

# **Canadian Light Infantry in Adaptive Dispersed Operations**

**A Monograph  
by  
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Canadian Army**



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## Abstract

CANADIAN LIGHT INFANTRY IN ADAPTIVE DISPERSED OPERATIONS by MAJOR  
Philippe R. Bourque, 51 pages.

The capstone document *Land Operations 2021: Adaptive Dispersed Operations* presents the Canadian Army's doctrinal vision for its forces to be relevant and decisive in the near future. This monograph situates itself as a contribution to the development of the optimal doctrinal configuration of the Canadian Light Infantry Battalions of 2021. It reviews key Canadian Department of National Defense documents and establishes basic historical facts surrounding the organization of light infantry forces, primarily through the writings of John English and Basil Liddell Hart. It then explores various theories of allied organizations built for similar environmental settings and for various operational contexts. The structures of the United States Army, United States Marine Corps and Australian Defense Forces light infantry companies are respectively explored and then compared to the current Canadian infantry companies.

The case studies are deliberately used to represent parts of the envisioned 2021 problem and this paper posits that the best structure for the light infantry forces to meet the Adaptive Dispersed Operations' requirements is at the confluence of each set of capabilities. Thus, the proposed structure maximizes its capability to disperse and aggregate through an increased number of basic maneuver elements, such as the basic Canadian 4-man assault group. It also provides for enhanced air "deployability" through a pure light organization with the option to add formed light vehicles sub-units to provide protected mobility without being tied to a specific platform. The structure provides for enhanced lethality through an increased number of light support weapons. Its inherent modularity ensures its ability to fall on various weapons systems and mobility platforms while maintaining small unit integrity.

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# Introduction

## Background

To meet the needs of the Land Operations 2021 (LO 2021) Adaptive Dispersed Operations Force Employment Concept and to reorganize itself following the end of its combat mission in Kandahar, Afghanistan, the Canadian Army recently reviewed its field force structure. It established an interim model: Land Force 2013 with the aim of: “fully executing Canada First Defense Strategy missions through the force generation and force employment of scalable, task-tailored force elements capable of full-spectrum operations.”<sup>1</sup> Consequently, the Canadian infantry battalions will have to specialize as heavy, medium and light infantry units.

Light infantry battalions (LIBs) were formed in the early nineteen nineties, following the disbandment of the Canadian Airborne Regiment. Since then, the commanding officers of these battalions have been looking for a useable doctrine and an employment concept. The LO 2021 model acknowledges the need for flexible and adaptable forces such as the LIBs (LIB 2021).<sup>2</sup> Thus, there is an opportunity to further develop the employment concept of light infantry and lay the foundation for the elaboration of its doctrine. It is the intent of this paper to contribute to the development of Canadian light infantry doctrine through the definition of a force structure that would be best suited to conduct Adaptive Dispersed Operations (ADO) within the contemporary operating environment requirements, as defined by LO 2021.

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<sup>1</sup> Department of National Defense, *Chief of the Land Staff - Force 2013 Master Implementation Directive*, (Ottawa: DND Canada, 2011), 4-21.

<sup>2</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow (Ottawa: DND Canada, 2007), 18.

What force structure should the LIB 2021 adopt to effectively conduct ADO? The LIB is the Army's most versatile unit and should therefore be employed as a constant high-readiness force to fulfill the Army's primary mission for rapid deployment for operations. The LIB 2021 should be optimized as a true light infantry unit. It should maintain its flexibility through steady doctrinal infantry organization, training and manning. It should do so without being tied to or organized around assigned transportation platforms. This paper situates itself as a contribution to the development of the optimal doctrinal configuration of the LIB 2021 by exploring theories of organization for similar environmental settings in various historical contexts. It is understood that heavy and medium infantry units could very well be deployed on contingency operations as light units, leaving behind their mobility platforms. Nevertheless, it is asserted that their structure and organization would not be optimized for true light infantry operations.

The United States (U.S.) Department of Defense defines doctrine as the “fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application.”<sup>3</sup> When commenting on the development of U.S. doctrine in the 1980s, John L. Romjue explained that for concepts to become doctrine, they should be tested, approved and accepted by the field force.<sup>4</sup> With this in mind, this paper aims first and foremost at presenting concepts that may be used to develop doctrine. The theory and historical evolution of light infantry forces is first explored. To do so, the historical lenses of John A. English and Scott McMichael are employed, and their books *On Infantry* and *Historical Perspective on Light Infantry* are respectively reviewed. Secondly, for the

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<sup>3</sup> U.S. Department of Defense, *Joint Publication 1-02: Dictionary of Military and Associated Terms* (Washington D.C.: Joint Doctrine Publications, 2010), 104.

<sup>4</sup> John L. Romjue, *From Active Defense to AirLand Battle: The Development of Army Doctrine 1973-1982* (Fort Monroe: TRADOC, 1984), 13.



primary audience to understand and possibly draw parallels with U.S. and allied doctrine, this paper provides a review of the strategic guidance and main concepts driving the planned structure change that led to the guiding problem statement. This provides insight into LO 2021, its typology and conceptual foundations from which the ADO requirements for light infantry are extracted.

This paper uses four contemporary case studies using various infantry forces to provide structural options for the LIB 2021. As the organizational theorist Mary Jo Hatch pointed out, “the more knowledge you have of multiple perspectives, concepts and theories, the greater will be your capacity to choose a useful approach to dealing with the situations you face in your organization.”<sup>5</sup> Acknowledging the possibility that military organizations are usually designed to solve particular sets of problems, this paper deliberately uses case studies that represent parts of the problem at hand and posits that the best structure to meet ADO requirements is at the confluence of each set of capabilities.

As a model of the current Canadian infantry forces, this paper uses the organization and structure of the 1<sup>st</sup> Battalion Princess Patricia’s Canadian Light Infantry Battle Group, which participated in Operation Archer in southern Afghanistan in 2006. It is then used as a point of comparison with three different cases of contemporary infantry forces employed in Afghanistan, Iraq and East-Timor, respectively the U.S. Army light infantry units in Operation Anaconda, the U.S. Marine Corps infantry regiments in Operation Cobra II, and finally the Australian Defense Force infantry battalions in Operation Stabilise. When looking at each force, the historical context

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<sup>5</sup> Mary Jo Hatch and Ann Cunliffe, *Organization Theory: Modern, Symbolic and Post-modern Perspectives*, 2<sup>nd</sup> ed. (New York: Oxford University Press, 2006), 10-11.

and operational environments will initially be reviewed. Subsequently, their doctrine and organization from the small-unit perspective – squad to company will be described and qualitatively analyzed for their potential capability to fulfill the Canadian ADO requirements. The final portion of this paper concludes by selecting the most promising and appropriate characteristics of each case study and applying them to the LIB 2021 frame, with a view to make it operationally relevant and tactically decisive within the ADO concept. Two possible courses of actions for the LIBs primary structures are lastly offered with the supporting organizational graphics provided in appendix.

## **SECTION 2 – LITERATURE AND DOCTRINE REVIEW**

You may fly over land forever; you may bomb it, atomize it, pulverize it and wipe it clean of life – but if you desire to defend it, protect it and keep it for civilization, you must do this on the ground, the way the Roman Legions did, by putting young men into the mud.

-- T.R. Fehrenbach, *This Kind of War*<sup>6</sup>

### **On Light Infantry**

In his 1981 classic *On Infantry*, John English clearly articulated the evolution of infantry organization and tactics from 1866 to the present, putting great emphasis on the importance of the major changes brought about by the Great War. He argued that the German concept of “Elastic Defense” introduced in the works of Colonel Fritz von Lossberg was instrumental to the decentralization of infantry forces and the increased reliance on the one NCO and eleven men

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<sup>6</sup> T.R. Fehrenbach, *This Kind of War: A Study in Unpreparedness* (New York: Pocket Books, 1964), 40.

*gruppe* (squad) as the official tactical battle unit.<sup>7</sup> The *Sturmtruppen* (storm troops) further adapted the concept to the offence by subdividing the *gruppe* in a light machine gun support *trupp* (detachment) and an assault *trupp*, thus creating the basic fire and maneuver elements still found in today's squads.<sup>8</sup> English further explained that the next important developments of infantry tactics came through J.F.C. Fuller's concepts of mechanized warfare. As opposed to mechanized and motorized infantry that would be used in close coordination with tanks, light infantry was to fight in areas unsuited to tanks.<sup>9</sup> He also described the light infantry concepts as foreseen in Basil Liddell Hart's *The Future of Infantry*: The true function of infantry is to disorganize resistance and prepare the way for a decision. The light infantryman should be: "*Triajuncta in uno* – stalker, athlete and marksman, light of foot and quick of thought."<sup>10</sup> Liddell Hart also articulated the skills that should be specific to the light infantry: "stalk and skirmish methods, infiltration techniques, improved marksmanship and reducing individual combat loads," and described its overall value: "For the value of infantry in the present Army, as of tank-marines in the future, rests solely in their loco-mobility – their ability to move over every sort of ground and to clear every yard of any locality."<sup>11</sup>

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<sup>7</sup> G.C. Wynne, Captain, *If Germany Attacks: The Battle in Depth in the West* (London: Faber and Faber, 1939), 157-61.

<sup>8</sup> John English, *On Infantry* (New York: Praeger, 1984), 13-17.

<sup>9</sup> *Ibid.*, 31.

<sup>10</sup> B.H. Liddell Hart, *The Future of Infantry* (London: Faber and Faber, 1933) cited in John English, *On Infantry*, 38-39.

<sup>11</sup> B.H. Liddell Hart, *The Remaking of Modern Armies* (London: John Murray, 1927) cited in John English, *On Infantry*, 40.

After having analyzed in depth the German *Blitzkrieg* tactics that had just defeated his army, French Captain F.O. Miksche alternatively observed in 1944 that to succeed in modern war, small infantry units would need to fight independently in three echelons: the fire support, the covering and the assault echelons. He proposed that in modern war, infantry units as small as the squad or section would have to organize in three groups to conduct independent tactical actions.<sup>12</sup> Miksche's organization was not adopted by western armies but a very similar structure was used by the Chinese People's Liberation Army (PLA). While describing the organization and tactics of the Chinese PLA, John English described the effectiveness of the "three-by-three" organization, with the most basic element as the 3-man fire group. General James Van Fleet, commander of the US 8<sup>th</sup> Army and United Nations Forces in Korea argued that PLA soldiers fought well and retained their cohesion in the most arduous situations because of their three-by-three organization.<sup>13</sup> This allowed them to effectively apply infiltration and "swarming" tactics.

On the other hand, Scott R. McMichael employed a comparative approach in his 1987 Combat Studies Institute research survey entitled "A Historical Perspective on Light Infantry." He contrasted four different light infantry forces employed in various settings to facilitate an understanding of the characteristics, organization, and operating principles of light infantry. Written at a time when the U.S. Army attempted to refine the role of their newly introduced light infantry divisions, this research analyzed the *Chindits* of the 1944 Burma Campaign, the Chinese

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<sup>12</sup> F.O. Miksche, *Blitzkrieg* (London: Faber and Faber, 1955), 122-123.

<sup>13</sup> John, English, *On Infantry*, 172.

