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WAYPOINT 2018

THE CANADIAN ARMY ADVANCING TOWARD LAND OPERATIONS 2021



National
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Canada

WAYPOINT 2018

THE CANADIAN ARMY ADVANCING TOWARD
LAND OPERATIONS 2021





Canadian Army Land Warfare Centre
Kingston, Ontario

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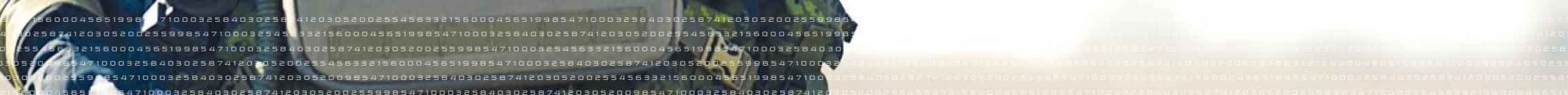
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FOREWORD



The Canadian Army is a world-class, professional force that has proven itself in full-spectrum operations over the last decade. Excellence in domestic and international land-centric operations is achieved through years of sustained effort and investment across the Army to ensure that our soldier skills, equipment, doctrine and leadership are of the highest possible standard and that those elements can be seamlessly integrated to produce the decisive effects needed for mission

success. Today's Army is strong, proud and ready to fulfill the roles and missions assigned by the Government of Canada, but we must also ensure that the Army is structured, equipped and trained to confront the future security environment. To that end, *Waypoint 2018* outlines the second build phase of the Army's force employment concept for the Army of Tomorrow, which envisages forces that are symmetrically structured, network-enabled, proficient in Adaptive Dispersed Operations, and capable of working effectively in a joint, interagency, multinational and public environment across the spectrum of conflict.

The future security environment is expected to remain volatile and unpredictable, with a host of threats and challenges emanating from shifts in the global balance of power, transnational terrorism and crime, failed and fragile states, regional conflicts, the proliferation of advanced technology with military applications and increasingly severe weather events. While it is not possible to predict with any certainty the full impact of accelerating technological change on the future battlefield, there can be no doubt that the increasing integration of existing sensors and information systems into land forces will have a profound effect. Information superiority has always been a critical element of successful

military operations and, in the digital age, network-enabled forces that can see, understand, and act more effectively in their operating environment will have a significant advantage over their adversaries.

As we move forward, our priority will always be to maintain the readiness of the Army to respond rapidly and effectively to the roles and missions outlined in the *Canada First Defence Strategy* while simultaneously building the network-enabled force of the future. We must never forget that technology alone does not accomplish missions. Well-led, well-trained and motivated soldiers who can effectively utilize the equipment and capabilities at their disposal are the foundation upon which the Canadian Army is built.

Transformation and change pose challenges for any institution, but I am confident that all members will do their part to ensure that the Army of Tomorrow and into the future remains a first-class professional force. This is a no-fail mission and a duty of care that we owe to Canada and those soldiers who follow us.

Strong. Proud. Ready.

A handwritten signature in black ink, appearing to read 'Marquis Hainse'.

Marquis Hainse

Lieutenant-General

Commander of the Canadian Army





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>> CANADIAN ARMY VISION

“THE ARMY WILL BE WELL-LED, WELL-TRAINED, WELL-EQUIPPED, AND PROPERLY SUSTAINED TO SUCCEED AT ADAPTIVE DISPERSED OPERATIONS ACROSS THE FULL SPECTRUM OF OPERATIONS.”

1. The Government of Canada expects its Army to be ready at all times to take on missions that advance Canadian interests at home and abroad, now and in a future that will be volatile, unstable, complex and ambiguous, and against adversaries who are adaptive and pose varied and multi-dimensional threats. The Canadian Army (CA) shall continue to contribute to the *Canada First Defence Strategy* (CFDS) by generating scalable, task-tailored forces capable of decisive action within the contemporary operating environment.
2. After more than a decade of high operational tempo, the Army has greatly enhanced its capacity to prepare and sustain a combat-effective force. The time is now opportune to institutionalize the lessons learned and evaluate how the Army must further modernize and transform in order to operate effectively in the future security environment.
3. **AIM.** The intent of this document is to guide the continued transformation of the Canadian Army to align essential capabilities in Force 2018 on the path to realizing the force employment concept articulated in *Land Operations 2021*.
4. **SCOPE.** This publication is a short, top-down, first principles primer designed to assist the Army leadership in making decisions for the modernization of the CA and improve its capacity to maintain balance across the four pillars upon which military capability is built: personnel, equipment, readiness and infrastructure.¹ Equally germane, decisions must be made in consideration of the main themes of the Army

>> CANADIAN ARMY MISSION

“THE ARMY WILL GENERATE COMBAT-EFFECTIVE, MULTI-PURPOSE LAND FORCES TO MEET CANADA’S DEFENCE OBJECTIVES.”



COMBAT CAMERA///

1. *Canada First Defence Strategy*, 5.

Operating Framework (AOF) outlined in *Advancing with Purpose: The Army Strategy* (3rd ed.): strategic alignment, operationalization (incorporation and institutionalization) and ensuring efficiency.²

5. The following subordinate lines of effort are of particular relevance:
 - a. The Army must be prepared to get the right people, with the right skills and the right equipment, into the right place at the right time and to sustain these forces for as long as the government requires.
 - b. The Army must be modernized with a managed readiness plan and a realistic procurement strategy and be supported by institutionalized war-winning joint enablers, all interoperable jointly and with partners.
 - c. The Army must be sustainable into the future by exercising proper stewardship of its strategic institutional assets: infrastructure, equipment and training establishments.
 - d. The Army must be engaged as part of the joint Canadian Armed Forces (CAF), with the whole of government and its people, and with its allies and partners. Peacetime military engagement (PME) also provides opportunities for collaboration with countries of interest in order to foster cooperation and promote Canadian interests and values abroad.
6. Respecting the lines of effort will reinforce key aspects of the Army identity:
 - a. **WHAT WE ARE.** A strong, multi-purpose and combat-effective force.

2. *Advancing with Purpose: The Army Strategy*, 13.

- b. **WHO WE ARE.** A proud and relevant force ready to conduct Adaptive Dispersed Operations (ADO).
 - c. **HOW WE ARE POSTURED.** A ready and deployable force across the spectrum of conflict.
7. **WHAT WE DELIVER.** By validating and, where required, adjusting equipment systems, force structure and operating concepts, the Canadian Army will remain “a combat-effective and agile force that delivers focused and integrated land effects within a joint, interagency, multinational, and public context across the spectrum of operations.”³ In this regard, the AOF *modernize the force* line of effort is focused on achieving the tenets of the *Land Operations 2021* force employment concept, which sees the Army transform into an agile, network-enabled force with the ability to leverage technology to dominate the battlespace.
8. The Army has adopted a deliberate, sequential approach to this transformation through a series of three incremental builds to position, align, and ultimately achieve an ADO-enabled force. Having reset the structural baseline of the Army with Force 2013, the *commander’s intent* is to sustain progress toward *Land Operations 2021* by *aligning* essential capabilities in the 2018 timeframe with how we intend to operate in the future (see Figure 1). This includes the introduction of new equipment suites and platforms, and a corresponding validation of the organizational structures required to achieve the operational and strategic effects required by the CFDS. In that manner, the force structure designed for 2018 (Force 2018) will be published in 2015 and will set the developmental basis for continued transformation towards the objective for 2021 and beyond.

3. *Ibid.*, 19.

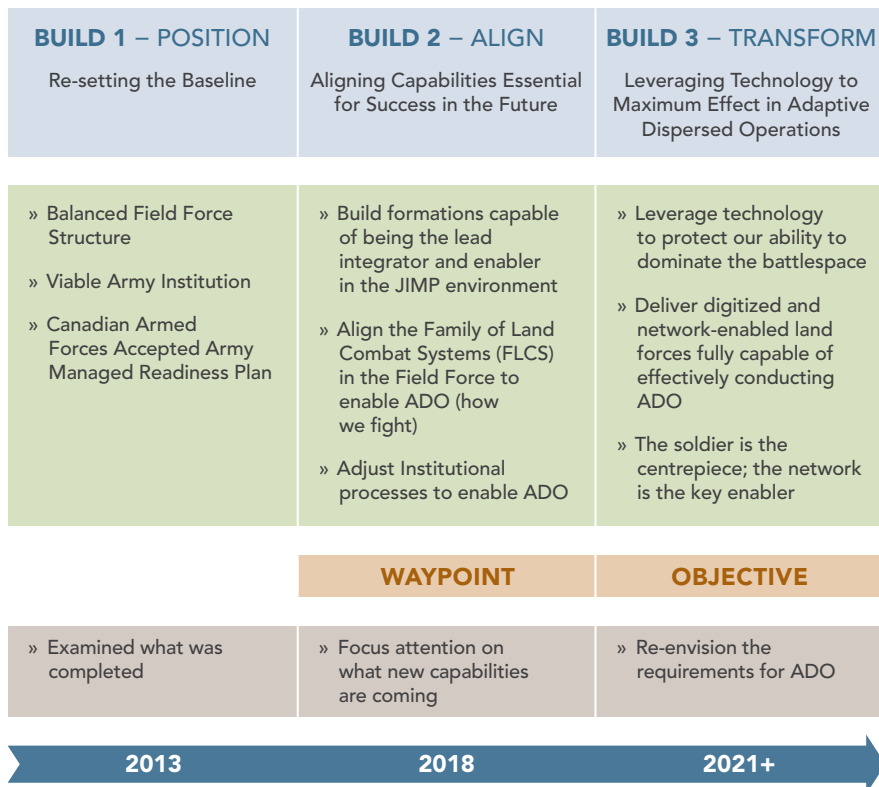


Figure 1 – Army Force Development – Toward Adaptive Dispersed Operations (ADO)

9. This document is presented in three chapters:

- a. Chapter 1 frames where we are going and the *Land Operations 2021* aspirational objectives. It commences with a brief description of the characteristics and operating principles necessary to succeed within an ADO environment. The chapter concludes with guiding principles and concepts that will allow for continued progress towards the *Land Operations 2021* operating concept. It is purposefully broad to meet an unpredictable future but sufficiently detailed to identify key requirements.

- b. Chapter 2 describes what Force 2018 needs to look like through an alignment of capabilities that will provide the foundation for success in ADO. It provides the overarching guidance on symmetry for the Army as a predominantly medium force⁴—symmetrical where possible, asymmetrical where necessary—and outlines the four Army lines of operations (force employment) leading to the force generation and institutional structures necessary to accomplish force employment.
- c. Chapter 3 outlines the alignment of essential new capabilities within the Force 2018 structure. It focuses on command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) to enhance formation-level command and control, as well as the key enablers necessary to set the conditions to successfully conduct ADO.

10. **SUMMARY.** This publication serves as a “waypoint” to realize concepts-based, capabilities-driven, joint-oriented force structures and systems for the Army of Tomorrow. It will guide the validation of Force 2013 capabilities, concepts and structures, en route to achieving the *Land Operations 2021* aspirational objective: a digitized and network-enabled land force capable of conducting effective ADO in the future operating environment.

