International Peace and Security  |
| RCAF Operational Concepts                | Domestic Air Operating Concept   | Continental Air Operating Concept  | Expeditionary Air Operating Concept   |
|  | RCAF Core Air Power Capabilities and Government-Mandated, Non-defence Missions   |  |   |
| RCAF Functional Areas                    | 1. Surveillance of Canadian Territory and Air/Maritime Approaches<br>2. Aerospace Defence of Canada<br>3. Support to Maritime Operations in Canada<br>4. Support to Land Operations in Canada<br>5. Search and Rescue<br>6. Support to the Civil Power | 7. Aerospace Defence of North America<br>8. RCAF Support to Continental Operations | 9. RCAF Operations in Low-Intensity Conflicts<br>10. RCAF Operations in High Intensity, A2/AD Conflicts<br>11. RCAF Support to Non-combat MOOTW |

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<sup>3</sup> Leblanc, Daniel and Steven Chase, "Ottawa Pledges Billions in Defence Spending; Military Blueprint Bolsters Expenditures by \$30-Billion Over Next Decade, but most of the Money Won't Flow Until After Next Election." *Globe & Mail*, 08 June 2017.

<sup>4</sup> Department of National Defence, *Strong Secure Engaged : Canada's Defence Policy* (Ottawa: DND Canada, 2017), p. 59.

<sup>5</sup> Department of National Defence, *Canada First Defence Strategy* (Ottawa DND Canada, 2008), p. 7.

<sup>6</sup> Royal Canadian Air Force, *Future Concepts Directive Part 2 : Future Air Operating Concept* (Ottawa : DND Canada, 2016), p. 12.

5. Because of their consistency throughout different governments, these strategic goals absolutely need to be used with confidence. The FAOC translates this strategic intent into the basis of the capstone document and propose the functional areas as potential subordinate future concepts to be developed.

6. This paper suggests to reduce the number of potential functional concepts by amalgamating similar functional areas to produce a handful of functional concepts instead of the eleven suggested by the FAOC. This should provide more granularity than the Domestic, Continental and Expeditionary Air Operating Concepts suggested but will be broad enough in scope to facilitate the elaboration of follow-on enabling concepts.

## **DISCUSSION**

7. In order to be in a better position to initiate the identification phase of the VCDS Project Approval Process (PAP), the RCAF needs to be developing well-articulated concepts. These concepts will form the strategic context documents and will facilitate the elaboration of the high level mandatory requirements (HLMRs) required at the identification phase of the PAP<sup>7</sup>.

### **Prioritisation of Air Force Vectors**

8. In Air Force Vectors (AFV) four strategic vectors are defined: Agile, Integrated, Reach and Power. Although they are not prioritised and that “progress along all vectors is required as the Air Force evolves towards its vision”<sup>8</sup> they are used to form the AIRPower acronym

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<sup>7</sup> Royal Canadian Air Force, *Future Concepts Directive* (Ottawa: DND Canada, 2016), p. 1-7

<sup>8</sup> Royal Canadian Air Force, *Air Force Vectors* (Ottawa : DND Canada, 2014), p. 33.

describing them and also the RCAF Vision: “An agile and integrated air force with the reach and power essential for CAF operations”<sup>9</sup>.

9. Because of the great expanses of territories of our country, any evocation of rapid force projection within our borders intrinsically involves the RCAF capabilities. Unless massive infrastructure investments are initiated to enable the stationing or ground movement of capabilities throughout the Canadian landmass, there will always be a need for aerial and maritime force projection capabilities to respond to security threats.

10. Although maritime capabilities have a tonnage capacity advantage over the air domain, the current and future *agility* and *reach* of the aerospace domain still favors it when reaction time is of essence. These de facto attributes have to be recognized and embraced in the RCAF FD endeavor nonetheless within the wider CAF.

11. In its foreword of Air Force Vectors (AFV), the Commander RCAF provides such direction<sup>10</sup>. However, in order to drive FD efforts and particularly concept development, it would be beneficial if the attributes were prioritized to provide focus.

12. The *agility* and *reach* vectors should be considered foundational for the RCAF as they are intrinsically linked to the aerospace capabilities. The *integrated* vector is an overarching aspect often referring to the interoperability of systems, sharing of information and the building of

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<sup>9</sup> *Ibid.*

<sup>10</sup> *Ibid*, p. v.

common situational awareness<sup>11</sup>. This vector should be prioritized as an overarching and central element driving RCAF FD.

13. Australia's military is often used as a comparison to Canada's due to the two countries similar historical ties and political systems. The Royal Australian Air Force (RAAF) has chosen to leverage the ideas of an integrated air force by creating Project JERICHO. This project aims at transforming the RAAF to "develop a future force that is agile and adaptive, fully immersed in the information age, and truly joint"<sup>12</sup>. Project JERICHO provides the direction and ambition to make the RAAF become a fifth generation Air Force. It also provides an all-encompassing focal direction for future FD initiatives with a robust information operations or marketing strategy tied to it.