Communist Forces of the Korean War, the British Forces of the 1948-1966 Malaya and Borneo intervention, and the 1942-44 Canadian-American First Special Service Force.<sup>14</sup>

These forces and campaigns represent a wide array of situations, missions, nationalities, terrains and sizes. McMichael synthesized the conclusions from each study and extracted light infantry forces employment principles, exposing the problems and vulnerabilities of light infantry. His descriptive study concluded that light infantry is unique and possesses its own characteristics. It has its own ethic which is obtained from its distinctive tactical style, special attitude toward the environment, independence from lines of communication, versatility and its self-reliance. He added that light infantry forces are best suited for offensive operations and best employed in close terrain, a fact that was also recently recognized by the Canadian Army Council.<sup>15</sup> Furthermore, he observed: “Close terrain tends to fragment battle into separate small-unit actions. Light infantry forces often are required to operate in wide expanses of territory, leading commanders to divide their forces into small packets to cover the zone.”<sup>16</sup>

In light of these observations, he concluded that brigade and battalion-level operations are rarely conducted using light infantry forces but that companies, platoons and squads will generally do the fighting. After a decade of fighting in Southern Afghanistan, this conclusion is also widely accepted in the Canadian Army. When issuing guidance for further development of the light forces, the Canadian Army’s Assistant Chief of the Land Staff clearly specified that the

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<sup>14</sup> Scott R. McMichael, MAJ, *Research Survey No. 6: A Historical Perspective on Light Infantry* (Fort Leavenworth, KS: Combat Studies Institute, 1987), 219.

<sup>15</sup> Department of National Defense, *Capability Development Record 04006: Light Forces* (Kingston, ON: Directorate of Army Doctrine, 2004), 12-72.

<sup>16</sup> Scott R. McMichael, MAJ, *Research Survey No. 6: A Historical Perspective on Light Infantry*, 224.

LIB would force generate light companies and other enablers for operations in complex terrain.

The sub-unit would be optimized to provide a very specific capability to a battle group commander.<sup>17</sup> McMichael also noted that when light forces are employed in sustained operations, they have a tendency to become “heavier”; they tend to acquire combat support and combat service support assets as the evolving situation dictates. However, he noted that it is not organization that determines their light nature but their characteristics and fighting style. He added: “The historical tendency for light forces to become heavier should not be automatically criticized. The danger occurs only when the tendency is uncontrolled. Then light forces can become unwieldy and inflexible, unsuited for the purposes for which they were created.”<sup>18</sup>

In all, the better part of the reviewed literature describes light infantry forces as unique by nature, mobile when they remain light, versatile, ideally suited for small-unit offensive operations in restricted terrain and easily dispersed to better infiltrate and swarm. These traits have characterized light infantry forces for the better part of the twentieth century. The next subsection will review the current Canadian Strategic context and the Canadian Army’s vision for its light forces of tomorrow.

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<sup>17</sup> Dave Galea, LTC, "A Light Force Capability for the Army," *Canadian Army Journal* (vol. 8.2, 2005), 9-18.

<sup>18</sup> Scott R. McMichael, MAJ, Research Survey No. 6: A Historical Perspective on Light Infantry, 234.

## **Current Canadian Defense Strategy and Force Employment Concept for the Army of Tomorrow**

The Canada First Defense Strategy (CFDS) released in 2008 outlines the plan to ensure that the Canadian Forces (CF) have the proper equipment to be a modern, flexible force, capable of defending Canada and Canadian interests. It details the necessity for the CF to maintain the capability to conduct six core missions within Canada, in North America and globally, and at times simultaneously.<sup>19</sup> This strategic policy also lays out most of the major short and medium term procurement projects of the CF, such as the strategic and tactical airlift fleets enhancement, which already provides the CF with C17s, C130Js and CH-47s, the next generation fighter capability (F-35), the Arctic/Offshore patrol ships and the new family of land combat systems.<sup>20</sup> It provided the Army with the necessary guidance to proceed with its force development.

When the Army published in 2007 the capstone document Land Operations 2021: a Force Employment Concept for the Army of Tomorrow (LO 2021) the Chief of the Land Staff detailed the way the Canadian Army shall be structured and organized once it evolves to the Army of Tomorrow (AoT). He states: “To meet the increasingly complex demands of the future security environment, the Land Force embraces modular principles in its conceptual organizational

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<sup>19</sup> These core missions are: To conduct daily domestic and continental operations, including in the Arctic and through NORAD; to support a major international event in Canada, such as the 2010 Olympics; to respond to a major terrorist attack; to support civilian authorities during a crisis in Canada such as a natural disaster; to lead and/or conduct a major international operation for an extended period; and to deploy forces in response to crisis elsewhere in the world for shorter periods. Department of National Defense, *Canada First Defense Strategy* (Ottawa: DND Canada, 2008), 3.

<sup>20</sup> Department of National Defense, *Canada First Defense Strategy*, 3.

structures.”<sup>21</sup> The infantry-battalion centered battle group is the centerpiece of the Canadian Army modularity concept. However, the optimized battle group experiment conducted as part of the army force development process generated by LO 2021, used companies as the basic blocks within the modular battle groups.<sup>22</sup> This paper will therefore explore the structure and organization of small units at the level of company and below.

In LO 2021, the Chief of the Land Staff articulated that the AoT will be operating in a defined range of conflict, across the spectrum of operations within which it will need to be ready to conduct ADO. The ADO concept is an operational approach that aims at prevailing in a conflict within the Complex Operating Environment (COE).<sup>23</sup> The COE described in LO 2021 acknowledges that the likelihood of large force-on-force exchanges will be increasingly eclipsed by irregular warfare conducted by highly adaptive, technologically enabled adversaries. COE demands land forces that are “ready and able to undertake operations along a continuum that encompasses offensive, defensive and stability operations conducted along the entire spectrum of conflict.” Figure 1 describes the AoT continuum of operations conducted across the spectrum of conflict.

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<sup>21</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow, 1-9.

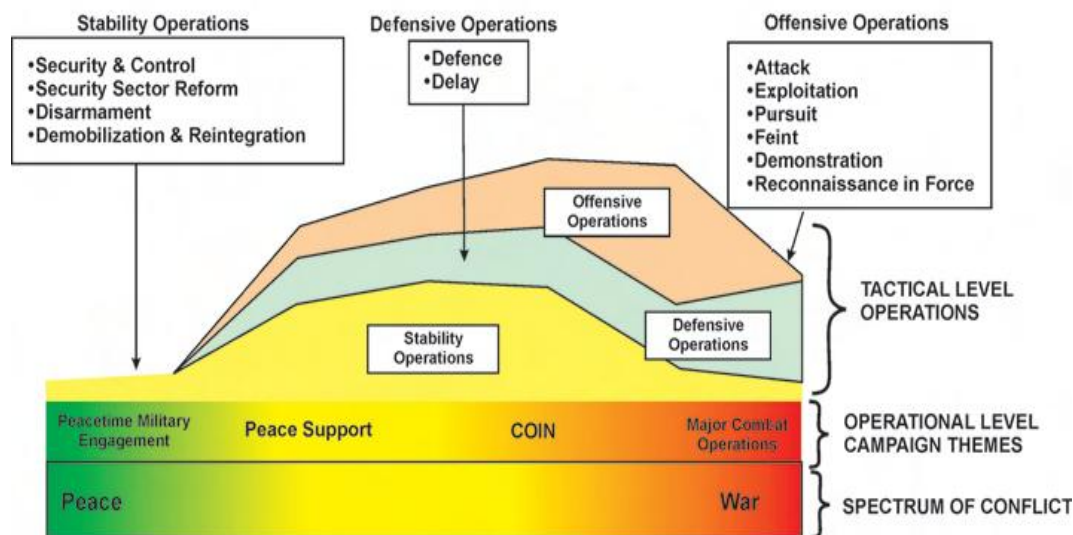
<sup>22</sup> Alex Ruff and Andrew B. Godefroy, “Forging Land Forces for the Army of Tomorrow: The Battle Group 2021 study,” *Canadian Army Journal* (vol.11, no.3, Fall 2008), 11-19.

<sup>23</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow, 1-9.



# The Continuum of Operations

*Within the continuum, AoT forces will engage in a range of tactical activities across the spectrum of conflict from peacetime military engagement to major combat*

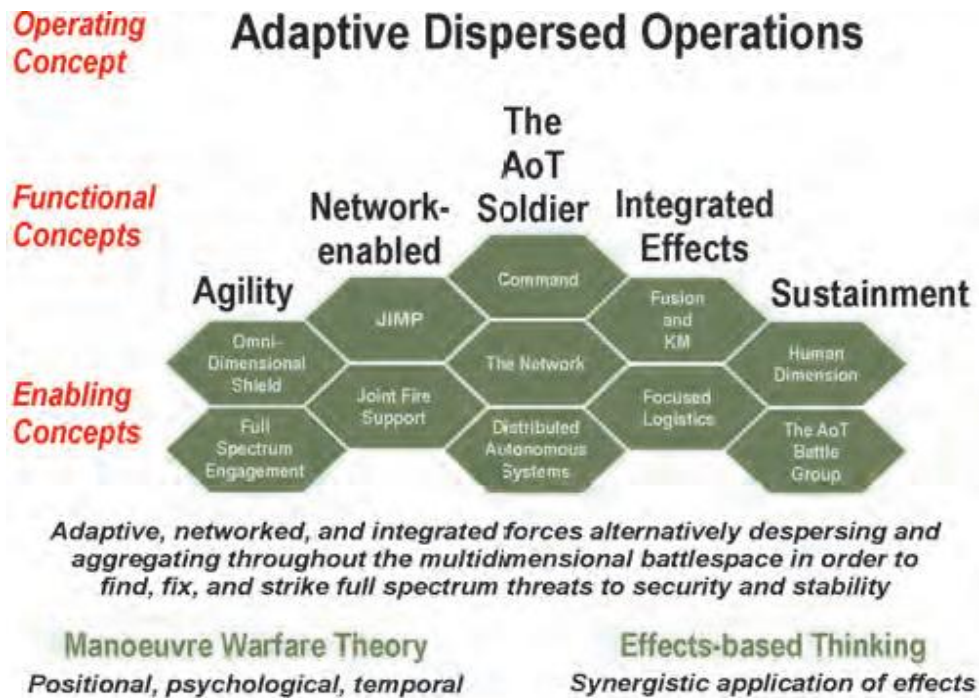


**Figure 1: The Continuum of operations<sup>24</sup>**

In the late nineties, the Canadian Army Force Development Directorate adopted the “3-Army” model to focus the evolution of today’s army. Today’s interim Army, the AoT and the Army of the Future represent this model. To ease comprehension, this paper assumes that the AoT is the Army of 2021 and the Army of the Future will be another twenty years later. Today’s Canadian Army is a highly experienced medium-weight force. Its doctrine is based on the post-cold war maneuver approach to operations within which a force targets the enemy’s center of

<sup>24</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow, 7.

gravity to break his cohesion and will to fight.<sup>25</sup> The methodology employed to develop the Interim Army and the AoT built upon the consideration of the future security environment, capability-based planning scenarios, future capability requirements and future concepts. It ultimately produced enabling concepts characterizing the AoT, (see figure 2) which integrate to produce five functional concepts and the overall operating concept: ADO.



**Figure 2: Adaptive Dispersed Operations**<sup>26</sup>

<sup>25</sup> Department of National Defense, *B-GL-321-004/FP-001, Battle Group in Operations - draft* (Ottawa: DND Canada, 2005), 1.

<sup>26</sup> Department of National Defense, *B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations*, 11.

The ADO - LO 2021 operating concept seeks to:

Create and sustain operational advantage over adept, adaptive adversaries through the employment of adaptive land forces alternatively dispersing and aggregating throughout the multidimensional battle space. It envisages employing highly adaptive land forces dispersed—in terms of time, space, and purpose—throughout the width and depth of the battle space in order to create and exploit opportunities, control the tempo of operations and overwhelm the adversary's understanding of that battle space.<sup>27</sup>

LO 2021 defines dispersed operations as coordinated actions conducted by widely dispersed teams. This dispersion occurs in time, space and purpose: Dispersion in time to speed up our decision-making cycle and disrupt the enemy's, dispersion and aggregation of our forces in the battle space to further disrupt the enemy, and dispersion in relation to purpose to be able to operate along multiple whole-of-government lines of effort.<sup>28</sup> According to Major T. Balasevicius, a Canadian Army officer employed within the national defense headquarters' directorate of future security analysis, the idea of dispersion and aggregation has been mostly created to address a counter-insurgency scenario.<sup>29</sup> In his view, ADO would not be the optimal approach in a conventional high-intensity scenario at the end of the spectrum, primarily because in this case, army forces would need to concentrate far more often than disperse. He further goes

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<sup>27</sup> Ibid., 17.