11. In fulfilling this effort, we must not forget that, at the core of all we do are our soldiers, who must be well-led, well-trained, and well-equipped before they are sent into operations. That is what soldiers expect, and it is the Army’s obligation. The Managed Readiness Plan (MRP) leverages the full capacity of the Army’s training system and force generation base to deliver on those expectations.

4. In accordance with B-GL-300-001/FP-001, *Land Operations*, there are three types of ground manoeuvre forces: heavy forces, medium forces, and light forces. The term “weight” is not included. Medium forces are strategically and operationally more deployable than heavy forces and may be among the first elements to deploy into a theatre or operations. They have less firepower and protection than heavy forces and are therefore less capable in certain circumstances. Given their mobility, limited protection, and integral firepower, they are more capable and robust than light forces.

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>> THE ADO-CAPABLE ARMY OF TOMORROW (AOT) IS DISTINGUISHED FROM THE ARMY OF TODAY BY A ROBUST, PERSISTENT INFORMATION NETWORK LINKING SOLDIERS, SENSORS, COMBAT PLATFORMS, SUPPORT SYSTEMS AND COMMANDERS.



COMBAT CAMERA ///

>> TOWARD LAND OPERATIONS 2021

WHERE WE ARE GOING: ADAPTIVE DISPERSED OPERATIONS

CONCEPTUAL FRAMEWORK: HOW THE ARMY WILL OPERATE

12. **ADAPTIVE DISPERSED OPERATIONS DEFINED.** *Land Operations 2021, Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow* is a conceptual guide for the transformation of the Army based upon a network-enabled force. The Adaptive Dispersed Operations (ADO) concept involves an all-encompassing network, enhanced soldier capability, and the creation of integrated effects. The force needs to be adaptive and agile, may be dispersed in time, space and purpose, and yet must be able to concentrate to meet local near-peer or conventional threats. This force will have enhanced precision, lethality and protection. See Figure 2 for a graphical representation of ADO.

13. The ADO-capable Army of Tomorrow (AoT) is distinguished from the Army of Today by a robust, persistent information network linking soldiers, sensors, combat platforms, support systems and commanders. Technology will be leveraged by innovative, physically tough and intellectually agile professional soldiers to create a digitized and network-enabled army that protects its ability to dominate the battlespace. *The centrepiece of ADO remains the Canadian soldier, but the key enabler is its network.* Protection of that network will be critical to mission success. When one considers Canada's vast territory, long borders, expansive lines of communication, and dispersed population centres, the ADO concept is as applicable domestically as it is for expeditionary operations. To reaffirm, the ADO concept foresees an Army of fit, skilled and tactically proficient soldiers leveraging technology to see, analyze and act quickly in all types of operations, whether at home, in a humanitarian disaster, or in a combat operation.

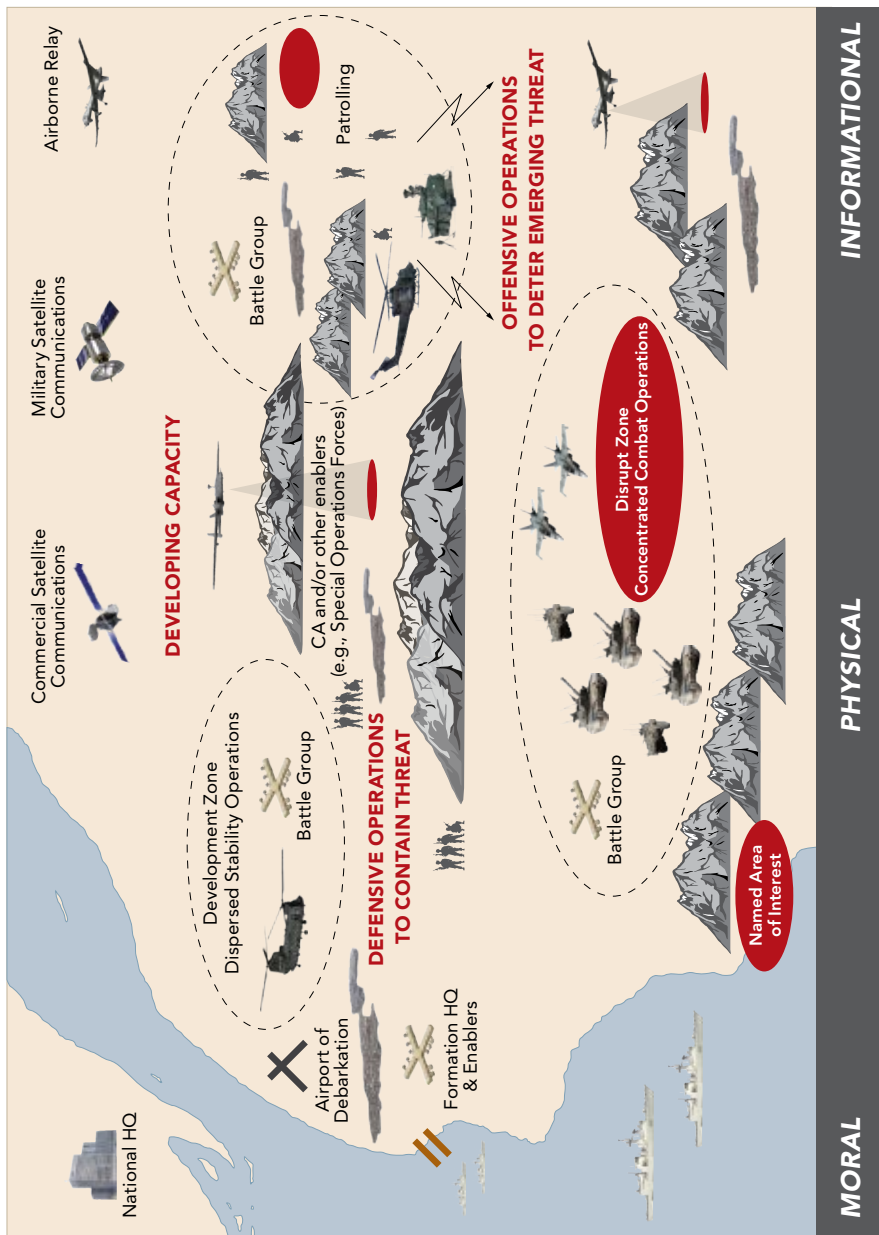


Figure 2 – Graphical Representation of Adaptive Dispersed Operations (ADO)

To accomplish campaign objectives in a JIMP environment, adaptive, networked and integrated forces create and sustain operational advantage by alternatively dispersing and aggregating throughout the multidimensional battlespace in order to find, fix and strike full-spectrum threats.

14. **ARMY OPERATING TENETS.** The ADO concept builds upon the doctrine of manoeuvre warfare and mission command:

- a. **MANOEUVRE WARFARE.** Grounded in manoeuvre warfare, the fundamentals of ADO are derived from the core functions of find, fix and strike. ADO supports the comprehensive approach within the joint, interagency, multinational and public (JIMP) environment. The ability to successfully conduct ADO is founded upon effective leadership at all levels. Network-enabled operations will provide a key means of ensuring that the Army is highly flexible, adaptive, agile and combat-effective in all conditions.
- b. **MISSION COMMAND.** Mission command is defined as “the philosophy of command that promotes unity of effort, the duty and authority to act, and initiative to subordinate commanders.”⁵ It is the mutual trust between superiors and subordinates, where superiors set goals and subordinates are granted discreet latitude of initiative to achieve those goals, making all members of a military chain of command participate in the achievement of a mission. The concept is based upon the pillars of the subordination of self to a superior’s goal in order to achieve unity of action at all levels. It allows for rapid and timely decision-making in response to threats or opportunities.

15. **SMART (KNOWLEDGE-BASED) OPERATIONS IN ADAPTIVE DISPERSED OPERATIONS.** The Army that sees, knows and understands better will be able to do much more with its resources. Conducting smart (knowledge-based) operations is how the Army will exploit enhanced situational awareness to achieve better levels of responsiveness, deployability and mobility. Those result in a more lethal, more scalable, more precise force with more overall combat power than previously possible. Smart operations are how the Army will position itself to do the following:

5. B-GL-300-001/FP-001, *Land Operations*, 5-74.



» THE ARMY THAT SEES, KNOWS AND UNDERSTANDS BETTER WILL BE ABLE TO DO MUCH MORE WITH ITS RESOURCES. CONDUCTING SMART (KNOWLEDGE-BASED) OPERATIONS IS HOW THE ARMY WILL EXPLOIT ENHANCED SITUATIONAL AWARENESS TO ACHIEVE BETTER LEVELS OF RESPONSIVENESS, DEPLOYABILITY AND MOBILITY. THOSE RESULT IN A MORE LETHAL, MORE SCALABLE, MORE PRECISE FORCE WITH MORE OVERALL COMBAT POWER THAN PREVIOUSLY POSSIBLE.

- a. Develop situations to set favourable conditions prior to contact.
- b. Manoeuvre to positions of advantage.
- c. Influence adversaries beyond the range of their weapons with lethal and non-lethal capabilities.
- d. Destroy the enemy when necessary with precision and/or area effects.
- e. Conduct close engagement and/or close combat when necessary and at the time and place of our own choosing.
- f. Ensure timely, focused sustainment of soldiers and their equipment.
- g. Transition between operations without loss of focus or momentum.⁶

16. In order to accomplish smart operations, the Army will have the following characteristics:

- a. Be *structured* so that it is task-oriented in organization, but flexible in construction. Structures will be modular and interchangeable based upon the smallest effective building blocks of capability—to be employed within a battle group—in order to provide force generation efficiency and effectiveness, thereby creating force employment flexibility.
- b. Be operationally responsive and provide the necessary manoeuvre capabilities to maximize speed, stealth, responsiveness, influence and firepower while concurrently balancing the need for force projection, sustainment and protection.
- c. Be fully networked to achieve the following:

- » Shared situational awareness, including the *commander's intent*. Networked operations will have more coherent results when they commence with timely intelligence that informs operations planning and leads to the successful execution of operations through the seamless sharing of data, information and communications technology. The network will also permit the analysis and semi-automation of tasks and will have the ability to extend beyond the Army.
- » Controlled tempo of engagement to permit the aggregation or dispersion of forces to achieve a wide range of objectives simultaneously or sequentially.
- d. Be *interoperable* with our allies and partners through appropriate doctrine, training and equipment in order to ensure mission success.

BEING SUCCESSFUL IN ADAPTIVE DISPERSED OPERATIONS: WHAT THE ARMY NEEDS TO LOOK LIKE

17. As the Army prepares for future threats, it continues to update capabilities and apply comprehensive analysis to equipment modernization and investment in the development of key Army and joint enablers. Through determined yet flexible modernization, the Army will ensure that success is achieved as it heads through *Waypoint 2018* on the road to realizing *Land Operations 2021*. The Army's transformational goal is to have the ability to conduct ADO across the full spectrum of conflict in a JIMP environment.

18. Figure 3 depicts the *Land Operations 2021* formation capability elements envisioned for successful operations within an ADO construct. A named mission would articulate the specific capability modules, size and force structure, including any required unit level HQs (aside from the BG). Essentially, this model is the “menu” of capabilities, represented mainly as sub-unit-sized elements.

