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Adapt to Survive: Brigade Command Post Modernization

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**ADAPT TO SURVIVE:
BRIGADE COMMAND POST MODERNIZATION**

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ADAPT TO SURVIVE: BRIGADE COMMAND POST MODERNIZATION

“Russia’s war in Ukraine has shown us many lessons about the changing character and the enduring nature of war. We must incorporate these lessons, from the tactical to the strategic, with a sense of urgency.”¹

— General Wayne Eyre, Chief of the Defence Staff, 08 February 2023

AIM

1. The Canadian Army (CA) must force-generate brigade (bde) command posts (CPs) that can survive on the modern battlefield. The lessons observed through the War in Ukraine highlight the urgent need for these CPs to be dispersed, mobile, and able to mask their electromagnetic signature.² In June 2022, the Government of Canada (GoC) announced that it will augment the enhanced Forward Presence (eFP) in Latvia, from a multinational battlegroup (BG) to a combat-capable bde.³ Through this joint declaration with the North Atlantic Treaty Organization (NATO), the Canadian Minister of National Defence confirmed that Canada will “establish and lead elements of a forward brigade command and control”.⁴ The aim of this service paper is to demonstrate the urgent requirement for the CA to modernize its bde CPs to improve their survivability in high-intensity combat operations.

INTRODUCTION

2. *Canada’s Defence Policy, Strong Secure Engaged (SSE)*, was published in 2017 and stressed the importance of the bde in how the CA fights.⁵ As the organization responsible to execute integrated, joint operations, along the full spectrum of conflict, the bde scales its headquarters (HQ) into distinct CPs. These CPs provide physical nodes in the battlespace that coordinate “efficient and effective communication, command and control; intelligence, surveillance and reconnaissance; maneuver; the application of firepower; and sustainment.”⁶ To achieve this function within the contemporary operating environment (COE), the GoC, announced specific investments through SSE to

¹ General Wayne Eyre, *Chief of the Defence Staff 2023 Focus Areas*, Defence Stories (Government of Canada, 2023), <https://www.canada.ca/en/department-national-defence/maple-leaf/defence/2023/02/chief-of-the-defence-staff-2023-focus-areas.html>.

² Mykhaylo Zabrotskyi et al., *Preliminary Lessons in Conventional Warfighting from Russia’s Invasion of Ukraine: February-July 2022*, RUSI Special Report (London: Royal United Services Institute for Defence and Security Studies, 2022), <https://static.rusi.org/359-SR-Ukraine-Preliminary-Lessons-Feb-July-2022-web-final.pdf>.

³ Department of National Defence, *Canada and Latvia Sign Joint Declaration to Augment NATO’s Enhanced Forward Presence Latvia*, 2022. <https://www.canada.ca/en/department-national-defence/news/2022/06/canada-and-latvia-sign-joint-declaration-to-augment-natos-enhanced-forward-presence-latvia.html>.

⁴ *Ibid.*

⁵ Department of National Defence, *Strong Secure Engaged - Canada’s Defence Policy*, 2017. 36. <http://dgpaapp.forces.gc.ca/en/canada-defence-policy/docs/canada-defence-policy-report.pdf>.

⁶ *Ibid.*

“modernize land-based command and control, intelligence, surveillance and reconnaissance systems” and additional updates to improve mobility and survivability.⁷ The conceptual framework for these improvements has been outlined in the CA’s doctrine, such as *Close Engagement* (2019), *Advance with Purpose* (2020), and *Modernization Vital Ground: Digital Strategy* (2022). However, these theoretical aspirations have not developed into tangible improvements to equipment, tactics, or training.

3. This service paper will leverage lessons-observed from the War in Ukraine to establish a clear understanding of CP vulnerability in the COE. Within this context, it will then describe the existing structure and limitations of the CA’s bde CP. This service paper will then recommend specific procurement opportunities to immediately address capability shortfalls as they related to CP survivability. Lastly, it will recommend improvements to training and validation standards to integrate and formalize bde CP modernization into the CA. As the NATO Framework Nation responsible to C2 eFP forces in Latvia, failure to force-generate a combat-capable bde CP includes risk to mission, risk to force, and reputational risk for Canada.