<sup>28</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations, 19-20.

<sup>29</sup> T. Balasevicius, MAJ, "Adapting Military Organizations to Meet Future Shock," *Canadian Army Journal* (vol. 12.2, 2009), 8-24.

on to mention that to alleviate this perceived limitation, doctrine and forces should be flexible enough to conduct both conventional and dispersed operations simultaneously.<sup>30</sup> While reflecting on his experience as Corps and Army commander in Burma and on future warfare, Field-Marshal Viscount Slim also asserted modern war would compel armies to disperse. He further went on to mention that “whether this dispersion is caused by the terrain, the lack of supplies, or by the weapons of the enemy, dispersed fighting will have two main requirements – skilled and determined juniors leaders and self-reliant, physically hard, well-disciplined troops ready to operate in small independent formations.”<sup>31</sup>

LO 2021 defines adaptive forces as being agile, lethal and non-lethal, net-enabled, multipurpose, and full spectrum capable. While the first two characteristics are relatively straightforward, net-enabled forces means that ADO forces operate within networked land forces supported by joint enablers. Multipurpose forces means forces that are optimized and supported to provide full spectrum capability. They include medium and light elements that can be augmented by heavy elements if needed. According to the LO 202, light elements: “trade a measure of lethality and protection for enhanced responsiveness, deployability and tactical mobility, and maximize flexibility and agility in order to compensate for reduced combat power and can be employed across the spectrum of conflict and continuum of operations in specific roles.”<sup>32</sup> Similarly, in 2000, a team of RAND Arroyo Center researchers compiled studies aimed at improving U.S. Army light forces capacity to be used for rapid reaction missions. The study

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<sup>30</sup> Ibid., 14-15.

<sup>31</sup> William J. Slim, Field-Marshal, Viscount, *Defeat into Victory* (London: Papermac, 1956), 549-550.

<sup>32</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations, 18.

team used various operational research studies, modeling and simulations to analyze three possible paths to enhancement: “Introducing maneuver to light forces by equipping them with light combat vehicles, enhancing current light forces’ survivability and lethality, and making light forces smaller and more dispersed through restructuration and reliance on joint fires.”<sup>33</sup> They concluded with the simple recommendation that the U.S. Army should use a combination of the three paths while recognizing the limited feasibility of applying them all to the same unit.<sup>34</sup>

In all, light infantry forces conducting ADO will be structured, optimized and equipped with leading edge technology to provide the expeditionary force commander with dominant forces that can easily disperse and aggregate, are deployable, highly mobile, survivable, lethal and flexible. These six ADO requirements will be employed throughout this paper as a framework for comparison.

### **Legacy forces and the state of the LIBs**

The Canadian Airborne Regiment was originally stood-up in 1968 to be rapidly deployed to Europe, in advance of the main body of the slower deploying mechanized army.<sup>35</sup> On March 4<sup>th</sup> 1995, the Airborne Regiment was disbanded. Prior to this turning point, the Canadian Army was still operating on the Cold War era structure optimized for the defense of Western Europe

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<sup>33</sup> J. Matsumura et al., *Lighting over Water: Sharpening Light Forces for Rapid Reaction Missions* (Santa Monica: RAND, 2000), 8.

<sup>34</sup> *Ibid.*, 8.

<sup>35</sup> Serge Bernier, ed., *Mémoires du Général Jean V. Allard* (Ottawa: Les Éditions de Mortagne, 1985), 359.

and designed to field mechanized brigade-groups.<sup>36</sup> Upon its disbandment, most of the Airborne Regiment's personnel transferred to the third battalions of each of Canada's three active duty infantry regiments which were then tasked to effectively form the LIBs.<sup>37</sup> The LIBs slowly integrated into the UN and NATO mission deployment cycle like the rest of the Canadian Army. They were successively deployed in the motorized role to the former Yugoslavia, Bosnia, and in the light role in Haiti and East-Timor.<sup>38</sup>

The 3<sup>rd</sup> Battalion, Princess Patricia's Canadian Light Infantry (3PPCLI) was part of Canada's initial contribution to the Global War on Terrorism. It deployed to Afghanistan as a light unit and integrated the US Forces conducting Operation Enduring Freedom. 3PPCLI integrated with 3<sup>rd</sup> Brigade 101<sup>st</sup> Airborne Division (Air Assault) and participated in their operations in Southern Afghanistan from February to July 2002. 3<sup>rd</sup> Battalion, The Royal Canadian Regiment and 3<sup>rd</sup> Battalion, *du Royal 22e Régiment* successively trained and deployed as medium-weight units to Kabul in 2003-04 and Kandahar in 2007-09.<sup>39</sup>

While the LIBS were re-rolled and deployed as medium-weight units, the Chief of the Land Staff directed in 2004 the creation of a light forces employment concept:

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<sup>36</sup> David Bercuson, *Significant Incident: Canada's Army, the Airborne and the Murder in Somalia* (Toronto: McClelland and Stewart, 1996), 54-58.

<sup>37</sup> Bernd Horn and M. Wyczynski, *Hook-up! The Canadian Airborne Compendium* (St.Catharines: Vanwell Publishing, 2003), 184-186.

<sup>38</sup> G.R. Smith, Major, *Breaking Trail: Towards Relevant Canadian Parachute Forces* (Toronto: Canadian Forces College, 2007), 48.

<sup>39</sup> *Ibid.*, 48.

The Army does not currently possess a complete light force capability. The Light Infantry Battalions, as they currently exist, lack the equipment, resources, manpower and mature doctrine / TTPs to be able to conduct operations. The supporting combat arms, combat support arms, command support and service support required to support a 'Light Task Force' / 'Light Battalion Group' in operations do not presently possess a mandate to provide forces for light operations and like the LIB do not possess a light capability.<sup>40</sup>

The Light Forces Working Group was established by the Directorate of Army Doctrine to design the basic characteristics of the Canadian Army light forces which were defined by the Army Council in February 2005 as: "a force optimized for military operations in complex environments, rapidly deployable through a variety of means, *yet not tied to any one platform* [emphasis added]."<sup>41</sup> The working group established that the Army's light forces were to be centered on the LIBs and would require the following generic characteristics and capabilities:<sup>42</sup>

Optimized for environments in which mechanized forces are not suited;  
Specialized for specific environments such as jungle, littoral, mountain and arctic;  
Rapidly deployable with air and aviation insertion skills;  
Equipped with integral protected mobility platforms;  
Supported by combat support and combat service support assets with matching capabilities;  
Capable to integrate with Special Forces to provide support.

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<sup>40</sup> Department of National Defense, Capability Development Record 04006: Light Forces, 12-72.

<sup>41</sup> Ibid., 41-72.

<sup>42</sup> Department of National Defense, Capability Development Record 04006: Light Forces, 44.

The working group's conclusions are still pending implementation. The Canadian Army became heavily involved in combat operations in Kandahar during the following years and priorities shifted towards force generation and training while institutionalizing lessons learned in combat. In the interim, the LIBs were fully integrated into the Army's rotation cycle. They organized, equipped and trained as medium-weight units, copying their sister battalions and fighting with the third generation Light Armored Vehicle (LAVIII).

### **The LIB within the Force 2013 Concept**

The Force 2013 concept is based on a force development process initiated in 2010 and aimed at providing the next bound towards the transformation to the AoT, as well as reintegrating and institutionalizing the fleet of combat vehicles and new capabilities developed during the Afghanistan campaign. It is centered on the generation of forces, based on the mechanized brigade group structure, to fulfill the tasks assigned to the Army by the defense strategy statement. The Army has further defined these tasks into lines of operations (LOO), of which the most significant are LOO 3 – no-notice sustained expeditionary mission of a brigade-group minus and LOO 4 – single rotation expeditionary surge of a battalion group.<sup>43</sup>

The integration of new capabilities and equipment include the institutionalization of an air mobility capability based on the fielding of the medium-heavy lift helicopters (CH47 Chinook) and the acquisition of the Family of Land Combat Vehicles and LEOPARD 2 Main Battle Tanks. The vehicles of interest to the infantry within these programs are the Close Combat Vehicle (CCV) which is an infantry fighting vehicle and the Tactical Armored Patrol Vehicle

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<sup>43</sup> Department of National Defense, *Chief of the Land Staff - Force 2013 Master Implementation Directive* (Ottawa: DND Canada, 2011), 9.



(TAPV). Both projects intend to equip the infantry battalions by year 2014.<sup>44</sup> Within the similarly organized brigade-groups, the current building block of the Army force generation is the infantry battalion. There are currently three brigade-groups, each having three regular force infantry battalions one of which being a legacy LIB. The Army intends to field CCV based mechanized companies, LAVIII based motorized companies and TAPV based infantry companies, with the assumption that battalion and brigade-level command and support elements will adapt and adjust accordingly.<sup>45</sup> Consequently this paper will focus on the structure of the light infantry companies rather than the light battalions. The TAPV project originated from the requirement to have the LIBs integrate with the Army's managed readiness system and as such, to be able to be employed similarly as sister medium battalions in the current operations in Southern Afghanistan. The 2004 Light Forces working group also described the need to provide the LIBs with integral transport assets that would ensure their capability to operate independently in large non-contiguous areas of operation.<sup>46</sup>

The high-intensity operations in Southern Afghanistan now being over, the legacy of the TAPV project remains and it is currently halfway through the acquisition process. The intended purpose is to field a modern fleet of light tactical armored vehicles for use in domestic and

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<sup>44</sup>The battalions are also being equipped with the C16 Close Area Suppression Weapon (CASW) – a three-man crewed advanced automatic grenade launcher and the improved 84mm Carl Gustaf Short Range Anti-Armor Weapon (SRAAW). Department of National Defense, *Chief of the Land Staff - Force 2013 Master Implementation Directive*, 10-12.

<sup>45</sup> *Ibid.*, Annex G.

<sup>46</sup> Department of National Defense, Capability Development Record 04006: Light Forces, 44.

expeditionary operations that are highly mobile and provide a very high degree of protection.<sup>47</sup> As the project has yet to be completed and initial operational capability is planned for 2014, it would be hazardous to make assumptions on actual project completion or eventual integration plans. Nevertheless, after having explored in the next chapter various structures of infantry forces in contemporary operations and defined an optimal LIB company structure, this paper will propose options for the integration of the TAPV into the LIBs.

## **SECTION 3 – CASE STUDIES**

### **Methodology**

This chapter compares various models of modern light infantry forces against the Canadian ADO requirements. Inspired by Scott McMichael's methodology, the case studies have been chosen from contemporary operations of a variety of armed forces operating in different types of environment.<sup>48</sup> The case studies intend to represent as close as possible the continuum of operations in which Canadian ADO light forces will be operating.<sup>49</sup> The case of the 1<sup>st</sup> Battalion, Princess Patricia's Canadian Light Infantry (1PPCLI) battle group's participation in Operation Archer in southern Afghanistan establishes the legacy Canadian infantry battalion starting point.

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<sup>47</sup> Department of National Defense, *Tactical Armored Patrol Vehicle (TAPV) Project, Brief to Industry* (Ottawa: Assistant Deputy Minister (Material), 2009), 1-48.

<sup>48</sup> Scott R. McMichael, MAJ, Research Survey No. 6: A Historical Perspective on Light Infantry, 1-5.

<sup>49</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow, 7.