6. *Designing Canada's Army of Tomorrow*, 31–32.

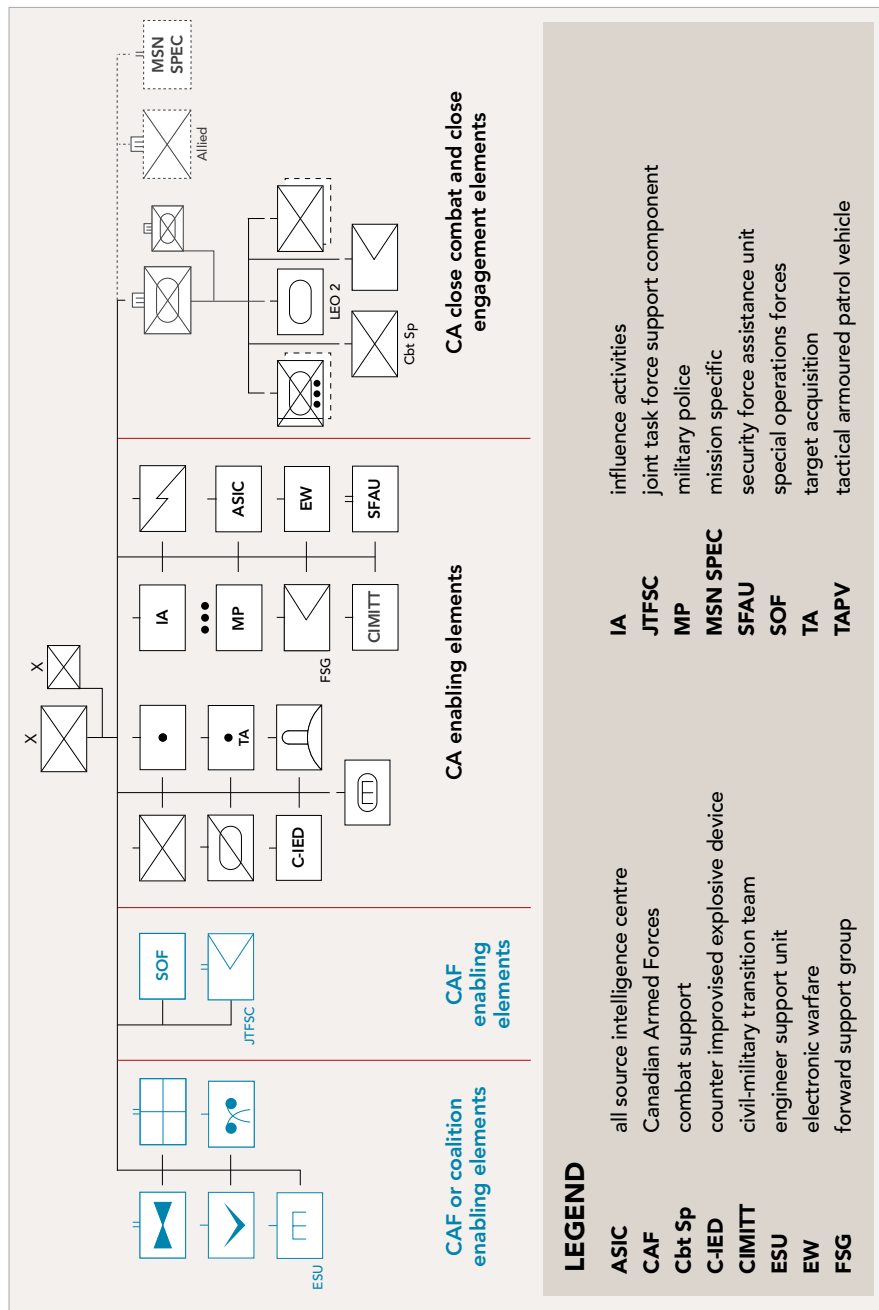


Figure 3 – Land Operations 2021 Formation Elements

HOW TO GET THERE: GUIDING PRINCIPLES TO CLOSE THE GAP BETWEEN EXISTING FORCES AND LAND OPERATIONS 2021

- It must be clearly understood that *Land Operations 2021* is a conceptual framework that was first envisaged in 2007.⁷ It is not a structure fixed in time, nor an end state that is expected to be achieved by the calendar year of 2021. Rather, it is a conceptual operating capability that the Canadian Army will strive to attain in the timeframe of 2020–2030 through the acquisition of technologically enhanced capabilities. The following principles and concepts will remain as guiding factors in the acquisition of platforms and the development of structures so that the operating concept first articulated in *Land Ops 2021* can be attained.
- NETWORK-ENABLED.** The sheer amount of information available to commanders, and the requirement to be accountable, and in some cases personally liable, is driving a need to not only manage the volume but also sift it for relevancy and deliver a high standard of certainty in the accuracy of that information. A well-designed future network capability would automate many of those processes—the science. That would free up cognitive resources to apply to the art of war. The ability of current and evolving technology to deliver this information is expected to improve considerably over the next decade. As a consequence, the Army recognizes the need to develop a robust network as a core component of the Family of Land Combat Systems (FLCS). The successful realization of the ADO concept relies upon the provision of networked capabilities between commanders, soldiers, sensors, weapons, and support systems. What differentiates the future network capability from a typical commercial network is the nature of the environment in which it must operate and the potentially lethal consequences if it fails.

7. Directorate of Land Concepts and Designs (DLCD), *Land Operations 2021 – Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow* (Kingston: Department of National Defence, 2007). To mitigate the unpredictability of future conflict and prepare the Army for the challenges it will face in the future, *Land Ops 2021* serves as the guide for the Army's development through to the year 2021. The document was developed from a series of operating, functional, and enabling concepts that collectively describe 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.

at improving information display, visualization of the common operating picture, performance, system supportability and design integration, will be key areas for investment.

- b. **IMPROVE REACH.** The purpose of improving reach is to expand the audience or recipients of information within the network. End users care about the services available on the network, the information offered through these services, and the ability to collaborate. The most significant and “no fail” capability to enable reach will be that of an all-informed secure network. It will need to be characterized by a high degree of availability, reliability and redundancy, offering multi-protocol transmission that allows users to communicate by voice, by text or graphically.
- c. **NETWORK SENSORS.** Linking various sensors to each other will allow information sharing and enable more efficient allocation of surveillance assets.
- d. **IMPROVE RANGE.** The range of communications suites will be extended through capabilities such as satellite on the move and the aerostat-borne radio rebroadcast system.
- e. **IMPROVE THE INTELLIGENCE PRODUCT.** The network will provide commanders and staffs with the data, tools, and processes required to deliver actionable intelligence in a variety of multi-media formats to a wide variety of users. The ADO force will need to be better able to share data from soldier to soldier, soldier to commander, and soldier to supporting elements, whether dismounted or mounted.
- f. **IMPROVE LETHALITY.** Elements of the ADO force will require networked access to joint fire support assets to collect and disseminate target information. Indeed, many more users will need to possess an ability to control the engagement of targets with indirect fire support. That need may be met through a combination of organic sensors and trained and authorized observers resident at levels much lower than currently practised.

- g. **CREATE PRECISION EFFECTS.** With technological advancements, operations achieved through sensors, mensuration⁸ and weapons accuracy will permit more comprehensive situational awareness and the ability to more precisely use substantial combinations of combat power. Precision effects need to be achieved in a complex environment characterized by the conduct of simultaneous combat and stability tasks within a JIMP framework.
- h. **PROTECT AND DEFEND THE NETWORK.** Given the expected proliferation of unattended networked sensors, remote networked nodes, dissemination paths and data storage, the future network capability will need to possess significant protection and defence capability against adversarial offensive cyber operations.
- i. **IMPROVE VISIBILITY AND CONTROL OF SUPPORT SYSTEMS.** Improving the visibility and control of CSS assets, as well as the visibility of force support requirements, will enable distributed decision making, improved support planning and the delivery of focused assured sustainment with an efficient logistics footprint.

21. **TECHNOLOGY.** While information technologies and cyberspace in general have become critical components of contemporary army capabilities, based upon the current rate of advancement, it is impossible to forecast revolutionary technological advances that might occur. It is, however, extremely likely that there will be significant incremental advances of existing technology with increased interest in unmanned and sensor-laden systems. Increasingly complex and costly military systems risk being overtaken by small collaborative systems. While traditional combat systems will likely remain superior in the near term, there is still a significant risk that rapid proliferation of low-level, low-cost, smaller-sized technology will remain disruptive. Such disruptions can quickly and even exponentially improve a capability to overtake purpose-built military technologies that are encumbered by an industrial-age

8. Mensuration is defined as precisely measured geolocation data derived from imagery or MASINT and corrected for sensor limitations.



acquisition process. So, while this will not pose a significant risk in the 2015–2018 timeframe (the next “build”), efforts will be initiated now to introduce greater agility and flexibility in system development and procurement in anticipation of the greater risk posed by potential technological disruptions in the mid-to-long term. The objective is to allow for more rapid technical enhancements to counter ever-changing threats.

22. Regardless of the power and force-multiplying effects that technology affords, the Army must always retain its philosophy of mission command and the competence to function should our ability to access or use those systems be degraded or denied. Basic soldier skills—marksmanship, movement (e.g., use of map and compass), communication—as well as fitness and leadership, will always remain critical foundational competencies.
23. **FAMILY OF LAND COMBAT SYSTEMS (FLCS).** To realize a modern, flexible, robust, medium force, the Army strategy must effectively balance operational commitments with modernization and transformational initiatives. The FLCS is the conceptual representation of all the equipment capabilities that the Army needs to accomplish its mission today and into the future. It combines network capabilities, autonomous air and ground systems, direct and indirect fire platforms, simulation, service support elements, individual soldier systems, and aviation assets to form a “system of systems” that will leverage the Army’s ability to operate across the spectrum of conflict.

24. **ARMY EQUIPMENT PRIORITIES.** The extant priorities for equipping the Army remain, first, to provide support to operations and ready forces through the MRP, followed closely by support to the CAF and Canadian Army transformation and, finally, to equip the AoT. Mission requirements may dictate accelerated fielding of certain equipment to specific areas; however, such decisions will be made by the Commander Canadian Army on a case-by-case basis. Equipment requirements must be formulated with supportability in mind from the outset. “The AoT must have the fewest number of fleets with the greatest practical commonality between them. It needs the fewest types of platforms that support the required number of functional configurations. The basic equipment platforms should all share the maximum number of common attributes (e.g., layout of drivers stations, interchangeable parts), have a high degree of modularity and be readily modifiable (e.g., open architecture) to quickly mitigate new vulnerabilities while increasing flexibility and platform lifespan.”⁹ Where practical, major systems vetronics should facilitate automatic error detection and transmission, remote status monitoring and fault testing across distributed fleets to permit optimal fleet maintenance.