DISCUSSION

4. SSE identified the bde group as the key to flexibility across the spectrum of conflict, from support to small missions to direct combat against an advanced adversary.⁸ As such, a clear understanding of the adversary should drive the modernization of the bde CP. For purposes of this service paper, the advanced adversary model will be based on the Russian military within the Ukraine context since 2014. By focusing this research on high-intensity combat operations it is expected that a modern bde CP will have the capability and equipment to scale appropriately along the spectrum of conflict.

Lessons Observed from Ukraine

5. In April 2022, David Axe, a writer for Forbes, wrote an article titled *The Ukrainians Keep Blowing Up Russian Command Posts and Killing Generals*.⁹ This article described the devastating effect that deliberate targeting of CPs as high-value targets (HVTs) has had on the battlefield. Learning from mistakes made during early fighting in Eastern Ukraine in 2014, the Ukrainian Armed Forces (UAF) have since evolved their tactics, techniques, and procedures (TTP). In 2022 they understood how to protect their CPs while locating, targeting, and destroying those of their enemy.¹⁰ The article states that “in the two months since Russia widened its war on Ukraine, Kyiv’s forces have located and destroyed no fewer than 31 Russian command and

⁷ *Ibid.*, 37.

⁸ *Ibid.*, 36.

⁹ David Axe, *The Ukrainians Keep Blowing Up Russian Command Posts and Killing Generals*, (Forbes (Website), 23 April 2022). <https://www.forbes.com/sites/davidaxe/2022/04/23/the-ukrainians-keep-blowing-up-russian-command-posts-and-killing-generals/?sh=22432fe8a350>.

¹⁰ *Ibid.*

communication posts”.¹¹ This success was achieved through the deliberate incorporation of lessons-learned by the UAF since 2014.

6. To understand how CPs have evolved throughout the War in Ukraine, this service paper will refer to two sources: *Lessons Learned from the Russo-Ukrainian War* by Phillip Karber (2015); and *Preliminary Lessons in Conventional Warfighting from Russia’s Invasion of Ukraine: February-July 2022* by Mykhaylo Zabrotskyi et al. (2022). These two sources illustrate the reality of modern combat and provide numerous lessons for the CA to immediately adopt.

7. Karber (2014). Phillip Karber opens his research by stating “the purpose of this paper is to stimulate a dialogue on the military aspects of the Russo-Ukrainian War with a focus on emerging trends.”¹² These trends from 2014 directly shaped how the UAF fought in early 2022, and there are specific observations that apply to the survivability of CPs. First, Karber highlights the “ubiquitous presence of unmanned aerial vehicles in modern combat”.¹³ Second, the enemy’s “ability to combine multiple sensing platforms into a real-time targeting system” for rapid destruction by devastating area fires.¹⁴ Lastly, Karber makes it clear that to survive in this environment, a force must understand “the importance of camouflage, dispersed assets into civilian areas, and the use of deceptive signatures”.¹⁵ These observations indicate that a modern CP must achieve signature-masking, dispersion, and mobility to survive. Further, the danger of identification, targeting, and attack from the air by unmanned aerial systems (UAS) is a persistent threat on the modern battlefield. These trends developed into lessons-learned for the UAF, and they modernized their TTPs to achieve lethal effects during the opening months of the Russian re-invasion in 2022.

8. RUSI (2022). Zabrotskyi et al. provide an account of the initial phases of the war between February and July 2022 to determine Russian tactics and the subsequent implications for NATO. Regarding CP survivability, the authors make three key observations. First, there is no sanctuary on the modern battlefield. The enemy “can conduct strikes on targets throughout its adversary’s operational depth with long-range precision fires.”¹⁶ As such, CPs must remain dispersed and mobile while achieving beyond line of sight (BLOS) communications. Second, unless hardened, CPs are vulnerable to top-attacks from loitering munitions, “whose accuracy and affordability make them a persistent and pervasive threat”.¹⁷ As such, the practice of C2 under tents or canvas is no longer acceptable on the modern battlefield. Lastly, the Russian military has shown a vulnerability to deception, and thus CPs should have the ability to deceive the

¹¹ *Ibid.*

¹² Phillip A. Karber, *Lessons Learned from the Russo-Ukrainian War*, The Potomac Foundation, (US Army Capabilities Integration Center, 29 Sep 2015). 2.