Then, the U.S. Marine Corps (USMC) infantry battalions' participation in the 2003 Operation Cobra II in Iraq covers conventional offensive and defensive operations in a desert and urban environment. The U.S. Army light battalions' participation in the 2002 Operation Anaconda in Afghanistan covers offensive operations and support to special operations in mountainous terrain. Lastly, the Australian Defense Force (ADF) infantry battalions' participation in the 1999 Operation Stabilise in Timor-Leste covers stability operations in a jungle and littoral environment. Furthermore, each case has been selected for the particular way in which its forces employ mobility platforms. The Canadian 1PPCLI battle group had fully integrated its mobility platforms in its companies, making it a true medium force (the "medium" scenario). The USMC and ADF infantry battalions had brigaded their various mobility platforms into separate support units (the "light/medium" scenario) and finally, the U.S. Army light infantry battalions had no integral mobility platforms at all (the "light" scenario).

The purpose is to establish a base of comparison from which to draw useful elements to be applied to the needs of the Canadian Army light forces conducting ADO. Each case study first briefly describes the historical context and operational environment. It then explores the organization of the rifle squads, platoons and companies, their training and main tactical employment considerations. It lastly looks at their structure's capability to fulfill the six Canadian ADO light infantry forces' requirements identified in the previous chapter, using a comparative analysis based on the following quantifications.

The ability to disperse and aggregate is one of the characteristics of light infantry as seen in the above historical study and the first requirement of ADO, which also asserts that through the

Integrated Soldier System Project, each basic maneuver element is networked.<sup>50</sup> Accordingly, this paper asserts that the more networked basic maneuver elements it possesses, the better a unit will be able to disperse and aggregate at will. It will also employ F.O. Miksche's observation described previously to assume that basic infantry elements can best maneuver when they include the three components of fire support, cover and assault which are usually present in the fire teams. This paper assumes that the more networked fire teams a company has, the more it is able to disperse and aggregate. To quantify for the purpose of comparison, a value of 1 is assigned to the unit with the least amount of fire teams in each company, while the value of 3 is assigned to the unit with the most.

Understanding the limited Canadian strategic sealift capability, this paper considers "deployability" through the relative speed of air deployment for a contingency operation. In 2003 the RAND Arroyo Center conducted an important study on future expeditionary capabilities for the US Army Stryker Brigade Combat Teams (SBCTs). Given the same aerial deployment conditions (number of aircraft, deployment distances and airfield capabilities), SBCTs would deploy 45% faster than their Heavy BCTs (HBCTs) equivalent but Light Infantry BCTs (IBCTs) would deploy 65% faster than HBCTs.<sup>51</sup> Approximating the figures, we can assert that deploying an SBCT is about twice as fast as deploying a HBCT and deploying an IBCT is about twice as fast as deploying an SBCT. This paper uses this logic to assume that a light unit deploys faster than a light/medium unit and that a light/medium unit deploys faster than a medium unit. The

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<sup>50</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow, 22.

<sup>51</sup> E. Peltz, J.M. Halliday and A. Bower, *Speed and Power: Toward an Expeditionary Army* (Santa Monica: RAND, 2003), xvii - xxii.

numerical value of 1 is assigned to medium units, 2 to light/medium units and 3 to the faster  
deploying light units.

S.L.A Marshall noted that the true fighting mobility is not found in the platform but in the heart, the muscle and brain of the foot soldier.<sup>52</sup> However, to use protected mobility to bring infantrymen to the fight is a principle that has been refined since the advent of mechanization. Today, infantrymen are still burdened by heavy loads which impede their “loco-mobility.” For instance, when not supported by APCs, marching order-equipped Australian infantrymen in East-Timor carried more than forty-five kilograms (around one hundred pounds) exceeding half of their average body weight.<sup>53</sup> Being integrated or brigaded, protected vehicles get infantrymen fresh to the fight. Therefore, mobility will be seen here at the tactical level as the capacity of the studied unit to leverage ground vehicles without disrupting small-unit integrity. The numerical value of 1 is assigned to light units, 2 to light/medium units and 3 to the medium units, as they are defined as having vehicles fully integrated in their small units. Survivability is closely linked to mobility. For the purpose of this paper, it is assumed that survivability is a function of protection and autonomy, which are both enhanced by the capacity to leverage protected vehicles. As such,  
the same quantification will be applied.

ADO defines lethal forces as being able to: “engage the adversary with precision and non-precision lethal and non-lethal effects delivered by line of sight, non-line of sight and beyond line of sight systems while maneuvering to positions of advantage and conducting close

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<sup>52</sup> S.L.A. Marshall, *The Soldier's Load and the Mobility of a Nation* (Quantico: The Marine Corps Association, 1950), 76.

<sup>53</sup> Alan Ryan, *Putting Your Young Men in the Mud: Change, Continuity and the Australian Infantry Battalion*, Working Paper no.124 (Duntroon, Aus: Land Warfare Studies Center, 2003), 44.

engagement at the time and place of one's own choosing."<sup>54</sup> To simplify our case, the lethality of each studied force will be measured by looking at both the integral lethality of the foot element and its ability to leverage indirect fires. The integral lethality will be considered as the total number of light support weapons (machine guns, grenade launchers and light mortars) in each foot company. The ability to leverage indirect fires will be judged by the integral presence of indirect fire controllers in each foot company. A subjective value of 1 to 3 will be assigned to each unit, 3 being the most lethal.

Flexibility is defined by the Merriam-Webster online dictionary as the characteristic of a "ready capability to adapt to new, different, or changing requirements."<sup>55</sup> For the purpose of this study, it will be simply interpreted as the unit's capability to employ different air and ground platforms to get to the fight. A subjective value of 1 to 3 will be assigned to each unit, 3 being the most flexible. A medium unit by nature is assigned a value of 1 as it is usually tied to a specific platform.

## **Case Study 1 - The Canadian infantry battalions in Operation Archer**

### Historical context and tactical environment

Task Force (TF) ORION built around 1PPCLI Battle Group was the first Canadian combat unit deployed into Kandahar Province in February 2006 initially under the U.S.-led Operation Enduring Freedom. TF ORION was to assist in the transition to the NATO led

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<sup>54</sup> Department of National Defense, B-GL-310-001/AG-001 Land Operations 2021 Adaptive Dispersed Operations, 18.

<sup>55</sup> *Merriam-Webster Online dictionary*, s.v. "Flexibility," <http://www.merriam-webster.com/dictionary/flexibility> (accessed Jan 13, 2012).

operations by demonstrating combat capability. Its mission was to assist Afghans in the establishment of good governance, security, stability and reconstruction in the province of Kandahar.<sup>56</sup> According to its commander, though not configured as a LO 2021 net-enabled force, TF ORION conducted ADO throughout its tour of deployment in the complex battle space of Kandahar: "Between February and August 2006, Task Force Orion conducted twenty-seven major offensive operations at the company-group and battle group level, during which our forces (comprising a multi-purpose mix of light and medium troops) alternatively dispersed and massed (aggregated) with exceptional agility to find, fix and finish Taliban insurgent groups."<sup>57</sup> TF ORION's experience provided the basic template that was followed by the better part of the following infantry battalion rotations.

### Doctrine and organization

Current Canadian doctrine defines the mission of the infantry as to close with and destroy the enemy. It does not differentiate light infantry from dismounted infantry. The infantry battalion within TF ORION trained under the basic Canadian Battle Group doctrine.<sup>58</sup> TF ORION's primary sub-units were its three rifle companies. Two LAVIII based companies and one light utility wheeled vehicle based company. The LAVIII is an eight-wheel infantry fighting vehicle similar to the U.S. Army Stryker Infantry Carrier Vehicle but equipped with a 25mm chain gun on a turret similar to the U.S. Army Bradley fighting vehicle. The light utility wheeled vehicle is

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<sup>56</sup> Ian Hope, LTC, *Dancing with the Dushman: Command Imperatives for the Counter-Insurgency Fight in Afghanistan* (Kingston: Canadian Defense Academy Press, 2008), 47.

<sup>57</sup> Ian Hope, LTC, "Guest Editorial." *Canadian Army Journal* (Vol 10.1, Spring 2007), 5-9.

<sup>58</sup> Department of National Defense, *B-GL-321-004/FP-001 Battle Group in Operations* (Ottawa: DND Canada, 2005), 1-80.

the unarmored military pattern Mercedes G-Wagon. TF Orion's combat support and combat service support sub-units included an engineer squadron (or company), an artillery battery of M777 155mm guns, a light reconnaissance platoon and a light armored surveillance platoon, a military police platoon, and a unmanned aerial vehicle troop.<sup>59</sup>

The basic element of the Canadian infantry is the section. The section is organized into two 4-man assault groups and led by a section commander and his second in command. Each assault group is composed of a team leader, a light machine gunner, a grenadier and a rifleman or antitank gunner and further subdivides into two 2-man fire teams. The infantry platoon consists of three 10-man rifle sections and a platoon headquarters (HQ) which includes two 2-man machine gun teams or one antitank and one 60mm mortar team. The infantry company consists of three rifle platoons and a company HQ. The company HQ usually includes a 2-man machine-gun team and a 2-man antitank or 60mm mortar team. There is no weapons platoon in a Canadian infantry company.<sup>60</sup>

The Canadian LAVIII units are currently organized similarly to allied mechanized units, with the LAVIIIs being an integral part of the structure. The LAVIII and its section form a total weapons system and the full effectiveness of all the weapons is maximized when the remainder of the section is dismounted. The 10-man LAVIII section includes the 3-man crew and a 7-man

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<sup>59</sup> Ian Hope, LTC, *Dancing with the Dushman: Command Imperatives for the Counter-Insurgency Fight in Afghanistan*, 21-22.

<sup>60</sup> Department of National Defense, *B-GL-309-003/FT-001 The Infantry Section and Platoon* (Ottawa: DND Canada, 1996), 2-11.



dismounted element.<sup>61</sup> Although the dismounted element also includes two light machine guns and two grenade launchers, it breaks from the doctrinal infantry section in that it usually subdivides into two radio-equipped 3-man fire teams able to maneuver under the cover of the LAVIII fire support.<sup>62</sup> Infantry units operating with the G-wagons had to split each section in two vehicles, five men in each vehicle.

### Capability to meet ADO requirements

**Ability to disperse and aggregate:** As mentioned above, TF ORION's basic maneuver elements were the fire teams dismounting from the LAVIII. Therefore, when separated from their vehicle, each platoon had six 3-man fire teams plus two in the platoon HQ for a total of eight. As a consequence, the companies had twenty-four fire teams plus two in the company HQ for a total of twenty six.

**Deployability:** TF ORION's deployment occurred under the Canadian Army managed readiness plan which ensured that every six months or such, a new battle group-size unit would be ready to deploy overseas. 1PPCLI was ordered for deployment about ten months before its first troops were in Kandahar.<sup>63</sup> Minimal data on TF ORION's deployment timeframe is available. However and as explained above, it is assumed that it is much slower to deploy a unit with integral vehicles such as TF ORION.

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<sup>61</sup> Department of National Defense, *B-GL-321-007/FP-001 LAV Company Tactics (interim)* (Ottawa: DND Canada, 2003), 1-25.

<sup>62</sup> Department of National Defense, *B-GL-321-007/FP-001 LAV Company Tactics (interim)*, 24-26.

<sup>63</sup> Chris Wattie, *Contact Charlie: The Canadian Army, The Taliban and the Battle that Saved Afghanistan* (Toronto: Key Porter Books, 2008), 47-54.

**Mobility:** The LAVIII is a formidable platform which based on its mobility and autonomy (well over 400km) can significantly contribute to a force's operational reach. The inherent capability of TF ORION's two LAVIII companies to operate all over the battlefield and deliver fresh infantrymen onto their objectives was a key to its success. As mentioned above, this situation fits the medium force scenario.