25. **JOINT, INTERAGENCY, MULTINATIONAL AND PUBLIC (JIMP) CAPABLE.** To be “JIMP-capable” requires the comprehensive integration of effects achieved through a holistic and constructive collaboration of all relevant players. This comprises staff and agencies from across the CAF, the GoC, other government departments (OGD), non-governmental organizations (NGOs), and international governments and their forces, in order to bring coherence to the planning, implementation and evaluation of efforts to resolve problems. That perspective calls for bringing distinct agencies into closer collaboration in achieving policy objectives. Given the character of operations in the emerging security environment, the Army recognizes that success in future security operations will require the right mix of capabilities to ensure that the Army performs its defence tasks and supports potential tasks

9. *Designing Canada's Army of Tomorrow*, 54.

related to diplomacy and development. The result would be greater mission effectiveness through greater interoperability and collaboration among key players in the operational arena and through the development of the requisite networking capabilities and skills essential to reaching one's objectives.

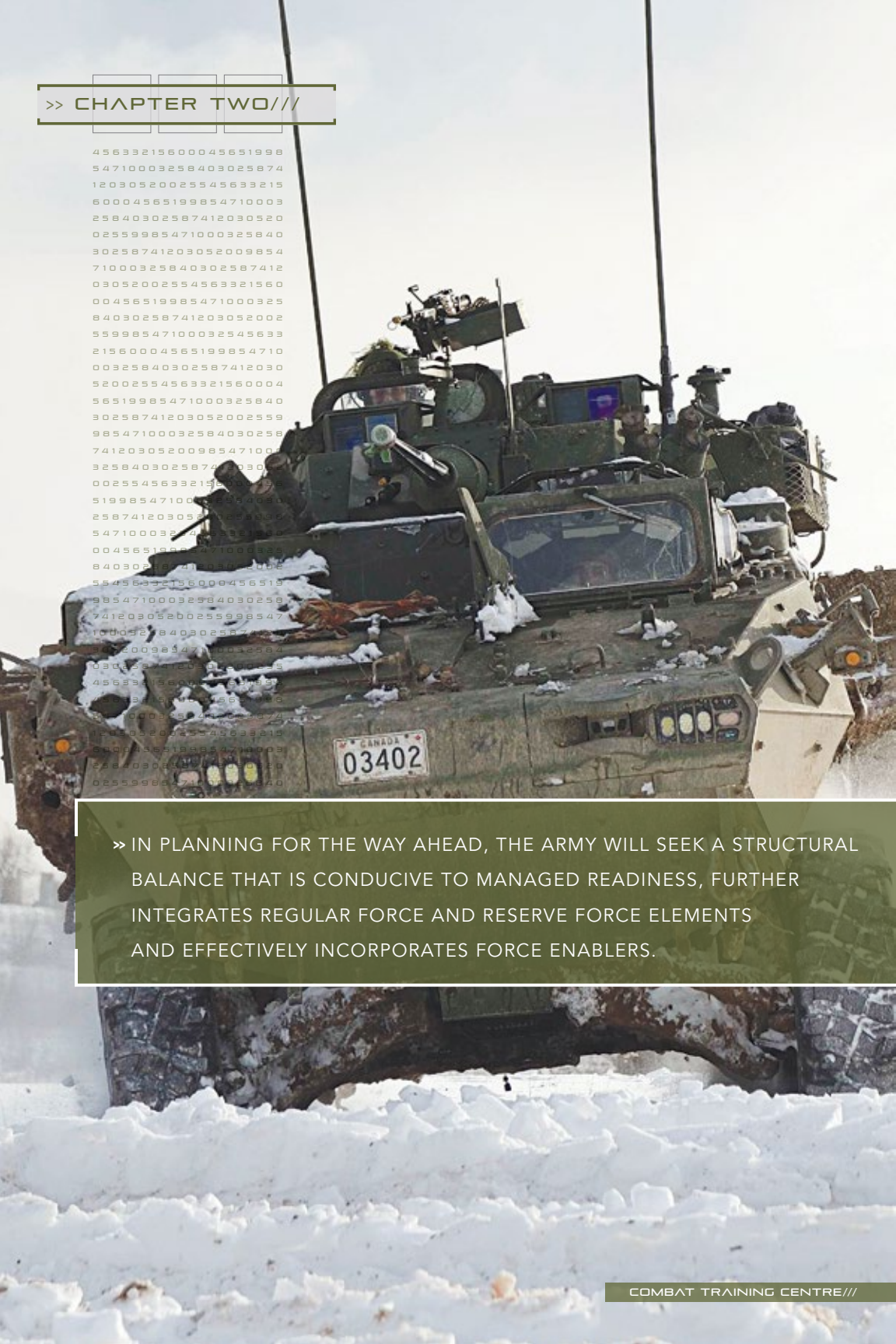
26. **HUMAN DIMENSION.** Seven human-dimension themes were considered in assessing the core of what it means to be a soldier. For the Army, better definition and understanding of these dimensions and their impacts will allow us to reap the long-term benefits of investing in more capable soldiers who can perform effectively in the future operating environment:

- a. **SOLDIER ATTRIBUTES AND COMPETENCIES.** The *Land Operations 2021* operating concept imposes new demands on the soldier, which leads to a requirement for new or improved competencies for service in the AoT. Attributes and competencies are a soldier's personal traits and characteristics, innate aptitudes and abilities (e.g., physical, mental and emotional) and capacity to acquire skills and knowledge—the essence that makes soldiers quick and successful learners able to apply their training, education and professional development with excellence under demanding conditions and with the agility to adapt to the particular context.
- b. **PROFESSIONALISM AND ETHICS.** By fostering an ethical warrior approach to the profession of arms, the Army will prepare its soldiers to do the right thing in often ambiguous circumstances. Strategic and operational-level success is ultimately dependent upon the perceived legitimacy of both our objectives and our actions. Continued public support, among local nationals, at home, and in the international community, is contingent upon preserving their confidence in our commitment to always act in an ethical, humane and morally just manner. It is the responsibility of Army leadership to anticipate the ethical uncertainty inherent in contemporary and future operations and to arm our soldiers to face that ambiguity.
- c. **ARMY CULTURE.** Army culture is often conceptualized in the expression “the social capital” of the Army, and it represents

factors of stability such as the reputation, relationships, soldier identity, organizational climate, leadership and psychological contract between the soldier and society as represented by the institutional Army.

- d. **MORALE, COHESION AND TRUST.** Morale, cohesion and trust are critical contributors to operational effectiveness. It is assumed that the level of complexity and uncertainty occurring in the battlespace will increase as a result of the asymmetric nature of conflict. Reliance upon technology, ad hoc teams, and the requirement for specialized attributes and competencies will affect soldiers' social capital. The integration of the behaviour of different individuals as a result of social bonds, attractions and other forces that hold the individuals together as a group or team over a period of time is central to this concept. Team cohesion is a dynamic process that is reflected in the tendency of a team to remain united in pursuit of its goals and objectives. Trust is the essential, underlying requirement for group cohesion.
- e. **COGNITIVE DOMINANCE.** The introduction of technological capabilities will not in isolation enable and position the CA advantageously to succeed in the future operating environment. The ability of leaders and soldiers to achieve cognitive dominance in ADO, by anticipating and understanding the changing environment better and faster than our adversaries, is even more critical. To achieve that, the CA must, over and above the introduction of technological solutions, evolve and invest in how it trains, educates, develops and employs its leaders and soldiers.
- f. **DECISION MAKING.** Decision making within the future operating environment is expected to remain complex. Sensitivity of information and real-time scrutiny of soldiers' actions will add pressure, as will the proliferation of sensors and information and the need to be increasingly situationally-aware. Automated tools may assist in making decisions, but such tools cannot replace professional know-how and sound judgement.

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>> IN PLANNING FOR THE WAY AHEAD, THE ARMY WILL SEEK A STRUCTURAL BALANCE THAT IS CONDUCIVE TO MANAGED READINESS, FURTHER INTEGRATES REGULAR FORCE AND RESERVE FORCE ELEMENTS AND EFFECTIVELY INCORPORATES FORCE ENABLERS.

>> FORCE 2018 STRUCTURE

WHAT WE WILL LOOK LIKE: EVOLUTION FROM BUILD 1 – FORCE 2013

CORE COMPETENCY AND KEY CHARACTERISTICS

- 27. Emphasized in *Advancing with Purpose: The Army Strategy* (3rd ed.), “[t]he core competency of the Canadian Army is the ability to engage and win in close combat, across the full spectrum of operations. Additionally, the Army must be able to set the essential conditions to enable success in both close combat and close engagement.”¹¹
- 28. To recap, the following key characteristics are essential to the Army’s competency and, ultimately, its ability to achieve national objectives:
 - a. The Army’s heart is its **professional soldiers**, organized in regiments and units and grouped in battle group and brigade group structures, capable of working within and enabling operations in a JIMP context.
 - b. The Army is an **adaptive and agile** force, capable of being deployed by a variety of means, rapidly responding to domestic, continental and international threats in complex environments.
 - c. The Army is a **medium** force, reinforced with armour capabilities, capable of **leading and sustaining complex land-based operations**, up to divisional level, across the full spectrum of operations.

11. *Advancing with Purpose: The Army Strategy*, 10.

GUIDING PRINCIPLES

29. In planning for the way ahead, the Army will seek a structural balance that is conducive to managed readiness, further integrates Regular Force and Reserve Force elements and effectively incorporates force enablers. This will be respectful of division, base and training area capacities. The intent is to be symmetrical wherever possible and asymmetrical only where necessary. For example, similar “arms” units should be as alike as possible across the Army, yet some specialized or limited capabilities may need to be concentrated. Wherever possible, fleets will be decentralized to units. See Figure 4 for the CA command structure.