¹³ *Ibid.*, 11.

¹⁴ *Ibid.*, 12.

¹⁵ *Ibid.*, 16-17.

¹⁶ Mykhaylo Zabrotskyi et al., *Preliminary Lessons in Conventional Warfighting*...53.

¹⁷ *Ibid.*

enemy's sensors through multi-spectral masking to avoid rapid target acquisition by electronic warfare (EW) and UAS.¹⁸

9. These lessons from the War in Ukraine outline the immediate requirements for modernizing the bde CP. To be combat-capable on the modern battlefield, the CA must understand how the enemy will detect, target, and destroy their CPs as HVTs. Tactics must be adapted to disrupt this cycle along a progressive scale. Multi-spectral masking and camouflage are necessary to avoid detection. Dispersion and mobility are essential to disrupt targeting. These fundamentals must be combined to improve survivability against enemy fires. All of this must be achieved while maintaining BLOS voice and data connection to C2 the fight from dispersed, redundant CPs.

Existing Structure and Limitations

10. The modern CA has been shaped by its experience conducting counter-insurgency operations against an irregular adversary in Afghanistan from 2001-2014. During this timeframe, tactical C2 was executed from static, extensive HQs that relied on heavy data consumption to aid precise decision-making. In 2007, the CA published *Land Operations 2021 - Adaptive Dispersed Operations (ADO)*, *The Force Employment Concept for Canada's Army of Tomorrow*. This capstone document described "an approach to future land operations characterized by the deliberate use of dispersion and aggregation undertaken by adaptive forces in order to create and sustain tactical advantage over adept, adaptive adversaries."¹⁹ The doctrine outlined how the CA would fight at the tactical level and emphasized the need to remain highly mobile, dispersed, and networked.²⁰ However, it assumed that "the likelihood of large force-on-force exchanges will be eclipsed by irregular warfare conducted by highly adaptive, technologically enabled adversaries".²¹ This assumption has had a negative impact on the modernization of the bde CP within the CA.

11. ADO emphasized C2 doctrine focused on the employment of a BG in low-intensity operations and minimized the role of the bde and the bde HQ. This shortfall is highlighted in CA doctrine such as *Land Operations* (2007), and *Brigade Tactics* (2017). Both documents outline the institutional composition and role of the bde, without providing a formal definition or structure of a bde HQ and how one operates tactically.²² Recognizing this vulnerability, the CA sanctioned a Capability Development Record (CDR) in 2018, to research where the current bde HQ was misaligned with the envisioned army of tomorrow. The research confirmed that "The experience of waging a counterinsurgency campaign from a static location has resulted in an expansion in the

¹⁸ *Ibid.*, 49.

¹⁹ Directorate of Land Concepts and Design, *Land Operations 2021, Adaptive Dispersed Operations, The Force Employment Concept for Canada's Army of Tomorrow*, Department of National Defence (Kingston, 2007). 2.

²⁰ *Ibid.* 4.

²¹ *Ibid.*

²² Canadian Army Land Warfare Centre, *Formation Command - CMBG HQ*, Capability Development Record, 1.1.0 (Kingston: Chief of Staff Army Strategy, 2018). 6.

size or “footprint”, and the range of capabilities and enablers resident in the deployed HQ.”²³ It specifically referred to examples from the CA’s largest annual training exercise, Exercise MAPLE RESOLVE (Ex MR), where bde HQ mobility, survivability, and protection were identified as significant deficiencies.²⁴

12. The CDR influenced the CA’s updated capstone operating concept, *Close Engagement*, which was published in 2019. This document emphasized the tactical employment of the bde and noted that the HQ must remain mobile, small enough to survive, and incorporate the concept of reach-back through dispersion.²⁵ Further, it stressed that “the electromagnetic signatures of headquarters will need to be masked or reduced to avoid being targeted during combat operations.”²⁶ These fundamental characteristics of the bde HQ are aligned with the lessons-learned from the War in Ukraine; however, the CA is not organized or equipped to implement these lessons. As the Framework Nation in Latvia, Canada must immediately rectify this shortfall.