**Survivability:** The LAVIIIs obviously gave TF ORION troops much more protection against mines and Improvised Explosive Devices (IEDs) than G-wagon based platoons which had virtually no chance against well emplaced IEDs.<sup>64</sup> However, the LAVIII companies and the insurgents also learned that the LAVIIIs were not indestructible.<sup>65</sup>

**Lethality:** In line with the numbers presented in the previous section, TF ORION's dismounted companies had a total of eighteen light machine guns (LMGs), eighteen 40mm grenade launchers (GLs), seven medium machine guns (MMGs) and four 60mm mortars for a total of forty-seven light support weapons. The TF relied on a Joint Terminal Attack controller (JTAC) team for the TF and on the one doctrinal Forward Observation Officer (FOO) party per combat team structure. Provided by the supporting artillery battery, the FOO were also Forward Air Controller (FAC) capable, which greatly contributed to the fight.<sup>66</sup>

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<sup>64</sup> "On 22 April (2006) 4 good men died when their G-wagon ran over a quadruple stack of anti-tank mines." Ian Hope, LTC, *Dancing with the Dushman: Command Imperatives for the Counter-Insurgency Fight in Afghanistan*, 63.

<sup>65</sup> On 22 June (2006) during Op JAGRA, multiple LAVs were hit by IEDs which caused many casualties. *Ibid.*, 104-105.

<sup>66</sup> *Ibid.*, 88-90.

**Flexibility:** When looking back at the inherent flexibility and versatility of its troops, TF ORION's commander observed that every deployed task force should have similar capabilities. He proposed that two companies of LAVIII crews should be independently trained and led by a distinct organization such as the combat support companies while: "the three rifles companies should be capable of falling onto the LAVs, being airmobile, or operating dismounted."<sup>67</sup>

TF ORION employed a mix of light (G-wagon) and medium (LAVIII) forces to great effect. For instance, in the course of one 24-hour operation the TF commander had his G-wagon based reconnaissance platoon conduct a feint and then insert in the mountains to block one side of an objective, while two LAVIII companies inserted at night to block the other. Once these positions were established, two more dismounted platoons conducted an airmobile insertion to seal-off the cordon and enabled the search of the objective by dismounted troops and Afghan National Army forces.

The versatility of the organization allowed this diversity of means of insertion which gave the commander a wide array of possible courses of action.<sup>68</sup> Although LAVIII companies are usually tied to their platforms as they are doctrinally used as IFVs, TF ORION specifically trained with the plug-and-play approach and were directed not to use doctrine as a set template but to actual organize for the fight.<sup>69</sup> However, as detailed in the methodology section, TF

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<sup>67</sup> Ian Hope, LTC, *Dancing with the Dushman: Command Imperatives for the Counter-Insurgency Fight in Afghanistan*, 68.

<sup>68</sup> *Ibid.*, 67-68.

<sup>69</sup> Chris Wattie, *Contact Charlie: The Canadian Army, The Taliban and the Battle that Saved Afghanistan*, 53.

ORION's LAVIII companies are considered as the medium scenario which assumes the loss of flexibility inherent with the complete integration of supporting vehicles such as the LAVIII.

## **Case Study 2 – The USMC Infantry Battalions in Operation Cobra II**

### **Historical context and tactical environment**

Operation Cobra II is the coalition operation launched in March 2003 to effect a regime change in Iraq. The U.S. Army V Corps and the I U.S. Marine Expeditionary Force (MEF) were the two major U.S. formations operating under the Combined Forces Land Component Command (CFLCC). The I MEF units included the 1<sup>st</sup> Marine Division (Mar Div) and the 2<sup>nd</sup> Marine Expeditionary Brigade, which were to secure the oilfields in the south around Rumaylah and then advance east as the attack supporting V Corps' 3<sup>rd</sup> Infantry Division main effort drive towards Baghdad.<sup>70</sup>

The 1<sup>st</sup> Mar Div supported by its Marine Air Wing 3 organized itself in Regimental Combat Teams (RCTs), specifically RCT-1, RCT-5 and RCT-7. RCT-7's mission was to cross the Kuwait-Iraq border and attack to destroy the Iraqi 51<sup>st</sup> Mechanized Infantry Division south of Basrah International Airport and to secure the Az Zubayr oil pumping station complex.<sup>71</sup> RCT-7 was a Marine Air Ground Task Force (MAGTF) built around the 7<sup>th</sup> Marine Regiment and also included 3<sup>rd</sup> Battalion, 11<sup>th</sup> Marines, 1<sup>st</sup> Tank Battalion, 3<sup>rd</sup> Light Armored Reconnaissance Battalion, 1<sup>st</sup> Combat Engineer Battalion, and 3<sup>rd</sup> Amphibian Assault Battalion and many combat

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<sup>70</sup> Michael R. Gordon and GEN Bernard E. Trainor, *COBRA II: The Inside Story of the Invasion and Occupation of Iraq* (New York: Pantheon Books, 2006), 1-88.

<sup>71</sup> Michael S. Groen, LTC, *With the 1st Marine Division in Iraq, 2003: No Greater Friend, No Worse Enemy* (Quantico: History Division Marine Corps University, 2006), 155-156.

support and combat service support units.<sup>72</sup> In all, RCT-7 was a huge combat unit which crossed into Iraq on 21 March with over five thousand Marines and a thousand vehicles of all sorts. A testament to the versatility of the U.S. Marines units, the RCT was organized in two mechanized Amphibian Assault Vehicles (AAV) task force around 3<sup>rd</sup> Battalion, 4<sup>th</sup> Marines and 3<sup>rd</sup> Battalion, 7<sup>th</sup> Marines and also had 1<sup>st</sup> Battalion, 7<sup>th</sup> Marines organized as a motorized (HMMWV and seven-ton trucks) battalion.<sup>73</sup>

### Doctrine and organization

USMC doctrine defines the mission of infantry as to locate, close with, and destroy the enemy by fire and maneuver or to repel his assault by fire and close combat. It also specifically addresses mobility: “The basic means of mobility is by foot, supplemented by use of organic, small, lightweight vehicles for the transportation of electronics equipment, weapons, and limited amounts of ammunition and supplies. All elements are helicopter transportable and are compatible with other means of transportation (e.g., AAVs, motor transport, fixed-wing aircraft, and ships).”<sup>74</sup> The basic element of the Marine infantry unit is the 4-man fire team which consists of a team leader, a light machine gunner, a grenadier and a rifleman. The infantry squad consists of three fire teams led by a squad leader.<sup>75</sup> The 13-man squad constitutes the strength of the USMC infantry.

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<sup>72</sup> Ibid., 66.

<sup>73</sup> Ibid., 154-155.

<sup>74</sup> U.S. Department of Defense, *MCRP 5-12D: Organization of Marine Corps Forces* (Washington D.C.: DOD U.S.A., 1998), 4-8.

<sup>75</sup> Ibid., 4-5.

Experimentation in USMC squad organization was conducted in the interwar period. Based on Major Evans F. Carlson's experience with the Chinese Communists in 1937, Marine Raider Battalions developed the squads consisting of three fire groups of three men each which brought unprecedented flexibility, mobility and firepower.<sup>76</sup> The squad thus created squad could cover three times the frontage of a regular marine infantry squad, saw fighting with the 1<sup>st</sup> Raider Battalion mostly in New Guinea. Further experimentation in Camp Pendleton in 1943 eventually added a fourth man to the fire group to better absorb combat casualties, thus creating the 13-man squad organization still employed today.<sup>77</sup>

The 42-man USMC platoons consist of three rifle squads and a small HQ element. The 182-man rifle companies consist of a small company HQ element, three rifle platoons and a 47-man weapons platoon. The weapons platoon includes a machine-gun section with three 7-man machine-gun squads, a mortar section with three 3-man mortar squads and an assault section with three 4-man assault squads.<sup>78</sup>

### Capability to meet ADO requirements

**Ability to disperse and aggregate:** According to the structure presented above, a USMC squad has three basic maneuver elements and thus a platoon has nine. Therefore, the company has twenty-seven 4-man fire teams, plus six MMG teams, three 60mm teams and 3 assault squads for a total of thirty-nine basic maneuver elements.

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<sup>76</sup> John Wukovits, *American Commando: Evans Carlson, His WWII Marine Raiders, and America's First Special Forces Mission* (New York: NAL Caliber, 2009), 59.

<sup>77</sup> John English, *On Infantry*, 164-166.

<sup>78</sup> U.S. Department of Defense, MCRP 5-12D: *Organization of Marine Corps Forces*, 4-7.

**Deployability:** USMC infantry units are employed across the globe as rapid-reaction sea-borne units. The USMC infantry units employed in Op COBRA II were surged from all across the world to build the I MEF and the 1<sup>st</sup> Mar Div.<sup>79</sup> In an air deployment scenario, it is assumed that the USMC infantry units would resemble the light/medium model previously explained.

**Mobility:** The USMC infantry regiments were employed in a major ground war which would be the longest USMC land operations in its history since Tripoli in 1805.<sup>80</sup> The USMC AAV are grouped or brigaded into an Assault Amphibian battalion which is an independent unit usually sub-divided in companies to be employed as battlefield taxis and fire support platforms. Two complete USMC squads can be transported in one AAV. Therefore, the USMC infantry unit fits the light-medium scenario.

**Survivability:** USMC infantry units rode to battle on various platforms. The AAVs obviously offered the best protection. Truck-mobile infantry having to improvise to increase the level of protection of their vehicle used the age-old method of sandbagging the bed of their trucks. Armored HMMWVs offered somewhat better protection to the five men they could carry.<sup>81</sup>

**Lethality:** By design, a USMC rifle company has significant integral firepower. Each platoon has nine LMGs and GLs. The organic weapons platoon includes six MMGs, three 60mm mortars and six shoulder-launched multipurpose assault weapons for a total of sixty-nine light

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<sup>79</sup> Michael S. Groen, LTC, *With the 1st Marine Division in Iraq, 2003: No Greater Friend, No Worse Enemy*, 1-50.

<sup>80</sup> Michael R. Gordon and GEN Bernard E. Trainor, *COBRA II: The Inside Story of the Invasion and Occupation of Iraq*, 183.

<sup>81</sup> Richard S. Lowry, *Marines in the Garden of Eden* (New York: Berkley Caliber, 2006), 57.

support weapons.<sup>82</sup> While participating in Operation Cobra II, Marines were grouped as combat teams but kept their MAGTF organizations, which means that they were supported by the fires of their organic Marine air wing and artillery regiments.<sup>83</sup> Each USMC rifle company employs an organic fire support team (FiST) composed of a FAC or a JTAC, an artillery FOO, a mortar forward observer and when needed a naval gunfire spotter. The presence of a JTAC within each FiST is a great combat multiplier for the USMC rifle company commander.<sup>84</sup>

**Flexibility:** The USMC infantry is designed to get to the fight on foot, and if the situation dictates, they can also employ various landing crafts, AAVs, wheeled vehicles and helicopters. The basic structure of the squads, platoons and companies does not change, but each unit can be task-tailored so as to offer the optimal mix of capabilities to the commander.<sup>85</sup> In the course of the planning conducted pre D-Day, 1<sup>st</sup> Mar Div Staff put together a contingency plan to provide the commander with a helicopter assault capability. Understanding that the nature of the terrain could very well dictate the need to assault key crossing points or intersections, they organized a battalion-sized lift package supported by their organic Marine Aviation Group CH-53Es, which could be formed at the last minute to deploy any of the RCT's versatile battalions.<sup>86</sup>

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<sup>82</sup> U.S. Department of Defense, MCRP 5-12D: Organization of Marine Corps Forces, 4-8.

<sup>83</sup> Michael S. Groen, LTC, *With the 1st Marine Division in Iraq, 2003: No Greater Friend, No Worse Enemy*, 159.

<sup>84</sup> Blair J. Sokol, MAJ, *Reframing Marine Corps Distributed Operations and Enhanced Company Operations* (Fort Leavenworth, KS: School of Advanced Military Studies, 2009), 26-27.

<sup>85</sup> U.S. Department of Defense, MCRP 5-12D: Organization of Marine Corps Forces, 4-8.