COMBAT CAMERA///

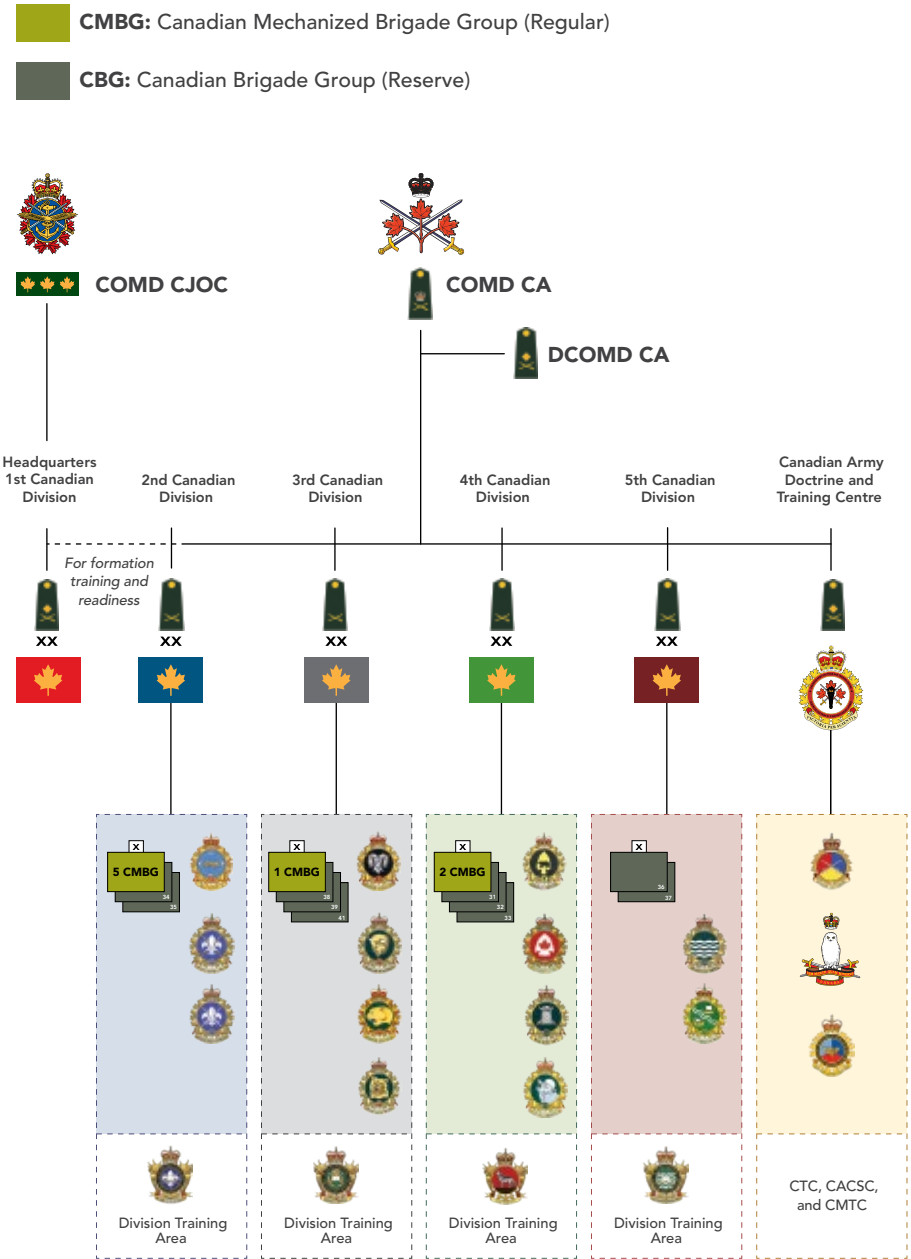


Figure 4 – Command Structure of the Canadian Army

30. The Army will continue to be an infantry-heavy medium force capable of conducting full-spectrum operations (FSO), embracing the concepts and culture of the combined arms team and fully integrating joint enablers. The priorities will remain force generation and support to deployed operations.

31. To optimize the generation of deployable land force capabilities that are tailorable, scalable, supportable and responsive to the CFDS, the Army has adopted a managed readiness cycle that meets requirements for ready forces through tiered readiness. The MRP is integrated and coordinated with the annual *Army Operating Plan*, the *Army Strategic Transition Roadmap* and the *Canadian Army Funding Model*. Through a coherent and sustainable framework guiding manning, equipping and training in accordance with operational needs, the MRP synchronizes resources in order to bring designated forces to the appropriate level of readiness to provide the GoC with a range of land force capability options. The MRP provides the nation with a multi-purpose, combat-capable Army prepared to meet the challenges of the future both at home and abroad. The CA is part of a strong and integrated CAF capable of fully executing CFDS missions. Through the generation of scalable, task-tailored force elements capable of conducting FSO, the Army will produce combat-effective and sustainable forces that create focused and integrated land effects across the spectrum of conflict. It will remain strategically relevant and an important instrument of the GoC.

FORCE STRUCTURE CONSIDERATIONS

32. Figure 5 illustrates the generic capability elements that the Army intends to force generate and have ready, in the absence of a specific assigned mission, so that it is able to meet four potential lines of operation:

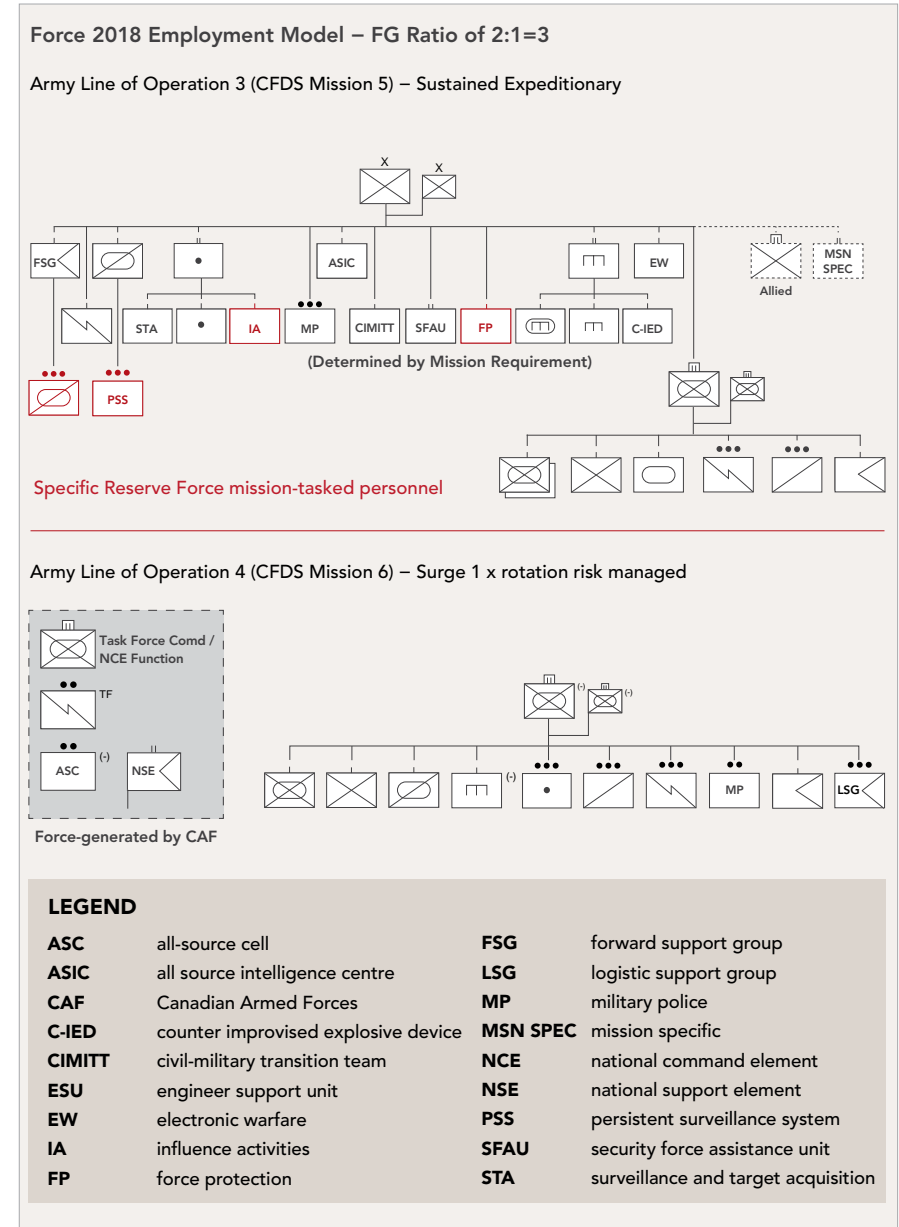


Figure 5 – Force 2018 Employment Model

These are the generic capability elements that the Army intends to force generate and have ready in the absence of a specific assigned mission. What will be actually force employed depends upon the mission, including whether unit-led HQs are required (e.g., for the Engr Regt, Arty Regt) when required.



a. **DOMESTIC OPERATIONS**

- » **LINE OF OPERATION 1** (CFDS: Missions 1, 3 and 4) – Conduct routine domestic operations, respond to a terrorist attack, respond to major air disasters, or provide support to civilian authorities in a crisis. The Army will continue to generate four regional Immediate Response Units (IRUs), five Canadian Ranger Patrol Groups (CRPGs), ten Territorial Battalion Groups (TBGs), and four Arctic Response Company Groups (ARCGs), the latter of which have achieved initial operational capability for operations in the Arctic. These units will be kept at an enhanced level of readiness to be able to react to unforeseen events.
- » **LINE OF OPERATION 2** (CFDS: Mission 2) – Provide support to major international events in Canada. As with past events, such as the 2010 G8/G20 Summits and the Vancouver Olympics, the Army will remain committed to generating troops for future special events as required.

b. **EXPEDITIONARY OPERATIONS**

- » **LINE OF OPERATION 3** (CFDS: Mission 5) – Conduct a sustained expeditionary mission for an international crisis in an environment ranging from low to high intensity, enabled by CAF capabilities and as part of a coalition force.

- » **LINE OF OPERATION 4** (CFDS: Mission 6) – Provide a 12- to 18-month expeditionary surge for an international crisis in a low-intensity environment (e.g., humanitarian assistance and disaster relief).

33. **LEAD MOUNTING DIVISIONS.** Divisional headquarters will be the focus of coordination for the lead mounting division approach, with the intent to force-generate both Lines of Operation (LoO) 3 and 4 from the same lead mounting division.

34. **FORMATIONS AND UNITS.** The three Regular Force brigade groups form the core of the force-generation base for credible combined arms capabilities for expeditionary operations. Canadian Mechanized Brigade Group Headquarters (CMBG HQ) will continue to provide the formation-level task force HQ and will be identical in organization and establishment. Along with the core manoeuvre units, they will possess “brigaded” supporting arms and services within the Army’s expeditionary force employment model and will be capable of integrating joint enablers attached to meet mission-specific requirements. The tactical units assigned to the CMBGs will remain single arm/service units, whether combat arms, supporting arms, or service support, as the individual corps’ competencies and functions are developed and confirmed at the unit level, in preparation for employment within combined arms teams. Whereas the Force 2013 focus of effort was at the unit level, with particular emphasis on the combined arms battle group, the priority of effort for *Waypoint 2018* is at the tactical formation, principally brigade level.



35. **BRIGADE HEADQUARTERS.** The brigade (or brigade group), as a tactical formation, remains the lowest echelon capable of fully integrating and orchestrating all-arms teams, enablers and effects in the planning and conduct of tactical operations simultaneously across the full spectrum of conflict, including offensive, defensive, stability and enabling activities. It is also the lowest level at which joint and multinational capabilities are practically integrated, a view shared by our key allies. The brigade HQ's principal role is to plan and execute tactical operations by two to four (*five in extremis*) task-tailored manoeuvre units in a designated area of operations. To do that, it must be able to operate within short decision/action cycles, with commanders moving throughout the battlespace to gauge tactical progress, capitalize on opportunities and provide direction. The challenge facing the HQ is the requirement to balance the divergent demands of combat and stability operations, with the competing requirements for communications connectivity, staff support, dispersion, protection, mobility, joint, interagency, multinational and host-nation collaboration requiring a nuanced and deliberate approach to force generation and force development. Lastly, the HQ, in the absence of other HQ elements, must be able to assume non-traditional roles such as Joint Task Force (JTF) or National Command Element (NCE) functions. That will require a deliberate effort to design the Army of Tomorrow (AoT) Brigade HQ with the right balance of functionality, which will take some time to implement.