14. The RCAF should consider making the *integrated* vector a driving force towards future FD initiatives and particularly towards the development of future functional, operating and enabling concepts. The RCAF should cultivate the ambition of becoming the joint FD leader. A conceptual project similar to the RAAF Plan JERICHO could provide the necessary guidance and act as catalyst to lead further RCAF concept development.

### **Realignment of functional areas**

15. Most modern air forces have recently produced future concept directives from which the RCAF's FAOC was inspired. However, the uniqueness of the RCAF compared to those other nation's air forces is that maritime, land and special operations aerospace support is force

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<sup>11</sup> *Ibid*, p. 37

<sup>12</sup> Royal Australian Air Force, *Plan Jericho Program of Work : Transforming Air Force's Combat Capability* (Canberra, DOD Australia, 2015), p.7.

developed and generated by the RCAF. Although it would initially seem desirable to adopt a similar approach to concept development, this particularity sets the RCAF apart from the others.

16. The Royal Air Force (RAF) and the United States Air Force (USAF) have similar approaches in the articulation of their Future Air (and Space for the RAF) Operating Concepts. The USAF concept is built around five core missions: Multi-Domain Command and Control, Global Precision Strike, Rapid Global Mobility, Global integrated Intelligence Surveillance and Reconnaissance (ISR) and Adaptive Domain Control<sup>13</sup>. In the case of the RAF, they use four: Control of the Air, ISR, Mobility and Attack<sup>14</sup>.

17. As stated above, the reasons the RCAF doesn't use the core Air Force missions for operating of functional concept development are valid. However, the number of functional areas proposed by the FAOC does not reflect what our allies are using. Amalgamating the functional areas to produce five themes around which to develop functional concepts would align the RCAF in the same conceptual space as its allies.

### **RCAF support to Land, Maritime and Continental Operations**

18. All the elements and commands of the CAF rely on aerospace capabilities of the RCAF to enable their operations. Amalgamating the functional areas of Support to Maritime Operations in Canada, Support to Land Operations in Canada and RCAF support to Continental Operations could provide a meaningful functional conceptual development through the overarching

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<sup>13</sup> United States Air Force, *Air Force Future Operating Concept* (Washington: DoD United States, 2015), p. 12.

<sup>14</sup> Ministry of Defense, *Joint Concept Note 1/17 Future Force Concept* (Shrivenham: DoD United Kingdom, 2017), p.42.

*integrated* vector. The similar requirements for the RCAF to share information and link into the decision making systems of different military and security agencies to enable their operation should provide a focal point for the elaboration of a concept.

19. Also, in terms of *power*, the fourth RCAF vector, the similar requirements for swift application and proportionality of effects, the ability to discriminate targets and the deterrence towards potential aggressor<sup>15</sup> would naturally pair these capacities. For the *agility* and *reach* vectors, the operating environment could be considered as the land mass of Canada, continental United States and their respective Exclusive Economic Zones including the Arctic. In this case, similar force projection and response capacity to potential threats would be comparable in these functional areas hence providing a focalized conceptual framework to explore.

### **Aerospace Surveillance and Defence**

20. The functional areas that are mostly linked to the North American Aerospace Defence agreement (NORAD) should be amalgamated together. A functional concept on the surveillance of Canadian territory and Air/maritime approaches would bond well with the Aerospace Defence of Canada and North America.

21. The requirement to seamlessly integrate into the military integrated information infrastructure (MI3) and the ability to make decisions and respond in a coherent and timely manner are currently present in all three functional areas statements of operating intent<sup>16</sup>. Once

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<sup>15</sup> Royal Canadian Air Force, *Future Concepts Directive Part 2 : Future Air Operating Concept* (Ottawa : DND Canada, 2016), pp. 15, 16 and 18.

<sup>16</sup> *Ibid*, pp. 14 and 17.

again, the overarching *integrated* vector could serve as a driving force for the functional concept development FD effort.

22. In the *agility* and *reach* aspects, the defense of Canada and North America functional areas suggest that factors of deterrence and the increase in range of future weapons will influence the development of future capabilities in that realm. Although suggestions have been made that the lack of participation of Canada into the missile defence system does not guarantee a response from the US<sup>17</sup>, this functional concept should be elaborated in the view to provide factors for potential solutions into this problem space.

### **SAR and non-defence missions**

23. Search and rescue (SAR) as a RCAF functional area falls within the four government mandated non-defence missions<sup>18</sup>. Assistance to law enforcement agencies, Very Important Persons (VIP) Transport and air demonstration complete these RCAF capabilities that don't fall within the key roles of the national military strategy.

24. Although all of those functions arguably require interoperability with other governmental agencies and could be included in the overarching *integrated* vector, the common theme uniting these functions is that they don't necessarily have to be part of the RCAF. Many of our allies provide these capabilities through agencies outside their air forces. Without falling into the

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<sup>17</sup> Berthiaume, Lee, "Policy says U.S. will not defend Canada from ballistic missile attack: General", *Toronto Star*, 14 September 2017.

<sup>18</sup> Royal Canadian Air Force, *Future Concepts Directive Part 2 : Future Air Operating Concept* (Ottawa : DND Canada, 2016), p. 12.

debate of the privatization of these capabilities<sup>19</sup>, a holistic approach should be taken to conceptualize how they could be part of external agencies to the RCAF or how to best relegate them as a secondary role to other capabilities.