<sup>86</sup> Michael S. Groen, LTC, *With the 1st Marine Division in Iraq, 2003: No Greater Friend, No Worse Enemy*, 53.



While the biggest element of the MEF was busy with the drive north, the 15<sup>th</sup> Marine Expeditionary Unit (MEU) planned the largest USMC air assault since the Vietnam War. 15<sup>th</sup> MEU was then under the British Royal Marines command to help secure the Faw peninsula oil fields, as well as Umm Qasr. Although the operation was aborted after one of the helicopter crashed while obscured by oil fields fires smoke, it clearly demonstrated the possibilities offered by the Marines' versatility.<sup>87</sup> Furthermore, USMC units organized around the doctrinal MEF are designed to be self-sufficient for a maximum of 60 days. When conducting sustained land operations as in Operation Cobra II, they had to rely on the more robust U.S. Army sustainment system. The U.S. Army Theater Sustainment Command provided I MEF with multiple essential combat support and combat service support assets.<sup>88</sup> However, the 1<sup>st</sup> Mar Div fought in Op Cobra II using its own integral Combat Service Support. A testament of USMC flexibility and adaptability, it employed the U.S. Army model to form their own Combat Service Support Companies which were in direct support of each RCT.<sup>89</sup>

### **Case Study 3 – The U.S. Army light battalions in Operation Anaconda**

#### Historical context and tactical environment

Op Anaconda was one of the first conventional operation conducted during the first months of Operation Enduring Freedom, launched to rout Al-Qaida (AQ) and its Taliban

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<sup>87</sup> Michael R. Gordon and GEN Bernard E. Trainor, *COBRA II: The inside Story of the Invasion and Occupation of Iraq*, 195.

<sup>88</sup> G. Fontenot, COL., LTC E.J. Degen and LTC D. Tohn, *On point: The United States Army in Operation Iraqi Freedom* (Annapolis: Naval Institute Press, 2005), 64.

<sup>89</sup> Michael S. Groen, LTC, *With the 1st Marine Division in Iraq, 2003: No Greater Friend, No Worse Enemy*, 34.

supporters in the wake of the 9/11 attacks. In March 2002, elements of nine different countries participated directly or indirectly under the leadership of Combined Joint Task Force (CJTF) MOUNTAIN, which was mostly built around the 10<sup>th</sup> Mountain Division (Light Infantry) Headquarters (HQ). The operation initially designed by the Joint Special Operations Task Force North HQ was aimed at the Khowst-Gardez region in Eastern Afghanistan, specifically the rugged Shahi-Kot Valley where AQ core elements had taken refuge.<sup>90</sup>

CJTF-MOUNTAIN was to destroy AQ and to disrupt its exfiltration routes into bordering Pakistan. The plan called for the isolation and encirclement of the Shahi-Kot valley by a combination of Special Forces and conventional light forces and for converging attacks of Special Forces supported Afghan indigenous forces. The conventional light force element was to be provided by TF RAKKASAN built around the 3<sup>rd</sup> brigade of the 101<sup>st</sup> Airborne Division (Air Assault). It was to air assault on D-day to the East of the valley and to establish blocking positions on likely AQ exfiltration routes.

TF RAKKASAN was composed of the 1-187 and 2-187 (air assault) infantry battalions, the 1-87 infantry battalion (from the 10<sup>th</sup> Mountain Division), the 3<sup>rd</sup> battalion Princess Patricia's Light Infantry (Canadian), TF 7-101 (aviation) and various light combat support and combat

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<sup>90</sup> David J. Lyle, MAJ, *Operation Anaconda: Lessons Learned or Lessons Observed?* MMAS Thesis (Fort Leavenworth: Command and General Staff College, 2009), 13.

service support elements.<sup>91</sup> For various reasons, the 3<sup>rd</sup> Brigade had deployed in Afghanistan without its full array of attack helicopters, artillery and air defense assets.<sup>92</sup>

## Doctrine and organization

U.S. Army doctrine defines the mission of the infantry as: “To close with the enemy by means of fire and maneuver in order to destroy or capture him, or to repel his assault with fire, close combat, and counterattack.” It further defines the primary role of the Infantry as being close combat. It also adds: “Although the battlefield may be entered from a differing range of platforms, all types of Infantry must be able to fight on their feet. To perform this role, each type possesses two distinguishing qualities. First, Infantry are able to move almost anywhere under almost any condition. Second, Infantry can generate a high volume of lethal well-aimed small arms fire for a short time in any direction.”<sup>93</sup>

The U.S. Army light infantry battalions from the 101<sup>st</sup> Airborne Division (Air Assault) and the 10<sup>th</sup> Mountain Division (Light Infantry) were organized similarly, based on doctrine provided by the Field Manual (FM) 3-21 series. While the 101<sup>st</sup> Airborne Division troops have been employed primarily in the air assault role for the better part of post-WWII era, the 10<sup>th</sup> Mountain Division was reactivated in the mid-eighties with the creation of the U.S. Army light

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<sup>91</sup> Bruce Stanley, *Coalition Joint Task Force Mountain: Op Anaconda* (Power Point Presentation, June 2006), Slide 28.

<sup>92</sup> Sean Naylor, *Not a Good Day to Die: The Untold Story of Operation Anaconda* (New York: Berkeley Books, 2005), 53-54.

<sup>93</sup> U.S. Department of Defense, *Field Manual 3-21.8: The Infantry Platoon and Squad* (Washington DC: U.S. Army, 2007), 1-1.

infantry divisions. These divisions were to provide a “global flexible response” and were optimized for rapid deployment to low and mid-intensity conflicts.<sup>94</sup>

The 9-man basic infantry squad is composed of two 4-man fire teams and a squad leader. The fire team is considered the basic fighting element within the infantry platoon and is a self-contained element capable of 2-man buddy fire team fire and movement. The fire team is composed of a team leader, rifleman, an automatic rifleman and a grenadier.<sup>95</sup> Each infantry rifle platoon is composed of three squads and a weapons squad. The 9-man weapons squad is composed of two 2-man Medium Machine Gun teams, two 2-man Anti-Armor teams and a squad leader.<sup>96</sup> Each infantry rifle company is composed of three rifle platoons, a mortar section and a company HQ.<sup>97</sup> In addition:

Light infantry units can operate effectively in most terrain and weather conditions. They might be the dominant arm in fast-breaking operations because of their rapid strategic deployability. In such cases, they can wrest the initiative early, seize and hold ground, and mass fires to stop the enemy. They are particularly effective in urban terrain, where they can infiltrate and move rapidly to the rear of enemy positions. The commander can enhance their tactical mobility by using helicopters and tactical airlift.<sup>98</sup>

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<sup>94</sup> J. Matsumura, et al., *Lighting over Water: Sharpening Light Forces for Rapid Reaction Missions*, 3.

<sup>95</sup> U.S. Department of Defense, *Field Manual 3-21.8: The Infantry Platoon and Squad*, 1-14 and 1-17.

<sup>96</sup> *Ibid.*, 1-12 and 1-20.

<sup>97</sup> U.S. Department of Defense, *Field Manual 3-21.10: The Rifle Company* (Washington DC: U.S. Army, 2006), 1-34.

<sup>98</sup> *Ibid.*, 1-27.

Although they had very limited pre-deployment training, the infantry units employed in Operation Anaconda were very comfortable with the specific tasks they were assigned. Air assault is the “bread and butter” of the 101<sup>st</sup> Airborne Division companies and although not directly their specialty, the 10<sup>th</sup> Mountain Division troops were also well versed in airmobile operations. Furthermore, virtually all of the leadership present had served at some point in their career in the Ranger Regiment, the elite airborne infantry unit. These shared experiences provided the leaders the necessary frame of reference to be able to mold the *ad-hoc* team into an effective air assault unit.<sup>99</sup>

### Capability to meet ADO requirements

**Ability to disperse and aggregate:** As detailed above, each U.S. Army rifle platoon is composed of six basic maneuver elements plus two from the weapons squad for a total of eight. Therefore, the rifle company has twenty-four basic maneuver elements plus three within the mortar section for a total of twenty-seven.<sup>100</sup>

**Deployability:** As Kandahar airfield’s capacity was initially limited to twelve air missions per day and also because 3<sup>rd</sup> Brigade troops deployed under no compelling time deadline, it took over forty days to deploy each battalion from Fort Campbell.<sup>101</sup> However, the

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<sup>99</sup> Sean Naylor, *Not a Good Day to Die: The Untold Story of Operation Anaconda*, 89-90.

<sup>100</sup> U.S. Department of Defense, *Field Manual 3-21.10: The Rifle Company*, 1-27.

<sup>101</sup> E. Peltz, J.M. Halliday and A. Bower, *Speed and Power: Toward an Expeditionary Army* (Santa Monica: RAND, 2003), 16-17.

U.S. Army light infantry company remains easily deployable as it is weighted down by few organic vehicles. It therefore represents the light scenario previously explained.

**Mobility:** The light infantry companies have a very limited number of organic light vehicles. In addition, to limit the US footprint in Afghanistan 3<sup>rd</sup> Brigade of the 101<sup>st</sup> deployed under a limiting manpower cap forcing it to deploy with only a fraction of its light forces team. With only two battalions of two rifle companies each and initially without its own complement of artillery and attack helicopters, 3<sup>rd</sup> Brigade had an *ad hoc* light team with limited capability to fire and maneuver.<sup>102</sup> For the purpose of this research, the companies fit the light scenario.

**Survivability:** When the Special Forces-led Afghan indigenous forces failed to attack their assigned objective, TF RAKKASAN troops ended up isolated and fighting platoon-sized engagements against massed AQ fighters. Using these events as point of reference, a report published in 2009 by the Center for Technology and National Security Policy (CTNSP) issued warnings against the conduct of dispersed operations: “Dispersed operations can fracture the enemy’s cohesion but can also leave U.S. forces vulnerable to attack by massed enemy forces and to defeat in detail. Sophisticated maneuvers requiring tactical mobility and adaptive operations can be hard to conduct with dispersed dismounted infantry. [...] If dismounted infantry are unable to concentrate, each cluster should be provided adequate organic mass and firepower to perform its missions.”<sup>103</sup> As stated above, the manpower cap also affected the sustainment in that 3<sup>rd</sup> Brigade had to leave part of its Brigade Sustainment Battalion behind, which forced them to

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<sup>102</sup> Richard L. Kugler, Michael Baranick, and Hans Binnendijk, *Operation Anaconda: Lessons for Joint Operations*, Defense & Technology Paper (Washington DC: Centre for Technology and National Security Policy, 2009), 28-29.

<sup>103</sup> *Ibid.*, 16.

integrate their air assault oriented sustainment assets with theatre-level assets in Bagram.<sup>104</sup> All support to TF RAKKASAN during Operation Anaconda was done with airborne assets and by “sling loads” and air drops. As the fight in the valley went from the planned three-four days to almost twelve days, mortar ammunition became the critical element of the battalion support platoons.<sup>105</sup>

**Lethality:** Each U.S. Army light infantry platoon has six LMGs, eight GLs and two MMGs. Consequently, the rifle company includes eighteen LMGs, twenty-four GLs and six MMGs plus three 60mm mortars for a total of fifty-one light support weapons. Based on a series of workshops and interviews with actual participants of Operation Anaconda, the 2009 CTNSP report drew multiple lessons learned with the use of joint fires by ground forces. It explains that organic fires support assets such as light artillery and 81mm mortars are necessary especially when joint air support assets are limited or difficult to coordinate. Furthermore, when light forces are forced to deploy without their organic support assets, they should have an increased capability to leverage joint air support.<sup>106</sup> The U.S. Army light company also employs a FiST. However, it is limited to a fire support officer and his team who coordinates artillery and mortar fire but can only conduct emergency control of close air support missions.<sup>107</sup>

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<sup>104</sup> Operational Leadership Experience in the Global War on Terrorism, *Interview with Major Matt Hamilton* (Fort Leavenworth, KS: Combat Studies Institute, 2007), 9.