36. **BATTLE GROUPS.** If the brigade is the acknowledged integrator and synchronizer of tactical actions and JIMP enablers to achieve the mission objectives, then the battle group is still the principal executor of all-arms manoeuvre/tactical action. Battle group affiliations will continue to be nurtured to develop the tight all-arms standard operating procedures (SOPs), tactics, techniques and procedures (TTP), and trust throughout collective training; however, the composition of the force-employment battle groups will be based upon mission-specific requirements. Required supporting arms and other enablers will normally be provided from the deployed formation-level assets when deployed on Army LoO 3 and attached to the battle group when deployed independently on Army LoO 4.

37. **REGULAR AND RESERVE FORCE AFFILIATIONS.** The Force 2013 comprehensive review formalized Regular Force and Reserve Force affiliations, including the integration of up to sub-unit-sized mission elements within respective expeditionary force employment structures.¹² Reserve force employment structures (e.g., Territorial Battalion Groups and Arctic Response Company Groups) will be formalized to support domestic operations. Regular Force and Reserve Force employment elements and individual augmentation will support the MRP with a deployment cycle that prepares forces for potential Army LoO 3 and 4 requirements. Affiliated battle groups are a key enabling framework to assist in delivering credible Reserve Forces to multiple lines of operation based upon a common training platform and the development of command and control relationships that are critical to mission success. The application of the affiliated battle group concept will greatly aid in reducing the lead-up time to mount the Reserve Force component of a mission as common standards and confidence will have been established prior to mission stand-up.

12. Force 2013 Consolidation Master Implementation Plan, 31 August 2010.



38. **RESERVE FORCE GENERATION STRATEGY.** The Reserve Force is a proven essential component of the CAF. The intent for the contribution of Army reservists on expeditionary operations to a sustained mission (LoO 3) from Rotation 1¹³ onward will be approximately 20% of the total force package. Participation of Reserve Force enablers, such as force protection elements, the Persistent Surveillance System (PSS) Troop, and Influence Activities Task Force (IATF) elements, during the Road to High Readiness (R2HR) training is critical to success. However, those enablers are only available when they are mission-tasked in preparation for Rotations 1 and beyond. The participation of key enablers on Exercise MAPLE RESOLVE will be critical to success of a mission-tasked force and will be required for established missions (Rotations 1 and beyond). Other areas to be explored for possible Reserve force generation should be informed by the potential future domains for growth as capability requirements evolve based upon emerging technologies. A specific strategy will need to be developed for Reserve-generated enablers when a mission has not been identified and central funding is not available. That does not preclude the Army Reserve Force from meeting a separate readiness requirement that will see augmentation elements move through a collective training gateway, aligned with their functional Regular Force partners, that brings them up to a higher level of training and readiness in anticipation of a possible Rotation 1 deployment.

13. "Rotation 1" (Roto 1) is the name of the first replacement task force. "Roto 0" is the name of the initial deployment of a task force.

39. **CANADIAN BRIGADE GROUPS (CBG).** The ten Reserve Force CBG HQs provide the Army with an essential capability for domestic response and force generation of personnel for expeditionary missions. The CBGs may assist and enable force employment elements (e.g., TBGs) for domestic response and provide an ability to interact with regional civil response or emergency measures organizations. CBGs will be the primary source from which lead mounting divisions will provide the 20% Reserve Force portion of expeditionary force mission task elements or individuals.
40. **TERRITORIAL BATTALION GROUPS (TBG).** Within the Army Reserve, TBGs will be the principal force employment structure for the delivery of domestic capability to support Army LoO 1 and 2. TBG training and readiness will be nested within the overall Army Reserve training framework to ensure that they are capable of complementing an Army Regular Force IRU as either follow-on, additional or independent forces for domestic response as determined by the situation and command direction. Like the IRU, TBGs will fall under the command of a Land Component Commander during a domestic response. The Army will leverage the focus provided by the TBGs to increase the overall level of training and readiness across the Reserve Force.
41. **ARCTIC RESPONSE COMPANY GROUPS (ARCG).** Each regional division will also maintain an Arctic response capability in the form of one Arctic Response Company Group (ARCG), also force generated from the reserve component. The ARCG may be integral to the TBG or it may be force generated separately. In either case, it can operate independently or under control of a TBG or another Task Force.
42. **CIVILIANS IN THE ARMY.** An essential and integral component of the Army is its civilian staff. The Army must be able to recruit, develop and retain a sizeable civilian workforce to support the Army's operational and strategic objectives and achieve its mission. That is, a well-balanced defence team including military and civilian personnel will be required in order to support essential program activities and the CFDS objectives.

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>> FORCE 2013 LARGELY POSITIONED THE ARMY FOR FUTURE MISSIONS BY RESETTING THE BASELINE ESTABLISHMENTS AND STRUCTURES... THE FORCE 2018 THEME IS ALIGNMENT OF ESSENTIAL CAPABILITIES.

>> ALIGNMENT OF ESSENTIAL CAPABILITIES

HOW WE ARE GETTING THERE: FORCE DEVELOPMENT BUILD 2

43. Force 2013 largely *positioned* the Army for future missions by resetting the baseline establishments and structures, including the acquisition of associated supporting physical and training infrastructure. The Force 2018 theme is *alignment of essential capabilities*, with the following objectives:
- a. **COMMAND SUPPORT.** Leveraging command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) to build formations with increased capacity to manage enablers and be capable of integrating and leading in the JIMP environment. The continued institutionalization of the command support capabilities is central to Force 2018 development.
 - b. **ENABLERS.** Building and institutionalizing sustainable joint enablers within the Army (e.g., influence activities and intelligence modernization) will increase the Army’s capability, adaptability and agility within a fluid battlespace. Enhancing and aligning critical campaign-winning enablers sets the conditions for success in Adaptive Dispersed Operations (ADO).
 - c. **FLCS.** Aligning the Family of Land Combat Systems (FLCS) within the field force structure to better enable ADO. That will integrate the combat platforms and technologies that are already in the investment plan, including upgrading current vehicle platforms, introducing new fighting and support platforms, fielding integrated soldier systems, and continuing the investment in advanced simulation and synthetic environment systems.

- d. **SUSTAINMENT.** Optimization of combat service support (CSS) tasks and structures, both institutionally and operationally, will enable and enhance CSS in the ADO context. In the near-term, the Army will need to mitigate capability gaps until the incorporation of new vehicle fleets (e.g., Medium Support Vehicle System Standard Military Pattern [MSVS SMP], Logistics Vehicle Modernization [LVM], and Enhanced Recovery Capability [ERC]).

LAND TACTICAL COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE (C4ISR)

44. C4ISR is the integration of functional concepts and capabilities that enable the planning and conduct of operations and tactical activities across the spectrum of conflict and at all levels. It is intended to provide relevant, timely, accurate and easily accessible information to commanders and users without geographical limits. Consequently, as part of command support capability integration, continuous institutionalization of C4ISR is central to Force 2018 development. The intent is to leverage C4ISR systems to enhance formation-level command and control and achieve fully capable and integrated structures (e.g., Battle Group – Brigade/Task Force – Division/Combined Joint Interagency Task Force) and, in parallel, set the conditions to deliver the network-enabled soldier for the Army of Tomorrow (AoT).
45. From a C4ISR perspective, all these capabilities require integration across the Army and interoperability in a joint and multinational operational context. Some of the capabilities also require public and interagency interoperability. Achieving that level of integration and interoperability requires proper technological standardization, centralized design oversight and capability management as well as the underlying processes, concepts and doctrine to establish a disciplined C4ISR force employment model. This will be accomplished by maturing the current Land Command Support System (LCSS) technology and exercising discipline via the Configuration Control Board governance

model and real-time oversight through a reinforced Army Network Operations Centre for network operations and management. Ongoing efforts will continue to make network architecture changes that will enable a seamless integration of C4ISR capabilities and allow a more fluid interoperable environment with our joint and multinational partners. Current LCSS / Consolidated Secret Network Infrastructure (CSNI) convergence efforts will ensure full interoperability between deployed and strategic networks. Institutionalization of the network operations and management function will ensure that a permanent body maintains standardization and governance of the network. Building a robust network that is centrally governed and managed, that is simpler to operate and sustain, that incorporates redundancy and that is designed to allow growth and seamless integration of new capabilities will set the conditions to deliver harmonious vehicle platform integration with sensor, soldier and support systems in any theatre of operation. It is this set of capabilities that will form the foundation to enable and realize effective ADO.

46. **LAND COMMAND SUPPORT SYSTEM (LCSS) MODERNIZATION** will dramatically improve the ability of tactical commanders and their staffs to plan and execute land operations by improving the quality, range and security of communications down to the sub-unit level. Links to the operational and strategic information domains made possible by beyond-line-of-sight capabilities will greatly enable deployed forces both in Canada and abroad. Moreover, LCSS forms the foundation for the integrated sense function (i.e., intelligence, surveillance, target acquisition and reconnaissance), information, network assurance, and the further development of the networked soldier. As well, efforts will be intensified to establish a permanent Coalition Mission Network with ABCA partners, providing the necessary technical and policy mechanisms to permit LCSS to interface directly with allied tactical communication and information systems (CIS).

INSTITUTIONALIZING CRITICAL ENABLERS

47. Institutionalizing critical enablers is the first step in the *alignment* of Army capabilities for future success in ultimately achieving *Land Operations 2021* objectives. The following is a summary of critical enablers that will be delivered for Force 2018.
48. **LAND INTELLIGENCE MODERNIZATION** builds upon the success of institutionalizing the All Source Intelligence Cell (ASIC) in support of each Canadian Mechanized Brigade Group (CMBG) as well as improved support to 1st Canadian Division Headquarters (1st Cdn Div HQ). The ASIC, along with the Land Force Intelligence Centre (LFIC) at Army level, will provide a balanced and sustainable Army intelligence capability built around disciplined, well-trained and operationally focused all-source intelligence operators who are interoperable with our partners.
49. The **INFLUENCE ACTIVITY** function will capitalize on the valuable experience gained from the last decade of operational experience by embedding its capability within the Army. Information operations, psychological operations, target audience analysis and civil–military cooperation operations will all be enhanced through the continued development of this capability. An interim force generation strategy has been approved. Additional force development work is still required to fully institutionalize a sustainable Influence Activities capability in support of the MRP.
50. **THE JOINT COUNTER-EXPLOSIVE THREAT TASK FORCE** will continue to institutionalize hard-earned knowledge, experience and capabilities from more than a decade of operations. This specialist capability will continue to support the Army and the CAF by reducing the explosive threat and improving the force’s freedom of manoeuvre and action. Defeat the device, prepare the force, and attack the network remain extant as the key lines of effort.