Immediate Procurement Opportunities

13. The force employment concept of ADO is valid within the Ukraine context; however, modernization of the bde CP is necessary to enable this doctrine. There are specific procurement opportunities that can be immediately implemented by the CA. These opportunities are focused on electromagnetic signature-masking, mobility, and dispersion to improve survivability. By implementing these changes, an adversary will be less likely to detect, target, and destroy a Canadian bde CP in high-intensity combat.

14. Masking. CPs at all echelons must achieve full spectrum, multi-domain masking to deceive enemy sensors and disrupt their targeting.²⁷ This includes investment in multi-spectral camouflage that offers masking along the entire electromagnetic spectrum from visual to thermal to radar. Commercial off the shelf (COTS) options are immediately available to the CA. SAAB is a Swedish military defence company that provides signature-management camouflage products such as the Ultra-Lightweight Camouflage Screen (ULCLAS).²⁸ Further, they offer a Mobile Camouflage System (MCS) that provides vehicle sensor protection without sacrificing mobility.²⁹

²³ *Ibid.* 8.

²⁴ *Ibid.*

²⁵ Canadian Army Land Warfare Centre, *Close Engagement, Land Power in an Age of Uncertainty (Evolving Adaptive Dispersed Operations)* (Kingston: Army Publishing Office, 2019). 41.

²⁶ *Ibid.*, 43.

²⁷ An Army Mad Scientist Podcast, ‘Sooner Than We Think: Command Post Survivability and Future Threats with COL (Ret.) John Antal’, The Convergence, accessed 27 February 2023, <https://theconvergence.castos.com/episodes/62-sooner-than-we-think-command-post-survivability-and-future-threats-with-col-ret-john-antal>.

²⁸ SAAB, *Barracuda ULCLAS*, Website, accessed 21 February 2023, <https://www.saab.com/products/ulcas>.

²⁹ SAAB, *Barracuda MCS*, Website, accessed 21 February 2023, <https://www.saab.com/products/mcs-mobile-camouflage-system>.

15. The ULCLAS has already been trialed under an Urgent Operational Request (UOR) for Operation REASSURANCE in 2018, while the MCS was requested to outfit the entire in-theatre vehicle fleet.³⁰ The UOR specifically stated the requirement for a “tailor-made, multi-purpose, camouflage system that enhances survivability, sustainability in the current operating environment”.³¹ The main supplier was confirmed as SAAB, and the rough cost estimate was \$110K for the prototype and \$50K for each subsequent system.³² To improve the survivability of the bde CP, the CA should invest in these low-cost signature-masking products and begin training with them immediately to develop effective TTP.

16. Dispersion and Mobility. To survive on today’s battlefield, CPs must remain dispersed, mobile, and hardened by armour or fortification. The requirement to have staff aggregate in one oversized CP is no longer acceptable, nor required due to advances in communications technology. Satellite communications (SATCOM) are essential to deploy smaller, mobile CPs to the forward edge of the battle area (FEBA) while retaining servers, and non-essential staff in the rear. This dispersion of CPs allows for redundancy of C2 on the battlespace while maintaining mobility and a smaller footprint forward, where it is essential for survival.

17. To achieve this urgent requirement, the CA should invest in consistent SATCOM to enable information to flow between dispersed locations seamlessly. L-band Tactical Satellite (L-TAC) is currently employed by the Canadian BG in Latvia and provides BLOS voice and data communications.³³ LTAC compliments existing radios inherent to the CA “By converting in-service UHF and VHF radios into SATCOM devices, SlingShot delivers BLOS voice and data communications – and extends range from tens to hundreds of thousands of miles.”³⁴ The CA should purchase access to LTAC channels during HQ validation exercises such as Ex UNIFIED RESOLVE (Ex UR) and Ex MR. This would enable realistic training to validate bde CPs and assess their ability to achieve dispersion and mobility. Lastly, based on the success Starlink has afforded the UAF, the CA could consider accessing this capability to achieve greater capacity for data interface without the requirement to aggregate personnel.³⁵

³⁰ CJOC, *Record of Discussion CJOC UOR WG - Op REASSURANCE 1819/001 and 1819/002 - 161000L Aug 18*, (Ottawa: 16 August 2018).