<sup>105</sup> *Ibid.*, 12.

<sup>106</sup> Richard L. Kugler, Michael Baranick, and Hans Binnendijk, *Operation Anaconda: Lessons for Joint Operations*, 29.

<sup>107</sup> U.S. Department of Defense, *Field Manual 3-21.10: The Rifle Company*, chap.10.

**Flexibility:** According to U.S. Army doctrine, rifle companies come in four types: Infantry, Heavy, Stryker and Ranger and they capitalize on all forms of mobility to maneuver on the battlefield. While Heavy/Stryker companies operate primarily mounted on combat vehicles, Ranger and light infantry forces are optimized for air and helicopter insertion followed by foot movement. The light infantry forces studied here were very well suited to support what had been up to that point a Special Forces and Special Operations Forces fight. Optimized for operating in rugged terrain, they were specifically assigned tasks such as special reconnaissance, direct actions and deliberate attacks.<sup>108</sup> Limited by a specific authorized number of troops to be deployed, the 3<sup>rd</sup> Brigade of the 101<sup>st</sup> Airborne Division (Air Assault) had to take risks and break its light forces team before joining the fight. Furthermore, each of TF RAKKASAN's formed battalions was missing one of its normal three infantry companies. Many platoons and companies were cross-attached to other battalions which contributed to make TF RAKKASAN a very ah-hoc but versatile unit. Nevertheless, basic light infantry doctrine and training and mutual understanding created by the cross-employment of experienced soldiers and officers within the light infantry and Ranger community mitigated the friction.<sup>109</sup>

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<sup>108</sup> Bruce Stanley, Coalition Joint Task Force Mountain: Op Anaconda, Slide 13.

<sup>109</sup> Sean Naylor, Not a good day to die: The Untold Story of Operation Anaconda, 88-89.



## Case Study 4 – The Australian Army infantry battalions in Operation

### Stabilise

#### Historical context and tactical environment

Operation Stabilise was the initial name given to the International Force East Timor (INTERFET) deployed in 1999 under UN mandate and led by Australia to restore peace and security in the East Timor territory and facilitate humanitarian operations.<sup>110</sup> In addition to providing the bulk of HQINTERFET and other services assets, the Australian Defense Force (ADF) deployed a brigade-size force composed of two infantry battalion groups - 2 and 3 Battalion of the Royal Australian Regiment (2RAR and 3RAR), a Mechanized Battalion Group - from 5/7 RAR , an armored reconnaissance squadron, a reconnaissance squadron, a separate Armored Personal Carrier (APC) squadron, and other support units.<sup>111</sup>

#### Doctrine and organization

The Australian Army defines the role of the infantry as: “to seek out and close with the enemy, to kill or capture him, to seize and hold ground and repel attack, by day and night, regardless of season, weather or terrain.”<sup>112</sup> The basic fighting element of the Australian infantry was in 1999 the 9-man section composed of two 4-man fire teams led by a section commander.

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<sup>110</sup> Alan Ryan, Primary Responsibilities and Primary Risks: Australian Defense Force Participation in the International Force East Timor, Study paper No.304 (Duntroon, Aus: Land Warfare Studies Centre, 2000), 11-15.

<sup>111</sup> Ibid., 127.

<sup>112</sup> Commonwealth of Australia, Manual of Land Warfare, Part Two, Infantry Training, Volume 1, Pamphlet No 1, The Infantry Battalion (Commonwealth of Australia: Australian Army, 1984), 1-1.

The platoon was composed of three rifle sections and a small platoon HQ and the company was composed of three rifle platoons, a company HQ and a small support section which made the structure of the companies very similar to that of the non-LAVIII based Canadian infantry and the U.S. Army light infantry companies. Furthermore, the Australian infantry battalion is primarily a light infantry organization with very few vehicles to provide mobility to support elements. However, the fighting elements of the battalion can be mounted in Armored Personal Carriers (APCs) which are usually brigaded in squadron.<sup>113</sup>

Since its participation in Operation Stabilise, the Australian Army has significantly reviewed its doctrine to ensure its infantry units can fulfill the tasks defined by its new war-fighting concepts: maneuver in the littoral environment, protective and security operations on Australian territory and contribution to coalition operations worldwide. Specifically, it has defined various types of infantry based on their mode of transportation. Light, airborne, airmobile, motorized, mounted and mechanized infantry each have their specific employment characteristics, primarily based on their tactical, operational and strategic mobility.<sup>114</sup> Acknowledging the light infantry's limited tactical and operational mobility but good strategic mobility, this recent doctrine has also redesigned its infantry companies based on a modular frame. The sections now consists of only eight men, the section commander now being part of one of the 4-man fire teams, enabling the section to be transported as a whole by one APC. As well, each rifle platoon now includes a 12-man maneuver support section composed of three 4-man fire teams. Each maneuver support fire team has a sharpshooter and can operate a variety of

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<sup>113</sup> Ibid., 1-1.

<sup>114</sup> Commonwealth of Australia. *Land Warfare Doctrine 3-3-7: Employment of Infantry* (Puckapunyal: Australian Army Land Warfare Development Center, 2005), 2A1-2A3.

support weapons including machine guns, grenade launchers and antitank weapons. The rifle platoons thus designed include nine 4-man fire teams. This organization is built to optimize the fire team and can aggregate them differently and with varying equipment depending on the situation. At the company level, the platoon's maneuver support sections can be regrouped and form a maneuver support platoon.<sup>115</sup> As the structure of the Australian army infantry companies employed in Operation Stabilise is very similar to the U.S. Army light infantry companies, the capability of the 2005 Australian infantry structure to meet the Canadian ADO requirements will be analyzed here.

### Capability to meet ADO requirements

**Ability to disperse and aggregate:** As mentioned above, the 2005 Australian infantry rifle platoon includes nine versatile basic maneuver elements. Therefore, the rifle company has twenty-seven basic maneuver elements.

**Deployability:** With this modular organization, the Australian infantry rifle companies have the ability to deploy as pure light units without being tied to any platform, but with the inherent ability to be transported by formed APC units if needed. Therefore, they are highly deployable and fit the light-medium scenario.

**Mobility and Survivability:** In East-Timor, 2RAR conducted multiple airmobile operations across the Area of Operations and frequently used APCs to support the operations. However, 2 and 3RAR used the APCs for transport rather than an integrated tactical support

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<sup>115</sup> Commonwealth of Australia, Land Warfare Doctrine (LWD) 3-3-7: Employment of Infantry, 3A1-3A6.

vehicle. Through the modular approach, the 2005 Australian light infantry battalion structure maintained the ability to “fall on” brigaded APC units without having to modify small-unit integrity. This structure meets the light-medium scenario.

**Lethality:** The 2005 structure has significantly increased the lethality of the rifle company. Each section has two LMGs and two GLs. The maneuver support section has three MMGs and three more GLs and maintains the capability to employ other support weapon systems as needed. Consequently, a rifle platoon has a total of eighteen light support weapons and a rifle company has fifty-four.<sup>116</sup> The 2005 structure also includes the employment of joint offensive support teams which role is to support company combat teams with coordinated artillery, air and naval gun fire support.<sup>117</sup>

**Flexibility:** During Operation Stabilise, the employment of a separate APC squadron provided tremendous flexibility to the commander while exploiting the versatility of its light infantry units.<sup>118</sup> The 2005 structure has built on this strength and maintained the light infantry battalion’s inherent ability to employ various means to get to the fight.

## Analysis and Implications

The following table displays a comparative view of each case’s capability to meet Canadian ADO requirements:

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<sup>116</sup> Ibid., 3-47.

<sup>117</sup> Commonwealth of Australia, Land Warfare Doctrine (LWD) 3-3-7: Employment of Infantry, 2-27.

<sup>118</sup> Smith, Chris, Tony Dues and Simeon Ward, “Contemporary Warfare, the Utility of Infantry, and Implications for the Project Land 400 Combined Arms Fighting System,” *Australian Army Journal* (Volume VII, number 2, Winter 2010), 15-34.

**Table 1: Summary of ADO requirements**

Case	Canadian infantry 2006	USMC infantry 2003	U.S. Army light infantry 2001	ADF light infantry 2005
Scenario model	Medium	Light-medium	Light	Light-medium
Ability to disperse/aggregate	1	3	1	2
“Deployability”	1	2	3	2
Mobility	3	2	1	2
Survivability	3	2	1	2
Foot element Lethality	2	3	2	2
Flexibility	1	3	2	3
Total	11	15	10	13

Using the values defined in the methodology section, the structure of the USMC infantry units that participated in Operation Cobra II is the one that would best meet the Canadian ADO

requirements for its light infantry forces. The USMC rifle companies' battle-tested squad organization can each disperse and aggregate three basic maneuver elements. This versatile structure also translates in enhanced firepower via its sixty-nine organic light support weapons which, coupled with the USMC's expertise at integrating supporting air and indirect fires at the company level, makes it the most lethal sub-unit studied here. As well, the inherent capability of the USMC rifle company to get to the fight through a variety of ground and air platforms without disruption to its basic organization provides the formation and unit commanders with a highly mobile and flexible element, despite the lack of organic and integrated transport assets.

From this analysis can be extracted an optimal structure for the ADO Canadian light infantry companies. As shown above, this structure should maximize its capability to disperse and aggregate through an increased number of basic maneuver elements, such as the basic Canadian 4-man assault group. It should also ensure enhanced air "deployability" through either a pure light or light-medium organization. It ought to provide protected mobility without sacrificing small-unit integrity and being tied to a specific platform. The structure should provide for an increased number of light support weapons and should be able to fall on various weapons systems and mobility platforms while still maintaining small unit integrity.

## **CONCLUSION**

### **LIB company structure**

Basil Liddell Hart advocated that the section is incapable of tactical sub-division. However, while summarizing his work and looking toward a perfection of infantry, John English recommends that the infantry section should be made the tactical microcosm of the army by endowing it with a capacity to maneuver. To do so, it should be organized in three elements to

guard, hit and move.<sup>119</sup> It is asserted here that this capacity is present in the current doctrinal Canadian light infantry section which is composed of two 4-man assault groups led by a section commander and his second in command. Each assault group can subdivide in two 2-man fire teams, thus providing the section commander with multiple maneuver elements. However, when compared to the USMC 13-man squad model described above, the Canadian construct pales. A way to alleviate this is the 2005 ADF model which modularized its units down to the section level. The building block is the 4-man infantry team that is easily transportable by a variety of means. The infantry section thus created is smaller but highly versatile and can be augmented by elements of the platoon maneuver support section.<sup>120</sup> This model depicted in figure 3 and 4 of Appendix 1 seems very promising for the needs of the Canadian Army in 2021.

The modular light infantry platoon presented here assumes that the section commander and his second in command are now part of each of the 4-man assault groups thus modularizing the section. The platoon includes three 8-man sections and also three maneuver support groups which can be assembled as a section to support the platoon as a whole or tasked under each section to give the section commander the three basic maneuver elements as prescribed by John English. Each maneuver support group has the capability to employ a variety of weapons platform including MMGs and GLs and also the new C16 CASW and the 84mm SRAAW.

With such an organization and assuming a platoon HQ with the same modular 4-man configuration, the modular light infantry platoon would be composed of ten basic 4-man groups

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<sup>119</sup> John English, *On Infantry*, 222.