51. **UNMANNED AERIAL SYSTEMS** have become a common element of support to the fighting forces, providing a broad range of services to the war fighter, from intelligence gathering and target acquisition to battle damage assessment and force protection. In support of 1st Cdn Div HQ, 4 Air Defence Regiment will employ a small unmanned aerial vehicle (SUAV) along with a Surveillance and Target Acquisition Coordination Centre. Of note, the Army’s new SUAV is planned for delivery in early 2016. At the unit level, reconnaissance elements will be provided with miniature unmanned aerial systems to provide “over-the-hill” quick response situational awareness in direct support of tasks.
52. The Army will receive new **SURVEILLANCE AND TARGET ACQUISITION SYSTEMS** for the purpose of locating enemy and friendly weapons and activities as well as for providing surveillance of the airspace and battlespace. Consisting of both radars and acoustic sensors, such systems will enable improved identification and warning of hostile indirect fire and air attacks. They will also assist in the airspace deconfliction essential to a joint environment.
53. To address **GROUND-BASED AIR MUNITIONS DEFENCE (GBAMD)** deficiencies, the Army will continue its efforts to identify and seek approval for an integrated, networked and capable system that will enable the positive control of joint/coalition airspace. This system will not only defeat traditional Air Defence threats, such as hostile aircraft, but will also have the capacity to defeat a wider array of air threats (cruise missiles, artillery rounds, etc.).
54. **CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) DEFENCE** will be enhanced to improve the Army’s ability to rapidly and effectively detect, identify, warn and report on a broad range of chemical warfare agents, biological agents, and toxic industrial hazards that may be encountered during operations, at home or abroad. Combined with an improved decontamination capability and reinforcement through frequent training, the Army will re-establish

» FORCE 2013 IDENTIFIED THE NEED FOR A SIGNIFICANT REINVESTMENT IN COMBAT SERVICE SUPPORT (CSS). TO ADDRESS LEGACY FLEET DETERIORATION, NEW EQUIPMENT WILL COME ON-LINE DURING THE 2015–2022 TIMEFRAME WITH THE MEDIUM SUPPORT VEHICLE SYSTEM (MSVS), LOGISTICS VEHICLE MODERNIZATION (LVM)— LIGHT AND HEAVY—AND THE ENHANCED RECOVERY CAPABILITY (ERC).



an ability to defeat and react to CBRN threats. An interim single decontamination (DECON) capability has been established with 5 Canadian Mechanized Brigade Group. Additional force development work will occur to re-institutionalize the Army capability writ large within the Canadian Army and the CAF.

55. **ELECTRONIC WARFARE (EW)** will be modernized to improve the ability of the Army to operate in and dominate the electromagnetic spectrum. As the CAF addresses the need to protect and operate within the emerging cyber domain, EW modernization will include improved electronic support systems, electronic attack systems, electromagnetic spectrum planning and electronic protection to enable the joint fight. 21 Electronic Warfare Regiment will be structured to generate task-tailored electronic warfare elements for Lines of Operation (LoO) 3 and 4 based upon a squadron minus that works in coordination with the Intelligence, Surveillance, Target Acquisition and Reconnaissance Coordination Centre (ISTAR CC) and the ASIC.

56. **AIR-LAND INTEGRATION.** While the preceding enablers are Army-generated and are focused on land operations, the future CAF will become increasingly joint, leveraging air and aviation capabilities. Aviation assets, while outside of the Army, are of particular significance for land force mobility and sustainment:

a. **MEDIUM HEAVY LIFT HELICOPTER.** The MHLH began to enter service in 2014 based with 450 Tactical Helicopter Squadron (THS) at Petawawa, Ontario. Using the CH147F Chinook, the squadron will enable land forces to reach more remote locations in more challenging environments than previously possible, adding much needed tactical mobility to the reconnaissance and firepower capabilities of the CH146 Griffon already in intimate support of the CA. The stand-up of 450 THS also ensures each CMBG an affiliated senior aviation advisor in the form of the CO of the geographically co-located unit who will train and deploy with the Brigade. That will greatly enhance the joint capabilities shared between the Royal Canadian Air Force (RCAF) and the Canadian Army and will

be a key component of air-land integration into the future. The CA and RCAF will continue to collaborate to enhance ISTAR, offensive air support, and air manoeuvre capabilities.

b. **JOINT FIRES.** The digitization of the call for fire is rapidly advancing as an Army capability. Institutionalizing of Joint Terminal Air Controller (JTAC) and Tactical Air Control Party (TACP) will be achieved through training, certification and new digitized equipment. The result will be significant improvements in responsiveness, accuracy, ease of use and increased survivability.

57. **SEA-LAND INTEGRATION.** Throughout the conduct of CA and coalition/partner exercises and foreign doctrinal review, the CA will investigate the development of amphibious warfare capabilities.

SUSTAINMENT

58. As a result of lessons learned from the previous decade of operations, Force 2013 “Build 1” called for the creation of an organizational structure that is robust and personnel-heavy, with echelons within the battle group, and supported by a robust forward support group. To achieve that structure, Force 2013 identified the need for a significant reinvestment in combat service support (CSS). To address legacy fleet deterioration, new equipment will come on-line during the 2015–2022 timeframe with the Medium Support Vehicle System (MSVS), Logistics Vehicle Modernization (LVM)—light and heavy—and the Enhanced Recovery Capability (ERC). There will be gaps in capability while the conditions of the legacy fleets deteriorate prior to new fleets coming into service. Those gaps will need to be mitigated by adopting an “equipment culture” across the CA and optimizing the availability of declining resources to meet priority requirements. Additionally, preserved fleets (e.g., AHSVS) may need to be leveraged to satisfy operational imperatives, while a small Managed Readiness Training Fleet (MRTF) will continue to support force generation and mounting activities.



» THE DEVELOPMENT OF FORCES IN A LIGHT ROLE WILL CONTINUE TO IMPROVE THE ABILITY AND RESPONSIVENESS OF THE ARMY TO OPERATE WITHIN UNIQUE ENVIRONMENTS AND ON SPECIFIC OPERATIONS, REGARDLESS OF VEHICLE PLATFORM OR DELIVERY METHOD. LIGHT-CAPABLE FORCES MUST BE CAPABLE OF RAPID DEPLOYMENT THROUGH A VARIETY OF MEANS AND BE VERSATILE IN TERMS OF MOBILITY RATHER THAN BEING TIED TO ANY PARTICULAR PLATFORM.



59. ADO will demand a real-time, networked sustainment system in which the assurance of support is the essential characteristic for a dispersed force. To achieve that assurance, the CSS system must be technologically advanced, predictive, adaptive, integrated, flexible and robust. It needs to incorporate common tools and doctrine that permit the visibility and control of sustainment resources at the tactical level and the real-time assessment of support requirements needed to prioritize effort and enable distributed decision-making. Inventory management, deployment and redeployment processes need to be substantially automated to maximize efficiency, minimize waste, and optimize the support footprint. Finally, the tactical support architecture needs to tap directly into enterprise tools at the operational and strategic levels to synchronize higher-level support assets and fully leverage the power of enterprise resource management systems, such as DRMIS, FMS, and HRMS in order to meet operational readiness objectives. Some specific considerations follow:

- a. CSS must leverage new technologies to improve capabilities and reduce the labour-intensive nature of CSS operations. A knowledge-based sustainment system capitalizing on networked technologies (e.g., total asset visibility) and automation (e.g., unmanned vehicles) is crucial to enhancing CSS capability. Adequate and stable network access down to the F echelon is essential in order to successfully implement new technologies.
- b. Adaptive CSS provides scalable echelons for the supported force. It involves not simply task-tailoring the scales of the organization and its holdings but also ensuring that echelon support personnel have the physical and mental capacity to match the supported force's battle rhythm and survive in the mission operating conditions.
- c. Integrated CSS demands that all aspects of the sustainment system work as part of a unified, well-coordinated and reliable system of service delivery. CSS elements will aim to be synchronized with national, coalition and host-nation partners, sourcing support

from multiple providers. Integrated CSS demands interoperable, technologically enabled sustainment information management systems to maximize efficiency while ensuring effectiveness.

- d. Flexible CSS provides options for the means and methods of support to the force through the reliable and effective use of a variety of platforms, total asset visibility, and command and control enabled by integrated logistics planning tools. Flexible CSS requires dedicated ground, air and/or sea transportation assets to provide rapid delivery versus warehousing and stockpiling.
- e. Robust CSS demands that the sustainment system be adequately resourced, properly equipped and trained, and effectively led at all levels, particularly at the lower tactical levels. New methods of manipulating and interpreting data along with improved training will be the key to enhancing the distribution system for both CSS soldiers and the end consumer.

OTHER CONSIDERATIONS

60. **FORCES IN A LIGHT ROLE.** The development of forces in a light role will continue to improve the ability and responsiveness of the Army to operate within unique environments and on specific operations, regardless of vehicle platform or delivery method. Light-capable forces must be capable of rapid deployment through a variety of means and be versatile in terms of mobility rather than being tied to any particular platform. Furthermore, they need to be purpose-designed and not merely equipment-deficient. That said, wherever possible they will draw on the capabilities and competencies extant within the corps and branches. In the near term, force development work will continue along the current line of enhancing training opportunities in unique environments (e.g., urban, mountain, cold weather, tropical [jungle], riverine, arid [desert], and in the Arctic) and specific operations (e.g., parachute, airmobile and amphibious warfare). In the mid-term, force



development work will be required to better define the roles that light forces should play in the future operating environment in order to refine the specific capabilities and capacities essential for light forces in the Army of Tomorrow.

61. **HUMAN DIMENSION – DEVELOPING SOLDIERS AND LEADERS.** People will continue to be the primary capital upon which the Army exists, functions, succeeds and endures. The Army draws its soldiers from the very society that it is entrusted to safeguard; therefore, its strength and continued success is directly dependent upon its ability to be relevant, provide value, and be made up of a representative cross-section of the Canadian population. Army culture is inextricably tied to the broader Canadian culture, which is essential to ensuring the Army remains a visible and integral part of Canadian society. Moreover, it is vital to fostering a cohesive Army founded upon a shared ethos and set of values. Trust in comrades, leadership and the institution remains the

enduring basis for cohesion in the Army. Soldiers must have confidence that their institution, their leaders and the people with whom they serve will respond in anticipated and appropriate ways in any situation and fulfil promises in accordance with mutual values and expectations. Given the unlimited liability that our soldiers accept as a condition of service to their country, Canadians expect the Army, in turn, to care for those soldiers who have suffered physical or stress-related injuries in the course of that service.

62. **REQUIREMENT FOR TRAINING AND EDUCATION.** In ADO, the effective decentralized execution of operations requires a broad understanding of the problem, a clear concept of the operation, and a well-articulated *commander's intent* at the lowest level of command. That is already aptly written in our doctrine, yet to succeed, forces will require soldiers, leaders and organizations that can understand and adapt more quickly than their adversaries. Training and education embody the distinctly

intellectual preparations that create both the will and the mental capacity to deal with whatever is required to ensure mission success. This means that the Army will have to optimize current individual and collective training and prioritize the essential training, education and leadership development required to produce forces that are able to succeed in the face of uncertainty. Canadians expect that their soldiers will not be placed in harm's way without the necessary equipment, training and leadership.