³¹ *Ibid.*

³² *Ibid.*

³³ inmarsat government, *Robust BLOS Mobile Communication Augmentation*, Website, accessed 21 February 2023, <https://www.inmarsatgov.com/capability/l-band/l-tac/>.

³⁴ *Ibid.*

³⁵ David Ignatius, *How the Algorithm Tipped the Balance in Ukraine*, The Washington Post, 19 December 2022, <https://archive.md/2023.01.02-163230/https://www.washingtonpost.com/opinions/2022/12/19/palantir-algorithm-data-ukraine-war/>.

Immediate Training Opportunities

18. Training and validation of bde HQs must be reviewed and modernized with a renewed sense of urgency. Currently, the CA Doctrine and Training Centre (CADTC) does not require a bde HQ to operate tactically or prove survivability during any of its mandated training. The Battle Task Standards (BTS) used to validate bde HQs during Ex UR focuses on staff procedure without any requirement for tactical employment.³⁶ For example, the Exercise Specification for Ex UR 2023, stated that the commander's main effort was to enable "a realistic Level 6-7 training environment in order to exercise 5 CMBG HQ, its units and enablers in their ability to concurrently plan and conduct full spectrum operations".³⁷ Regarding the tactical employment of the bde CP, the directive merely indicated "the PTA Bde HQ should consider tactical requirements when it comes to CP set-up, dress, security, etc."³⁸

19. To prepare its bde CPs for high-intensity combat operations, the CA must improve its validation standards. Future iterations of Ex UR should integrate an assessment of survivability and tactical employment within its mandated BTS. Ex MR could also provide an additional opportunity for the CA to validate bde CPs in a realistic high-intensity combat scenario. It is no longer acceptable for the bde HQ to merely act as higher control (HICON) for its subordinate elements during this exercise. Instead, the CA should validate the operational employment of the bde CP against the criteria to achieve multi-spectral signature-masking, dispersion, and mobility while maintaining BLOS voice and data connectivity.

CONCLUSION

20. This service paper demonstrated the urgent requirement for the CA to modernize its bde CPs to improve their survivability in high-intensity combat operations. By considering lessons-observed from the War in Ukraine, the fundamentals of signature-masking, dispersion, and mobility were highlighted as immediate areas for improvement. Within this context, the service paper outlined the limitations inherent to the current CA bde CP. Immediate procurement opportunities were recommended to address capability shortfalls as they relate to CP survivability. Lastly, this service paper recommended improvements to CA training and validation standards to integrate and formalize bde CP modernization.

³⁶ Department of National Defence, *Battle Task Standards, B-GL-383-002/PS-002*, Chapter 14 (Kingston, 2006).

³⁷ CMTC, *Exercise Specification for Ex UNIFIED RESOLVE 23 (Ex UR23)* (Department of National Defence, 2022).

³⁸ *Ibid.*

RECOMMENDATION

21. The CA must take immediate action to modernize its bde CPs and improve their survivability in high-intensity combat operations. This urgency is underpinned by the GoC's commitment to C2 an eFP Bde in Latvia.³⁹ Modernization should include the procurement of COTS systems to mask multi-spectral signatures. Second, the CA should invest in consistent access to reliable SATCOM to enable bde CPs to achieve dispersion, mobility and C2 redundancy in training and on operations. Lastly, bde HQ validation standards must be updated to include a tactical employment and survivability assessment. By implementing these changes, the CA can demonstrate its commitment to C2 a combat-capable bde as the Framework Nation in Latvia.

³⁹ Canada. DND, *Canada and Latvia Sign Joint Declaration*

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