<sup>120</sup> Commonwealth of Australia, Land Warfare Doctrine (LWD) 3-3-7: Employment of Infantry, 3A-2.

which is two more than the 2006-era LAVIII dismounted platoon. Given advanced communications, control and situation awareness equipment within each of the basic maneuver element, this homogeneity would inherently provide the platoon commander with the capability to disperse and aggregate at will. Furthermore, the 4-man construct facilitates transport arrangement with most of the Canadian fleet of combat transport vehicle, including the TAPV as presented to the industry in 2009.<sup>121</sup>

This monograph reviewed key Canadian Department of National Defense documents and established basic historical facts surrounding the organization of light infantry forces, primarily through the writings of John English, Basil Liddell Hart and Scott McMichael. It explored various theories of allied organizations built for similar environmental settings and for various operational contexts. As the case studies used represented parts of the envisioned LO 2021 problem, this paper asserts that the best structure for the light infantry forces to meet the ADO requirements is at the confluence of each set of capabilities. The proposed structure maximizes its capability to disperse and aggregate through an increased number of basic maneuver elements, such as the basic Canadian 4-man assault group. It ensures enhanced air “deployability” through a pure light organization with the option to add brigaded light vehicles sub-units to provide protected mobility without being tied to a specific platform. The structure also provides for an increased number of light support weapons. Its inherent modularity ensures

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<sup>121</sup> “There will be two variants of vehicles procured under this project. The first is the reconnaissance (recce) variant, which will replace the Coyote reconnaissance vehicle. The Recce variant will have a crew of four and will be equipped with either a one-man turret or a Remote Weapon Station (RWS). The second variant, the general utility vehicle, will be the new armoured personnel carrier. With a crew of three, the vehicle can carry an additional four equipped passengers and will be fitted with a RWS.” National Defense and the Canadian Forces, *Backgrounder: Tactical Armoured Patrol Vehicle*, July 8 2009, <http://www.forces.gc.ca/site/news-nouvelles/news-nouvelles-eng.asp?id=3039>. (accessed online, Jan 21, 2012).



its ability to fall on various weapons systems and mobility platforms while maintaining small unit integrity.

## APPENDIX 1 – Organizational Structure Options

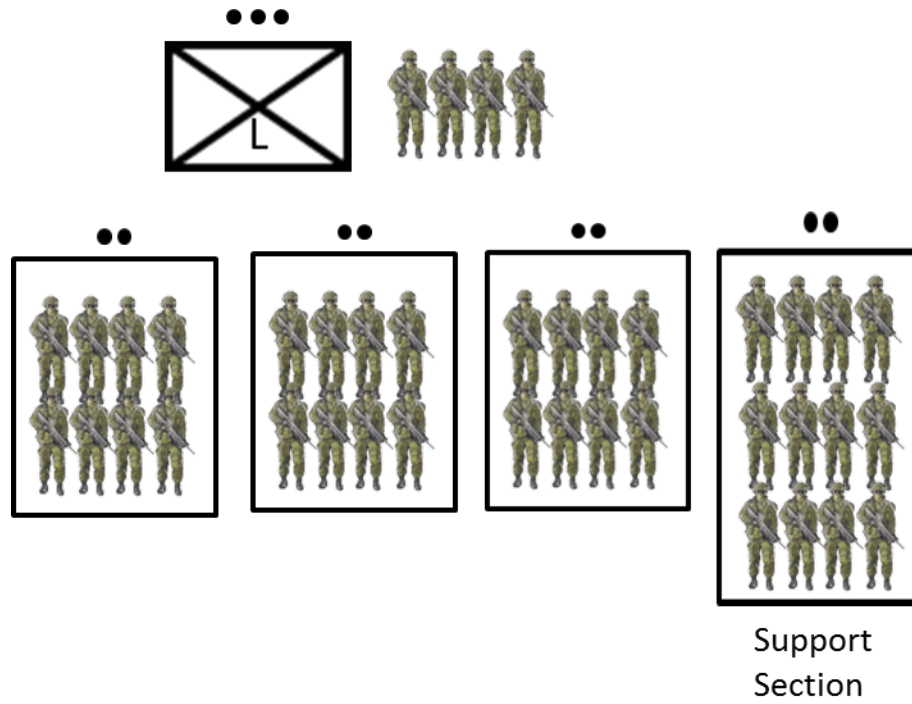
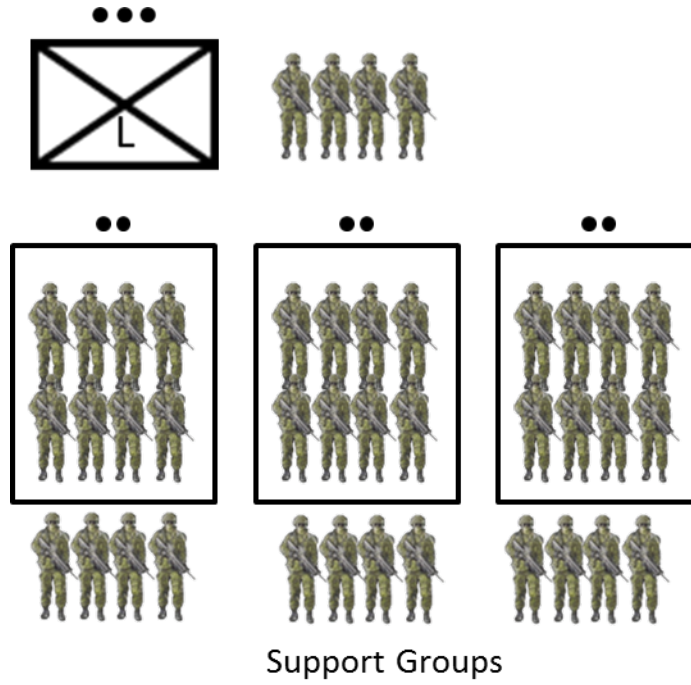


Figure 3: The modular light platoon (option 1)<sup>122</sup>

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<sup>122</sup> Author's creation similar to ADF infantry platoon structure cited in: Commonwealth of Australia, *Land Warfare Doctrine (LWD) 3-3-7: Employment of Infantry*, 3A-2.



**Figure 4: The modular light platoon (option 2)<sup>123</sup>**

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<sup>123</sup> Author's creation similar to ADF infantry platoon structure cited in: Commonwealth of Australia, *Land Warfare Doctrine (LWD) 3-3-7: Employment of Infantry*, 3A-2.

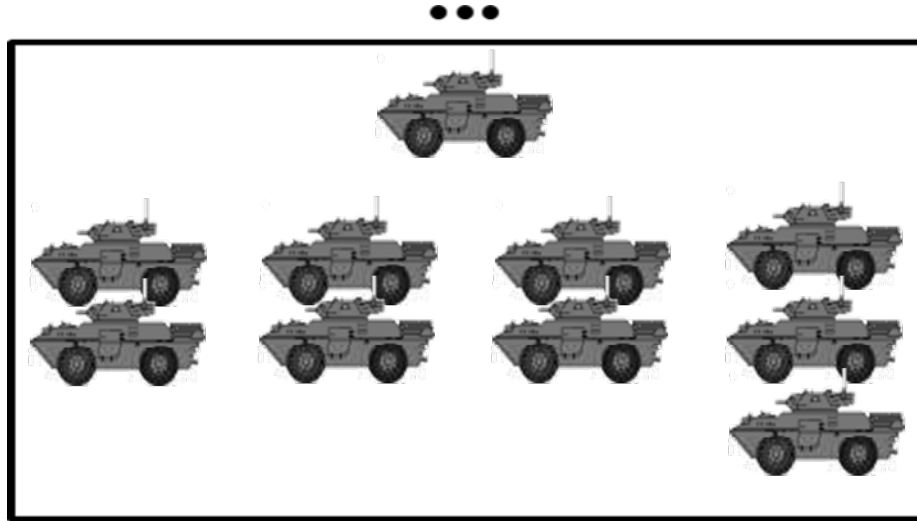


Figure 5: A brigaded 30-man TAPV-Crew platoon could carry a full light infantry platoon<sup>124</sup>

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<sup>124</sup> Based on the personal carrier version of the TAPV with the capacity to carry 4 passengers.  
Author's creation.

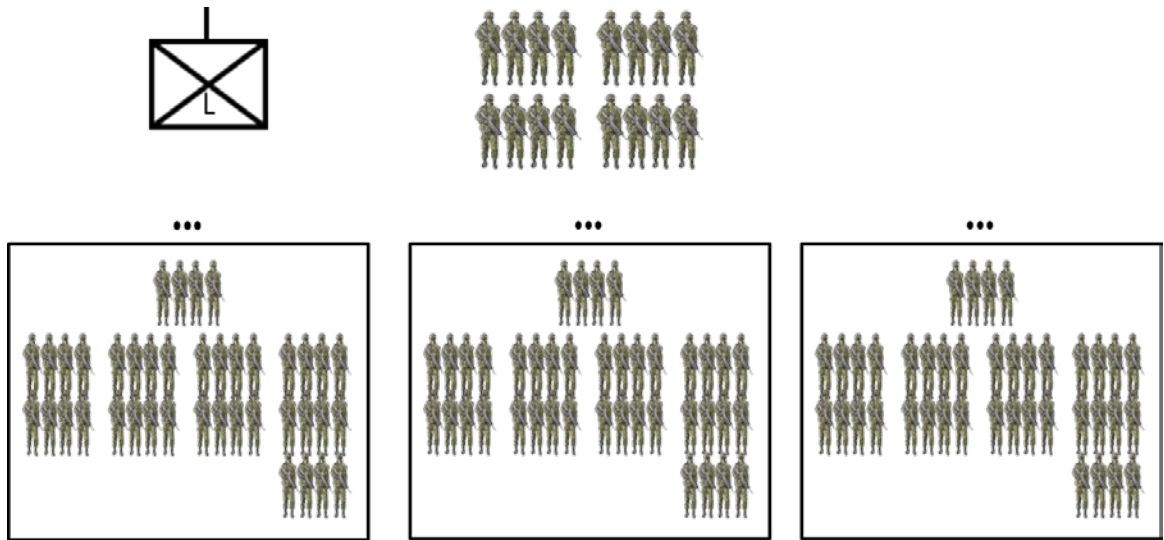


Figure 6: The 136-man modular light company<sup>125</sup>

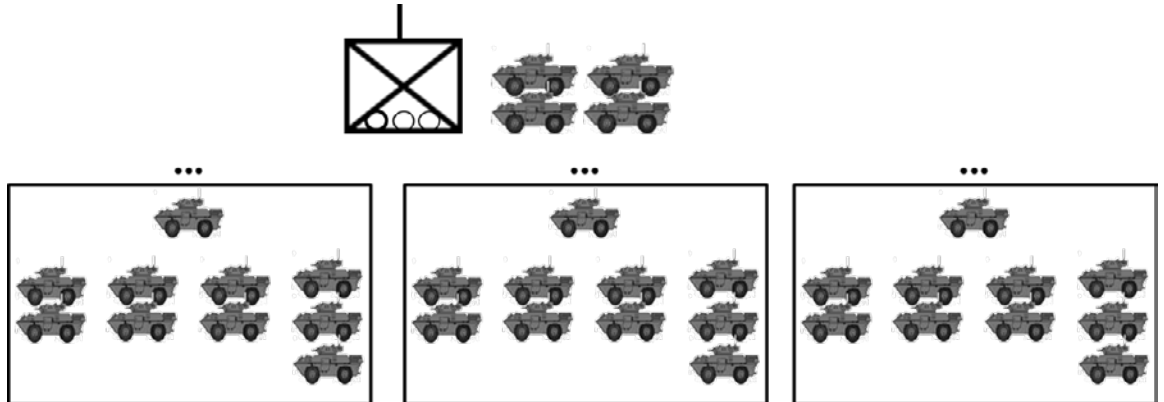


Figure 7: A brigaded 102-man TAPV-Crew company could carry a full light infantry company<sup>126</sup>

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<sup>125</sup> Author's creation similar to ADF infantry platoon structure cited in: Commonwealth of Australia, *Land Warfare Doctrine (LWD) 3-3-7: Employment of Infantry*, 3A-4.

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<sup>126</sup> Based on the personal carrier version of the TAPV with the capacity to carry 4 passengers. Author's creation.

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