25. The *agility* and *reach* vectors pose a similar challenge as in the other functional areas. This is due to the expanse of the territory to be covered and the reaction time from the decision to launch that could be expected. This reaction time could pose significant challenges when conceptualizing operations in the Arctic region without considering basing options or increasing the range and speeds of potential aerospace vehicles for those functions.

### **Low intensity conflict and MOOTW**

26. RCAF functional areas that support SSE's vision of Canada's engagement in the world could be paired together to produce a functional concept. The main theme uniting these functions is the ability to rapidly force project and sustain forces globally. The assumption is that the environment will be partially denied but would not require the full spectrum of capabilities to enable freedom of manoeuvre of aerospace capabilities.

27. Although the FAOC does not get into specific descriptions of vectors on the Military Operations Other Than War (MOOTW) functional area, it states that the vectors "from all other functional areas will be sufficient"<sup>20</sup>. Matching this functional area with the RCAF operations in low intensity conflict would acknowledge the fact that, although a theatre could be permissive,

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<sup>19</sup> Berthiaume, Lee, "Liberals considering privatizing search and rescue operations as part of Canadian Forces review", *National Post*, 11 April 2016.

<sup>20</sup> Royal Canadian Air Force, *Future Concepts Directive Part 2 : Future Air Operating Concept* (Ottawa : DND Canada, 2016), p. 20.

the multiplication of asymmetric threats warrants the ability of RCAF capabilities to militarily react to an act of aggression in this context.

28. The *agility* and *reach* vectors are central in this potential functional concept. These aspects could define the speed of reaction required in the governmental response to a crisis from the application of precise military effects to pre-emptive or de-escalation activities. However, they should also provide guidance towards what could be unique, niche and high value capability sets that the RCAF could offer in a coalition, joint or whole-of-government (WoG) operation.

29. Another aspect that could be of interest in this functional area concerns the *power* vector. The notions of precision delivery of effects, rules of engagement, proportionality and discrimination could form a basis for the elaboration of an enabling concept tied to the wider targeting initiatives of the CAF.

30. The last but not least aspect to discuss in this fourth amalgamated functional area is the *integrated* vector. As stated earlier, it is a necessity for future RCAF FD. Because the RCAF engagements abroad will most likely be within WoG approach and most possibly within a coalition environment, the necessity to be able to seamlessly integrate within these complex command and control structures is, again, paramount. In this functional area, there is also the higher probability to be able to partner with local and regional actors which adds complexity to this aspect.

### **High Intensity, A2/AD Conflicts**

31. This last functional area should form its own functional or operating concept. The anti-access, area-denial (A2/AD) aspect and the evocation of a “philosophical shift towards acceptable levels of air and space superiority and acceptance of risks”<sup>21</sup> warrant the initiation of a thorough discussion on the subject.

32. A concept should promote debate<sup>22</sup>. In this case the debate should be initiated and promoted by the military experts on employment of aerospace capabilities. The RCAF is best positioned to provide a strong, intellectually founded concept providing a clearly differentiated view of the future of RCAF operations in A2/AD environments.

33. Although the RCAF would likely operate within a coalition environment in this type of future scenario, this should not detract the initiation of the debate. The requirement to integrate with coalition partners and fight in a technologically heavily degraded environment should be central to this conceptual foundation. This concept could inform the conceptualisation of the *integrated* vector as a driving force towards future FD initiatives as suggested earlier.

### **CONCLUSION**

34. With the publication of the FAOC in 2016, the RCAF indicated its intent to conceptualize how it will further develop its capabilities in the future. The high quality of the strategic documents lately published, namely AFV, the FCD, FAOC and the latest RCAF Doctrine, are all

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<sup>21</sup> *Ibid.*

<sup>22</sup> Shmitt, John F. Defense Adaptive Red Team (DART), *A Practical Guide for Developing and Writing Military Concepts* (McLean : Hicks and associates, 2002), p. 21.

indicative of the level of maturity of the FD process in the RCAF. The Commander RCAF is in a position to lead future force development and shape the joint endeavours of the CAF.

35. In order to do so, further advances are required in the development of conceptual documents to better inform the initial stages of the conceive-design-build-manage cycle and ultimately the VCDS PAP. This will in turn improve the procurement cycle for future RCAF capabilities.

36. This paper suggested a few avenues of approach in hopes of contributing to the further development of concepts. These concepts should provide the necessary guidance to drive future FD initiatives and initiate debate on fundamental future RCAF employment issues.

## **RECOMMENDATIONS**

37. It is recommended that the RCAF initiates the elaboration of functional concepts around the five amalgamated functional areas proposed in this paper. This will reduce the amount of concepts to be produced and enable the further development of the FAOC.

38. It is recommended that the RCAF analyses the feasibility to create a conceptual project to prioritise the *integrated* vector as a driving force for future force development endeavours. This will enable the RCAF to take a leadership role in the CAF Joint FD efforts.

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