63. Collective training for land operations will be progressive and, as far as possible, it should be conducted in an all-arms environment. Collective training builds upon the knowledge and skills gained through individual training to ensure that the Regular Force and Reserve Force elements remain integrated in the generation of ready forces for both domestic and expeditionary operations. In that regard, the Army's "key terrain" is an ability to generate confirmed Level 7 headquarters (i.e., formation [brigade]) capabilities through formation-level command-post exercises. Command and control at that level is directly linked to the Army's ability to accomplish assigned missions. Moreover, fundamentally, the ability to live, train and fight as part of a Combined Arms Team (i.e., Level 5 training) effectively separates professional armies from all others. It is the foundation of the Army's ability to generate combat-capable forces that can effectively execute expeditionary and domestic operations. Such training is the Army's "vital ground."¹⁴ Through the MRP, the Army links training activities to the four Army lines of operation and assigned force-employment tasks.
64. Ensuring our sustainability to effectively and efficiently train for our core missions will require the Army to adopt sustainable training practices, infrastructure, and range and training area facilities and to also establish proper environmental stewardship of Army resources. In support, the Army Environment Program will focus its efforts

14. *Advancing with Purpose: The Army Strategy*, 11.

in those areas and mitigate environmental risks to ensure that the CA can achieve its forcegeneration mandate.

65. **READINESS FOR OPERATIONS.** "Readiness is the degree of preparedness and responsiveness of our forces that allows one to deploy them with little notice in response to government direction. It's the ability to get the right people, with the right skills and the right equipment, into the right place at the right time and to sustain that for as long as government requires."¹⁵ "Readiness is a process; it involves taking individuals through escalating levels of training before they can be deployed. Once the deployment is over, the process begins again in anticipation of the next mission. One has to rebuild the strength of the units and personnel that were involved in operations, and one needs to invest the necessary training to help newer recruits fill gaps in key trades."¹⁶ Absent a named mission, the Army must be prepared for the widest possible range of contingencies, making adaptability a key component of readiness. Adaptability, in this context, has much more to do with conducting training (and being equipped) in preparation for core missions than having the flexibility to shift to other missions with minimal re-training, adapting existing skills, knowledge and attributes to new tasks.
66. Readiness is the pivotal investment for the Army that, if not sustained and adapted to future requirements, will potentially compromise the Army's ability to fulfill its role and core missions. Readiness will not be sustained without training opportunities for individuals and formations that are demanding, complex and engaging. Likewise, to strengthen the Army's readiness state, certain minimal-sized force elements distinct from TBGs and ARCGs (e.g., IRUs) are appropriately trained, prepared and postured for rapid response.

15. House of Commons Committees, Standing Committee on National Defence (NDDN) 41-11, Evidence, General Walter Natynczyk, 3 November 2011, 0850 hours. <http://www.parl.gc.ca/HousePublications/Publication.aspx?DocId=5228371&Language=E&Mode=1>.

16. The State of Force Readiness of the Canadian Forces, Report of the Standing Committee on National Defence (NDDN) 41-1, December 2012, 2. <http://www.parl.gc.ca/content/hoc/Committee/411/NDDN/Reports/RP5881736/nddnrp05/nddnrp05-e.pdf>.

» "READINESS IS THE DEGREE OF PREPAREDNESS AND RESPONSIVENESS OF OUR FORCES THAT ALLOWS ONE TO DEPLOY THEM WITH LITTLE NOTICE IN RESPONSE TO GOVERNMENT DIRECTION. IT'S THE ABILITY TO GET THE RIGHT PEOPLE, WITH THE RIGHT SKILLS AND THE RIGHT EQUIPMENT, INTO THE RIGHT PLACE AT THE RIGHT TIME AND TO SUSTAIN THAT FOR AS LONG AS GOVERNMENT REQUIRES."



RISKS AND MITIGATIONS

67. It is the right balance of the key components of personnel, equipment, readiness and infrastructure that determine a military's effectiveness. Those pillars are balanced by an understanding of what one is preparing for. One's force structure must then be appropriate for the strategic environment in which one expects to operate (e.g., JIMP). There are several risks inherent in building new capabilities and divesting from old ones:
- a. Safeguarding the Regular Force and Reserve Force personnel and capital equipment spending from reductions comes at a cost, primarily to operations and maintenance (i.e., readiness) and, secondarily, to the institutional foundation. The transition of eliminating outdated equipment, rationalizing the procurement process, optimizing infrastructure and focusing on core roles will have an impact on the efficiency and effectiveness of the organization. Likelihood: high. Mitigation: the intent is to protect elements that take the longest to generate.
 - b. New capabilities (i.e., groups of people, process, equipment and training)¹⁷ will be delivered at different rates. The complexity of transitioning structures while fielding major new capabilities introduces considerable friction into any long-term plan, especially when concurrently considering the divestment of legacy systems and the scheduling of units and formations for reconstitution. Likelihood: high. Mitigation: the intent in most cases is for divestment to occur in step with the reception and integration of replacement capabilities; however, some capability gaps and change fatigue will occur, which the Army has acknowledged as acceptable risks.

- c. When there are no designated missions, units and formations will participate in the Road to High Readiness (R2HR) with integral resources only. Likelihood: high. During the transition of fleets, units rotating through the high readiness cycle may have different primary vehicle fleet capabilities. An identified, sustained expeditionary mission (e.g., LoO 3/CFDS, Mission 5) will require the Army to force-generate mission-specific capabilities to augment Lead Mounting Divisions. When a mission is not identified, certain low-density force elements (tanks, armoured engineer vehicles, etc.) will complete R2HR preparations absent their full capability. Critical capability gaps must be well communicated and plans continually adjusted to mitigate any risks in the event that a mission is identified. Mitigation conceives four courses of action:
 - » Deploy high readiness as equipped.
 - » Re-equip unit to suit mission.
 - » Reinforce high-readiness unit with non-high-readiness mission element.
 - » Deploy a non-high-readiness unit.
- d. Depending upon the notice to move for an expeditionary mission, key enablers may not be available from the Reserve Force generation base until Rotation 1 of a named mission. Likelihood: high. Mitigation: Regular Force soldiers may need to be forcegenerated on short notice to fill identified Reserve Force roles in the force employment model. For some capabilities, that is a high likelihood. Director Land Force Development (DLFD), in conjunction with the division headquarters and specialized capability stakeholders, must investigate options to improve enabler force generation bases.

17. *Designing Canada's Army of Tomorrow*, 77.

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>> AS SUCH, AS WE MOVE FORWARD, WE WILL NEED TO CRITICALLY ASSESS WHAT REMAINS BEYOND THE WAYPOINT OF 2018.

>> LAND OPERATIONS 2021: A READY AND MODERN ARMY

The intent of this document is to prime the modernization and transformation of the Canadian Army to align essential capabilities in 2018 and to set the conditions for success in advancing towards realizing the principles of *Land Operations 2021*. It articulates a vision of how the Army needs to continue evolving to become more adaptive and agile for operations in the future security environment. This is a journey, not a lock-step process, through which we will align capabilities and optimize how our forces are structured and organized for Adaptive Dispersed Operations.

To realize our vision for 2021, “the Canadian Army needs to be combat-capable, built upon units which foster strong Branch and Corps skills, as well as powerful esprit de corps. Our units will be part of formations which conduct relevant combined arms training. Battle groups will be built on sub-units deliberately selected for their expertise, where the all-arms capability is well coordinated and synchronized to deliver precise effects on the battlefield.”¹⁸ This document guides us through the waypoint of Force 2018 toward 2021.

OBJECTIVES OF FORCE 2018

The objective of Force 2018 is to set the conditions for the Canadian Army to better envision, know and understand, and be able to do much more with its resources. The continued institutionalization of the command support capabilities is central to Force 2018 development. Those component capabilities require integration across the Army and need to be interoperable within a joint, interagency, multinational and public operational context. C4ISR is the mechanism that will enhance formation-level command and control and, in parallel, set the conditions to deliver the network-enabled soldier for the Army of Tomorrow (concept) for *Land Operations 2021* (capability).

18. Lieutenant-General Peter J. Devlin, “Army Futures,” Canadian Military Journal, Vol. 11, No. 1, Winter 2010, <http://www.journal.forces.gc.ca/vo11/no1/doc/09-devlin-eng.pdf>.

Institutionalizing critical enablers is a key component in aligning the force. The last decade of sustained combat operations has highlighted certain capabilities that clearly give the Army an operational advantage. Organizations and initiatives such as the Influence Activities Task Force and Land Intelligence Modernization permit improved situational awareness in order to enhance responsiveness, deployability, and mobility, thereby achieving greater combat power than was previously possible.

The adjustment of institutions and some processes is the last major objective toward advancement of the force. Force 2018 structures will be symmetrical wherever possible, but asymmetric where necessary. That translates to three similarly structured Regular Force mechanized brigade groups and ten similarly structured Reserve Force brigade groups to achieve depth and sustainability for force generation. In a force structure that is optimized for adaptability by being tailorable, modular and scalable to deliver land effects, symmetry offers the greatest efficiency in force generation and the greatest effectiveness for sustainable force employment. The agility required to meet the demands of specific operations and unique operating environments will be achieved through expertise within select units. That agility permits the medium, multi-purpose force to punch above its weight.

Together, the right balance of depth and agility is the “ready” Canadian Army, well led, well trained and well equipped to meet missions assigned by the Government of Canada.

OBJECTIVES OF *LAND OPERATIONS 2021*

The aim of *Land Operations 2021* is to realize the Army vision—to be a well-led, well-trained, well-equipped, and properly sustained Army to succeed at Adaptive Dispersed Operations across the full spectrum of operations. The key objectives of the transformation are to leverage technology to protect our ability to dominate the battlespace and to build a digitized and network-enabled land force capable of effectively conducting Adaptive Dispersed Operations in the future operating environment. This work is less a detailed blue-print than an architectural sketch of the desired result. As such, as we move forward, we will need to critically assess what remains beyond the waypoint of 2018 to achieve our desired end state and focus our force design efforts on determining what aspects of that remaining work are viable and achievable in building the Army of Tomorrow.





REFERENCES

- A. *Advancing with Purpose: The Army Strategy* (3rd ed.), July 2014.
- B. Chief of Defence Staff Guidance to the Canadian Armed Forces, 7 June 2013.
- C. Canadian Army Civilian Human Resources FY 2012/13 to FY 2014/15.
- D. Draft CF Joint Operating Concept, Chief of Force Development.
- E. 3120-1 (DLS) Comd CA Planning Guidance Operating Plan FY 13/14, 4 April 2012.
- F. Commander Canadian Army, 1901-1 (DLFD 3) *Army Strategic Transition Roadmap*, 13 April 2012.
- G. *Designing Canada's Army of Tomorrow. A Land Operations 2021 Publication*. Directorate of Land Concepts and Designs (DLCD), Kingston, Ontario, 2011.
- H. *Toward Land Operations 2021: Studies in Support of the Army of Tomorrow Force Employment Concept*. Directorate of Land Concepts and Designs (DLCD), Kingston, Ontario, 2009.
- I. *Canada First Defence Strategy*, 12 May 2008.
- J. "Building Tomorrow While Enabling Today: An Update from Chief of Staff Land Strategy," *Canadian Army Journal*, Vol 11.3, fall 2008.
- K. *Land Operations 2021 – Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow*. Directorate of Land Concepts and Designs (DLCD), Kingston, Ontario, 2007.
- L. B-GL-300-001/FP-001, *Land Operations*. Directorate of Army Doctrine (DAD), Kingston, Ontario, 1 January 2008.
- M. 1901-1 (CLS) *Force 2013 Consolidation Master Implementation Plan*, 31 August 2010.