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AUSTRALIAN ARMY

LAND WARFARE DOCTRINE

LWD 5-1-4

THE MILITARY APPRECIATION PROCESS

This publication supersedes *Land Warfare Doctrine 5-1-4, The Military Appreciation Process*, 2009.

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AUSTRALIAN ARMY

LAND WARFARE DOCTRINE

LWD 5-1-4

THE MILITARY APPRECIATION PROCESS

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3 July 2015

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Issued by command of Chief
of Army

D. M. Gallasch
Brigadier
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Amendment List		Produced By	Publication Amended By	Date Amended
Number	Date of Endorsement			
1.				
2.				
3.				
4.				
5.				

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PREFACE

This publication supersedes *Land Warfare Doctrine 5-1-4, The Military Appreciation Process*, 2009.

Aim

1. The aim of this publication is to provide guidance on the military appreciation process. While the focus remains primarily on the staff and individual processes, this publication also outlines the support provided by battlespace operating system planning.

Level

2. This publication should be used as a general reference by officers and non-commissioned officers and by training establishments as the foundation for instruction in the military appreciation process. Accordingly, it contains an explanation of the following:
 - a. the application of the military appreciation process and its tools and techniques,
 - b. the outputs of the military appreciation process,
 - c. the relationship between planning and decision-making, and
 - d. relevant terms and supporting definitions.

Scope

3. This publication describes the military appreciation process and its role in supporting planning and decision-making. This includes two methods of applying the military appreciation process: staff and individual. The focus of this publication is on formal planning. The role of intuition in planning and decision-making is recognised. Where appropriate, selected examples of the outputs of the staff and individual military appreciation process are included.

Associated Publications

4. This publication should be read in conjunction with the other publications and documents, in particular:
- a. *Australian Defence Doctrine Publication 2.0, Intelligence;*
 - b. *Australian Defence Doctrine Publication 3.12, Special Operations (Provisional);*
 - c. *Australian Defence Force Publication 5.0.1, Joint Military Appreciation Process;*
 - d. *Land Warfare Doctrine 1, The Fundamentals of Land Power;*
 - e. *Land Warfare Doctrine 2-0, Intelligence;*
 - f. *Land Warfare Doctrine 2-1, Intelligence Staff Duties;*
 - g. *Land Warfare Doctrine 3-0, Operations;*
 - h. *Land Warfare Doctrine 3-0-0, Manoeuvre Operations in the Littoral Environment;*
 - i. *Land Warfare Doctrine 3-0-3, Land Tactics;*
 - j. *Land Warfare Doctrine 3-2-0, Information Actions;*
 - k. *Land Warfare Doctrine 4-0, Combat Service Support;*
 - l. *Land Warfare Doctrine 5-1-2, Staff Officers' Aide-Memoire;*
 - m. *Land Warfare Doctrine 6-0, Signals;*
 - n. *North Atlantic Treaty Organization, Bi-Strategic Command Directive 40-1, Integrating UNSCR 1325 and Gender Perspective into the NATO Command Structure; and*
 - o. *United Nations Security Council, Resolution 1325, Women, Peace and Security.*

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7. This publication has been prepared with gender-neutral language.

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CONTENTS

Cover	i
Title Page	iii
Conditions of Release	iv
Amendment Certificate	v
Distribution	vi
Preface	vii
Illustrations	xviii
Tables	xx
Glossary	xxi
Abbreviations	xxx
CHAPTER 1	MILITARY APPRECIATION PROCESS
	1-1
SECTION 1-1	BACKGROUND
	1-1
SECTION 1-2	APPLICATION OF THE MILITARY APPRECIATION PROCESS
	1-3
	Annex A Overview and Outputs of the Staff Military Appreciation Process
CHAPTER 2	STEP 1 – PRELIMINARY ANALYSIS
	2-1
	Overview
	2-1
	Scope
	2-1
	Outputs
	2-1
CHAPTER 3	INTELLIGENCE PREPARATION OF THE BATTLESPACE
	3-1

~~FOR OFFICIAL USE ONLY~~*xii*

SECTION 3-1	OVERVIEW	3-1
	Intelligence Preparation of the Battlespace and Decision-making	3-2
	Intelligence Preparation of the Battlespace Outputs and Military Appreciation Process Inputs	3-3
SECTION 3-2	INTELLIGENCE PREPARATION OF THE BATTLESPACE STEP 1 – DEFINE THE BATTLESPACE ENVIRONMENT	3-3
	Step 1 Activity 1 – Identify Planning Time Available	3-4
	Step 1 Activity 2 – Identify Environmental Characteristics	3-5
	Step 1 Activity 3 – Identify the Area of Operations/Area of Interest	3-5
	Step 1 Activity 4 – Determine Intelligence Requirements and Make Assumptions	3-8
SECTION 3-3	INTELLIGENCE PREPARATION OF THE BATTLESPACE STEP 2 – DESCRIBE THE BATTLESPACE EFFECTS	3-9
	Step 2 Activity 1 – Terrain Analysis	3-10
	Step 2 Activity 2 – Weather Analysis	3-19
	Produce Weather Effects Matrix	3-20
	Step 2 Activity 3 – Analyse Other Battlespace Characteristics	3-21
	Step 2 Activity 4 – Combine the Battlespace Effects	3-27
SECTION 3-4	INTELLIGENCE PREPARATION OF THE BATTLESPACE STEP 3 – EVALUATE THE ENEMY	3-27
	Step 3 Activity 1 – Identify the Level of Enemy Command	3-28
	Step 3 Activity 2 – Establish Enemy Models	3-29
	Step 3 Activity 3 – Identify Enemy Capabilities	3-32
SECTION 3-5	INTELLIGENCE PREPARATION OF THE BATTLESPACE STEP 4 – DETERMINE ENEMY COURSES OF ACTION	3-34
	Step 4 Activity 1 – Identify Enemy Likely Objectives and Desired End State	3-35
	Step 4 Activity 2 – Develop a Full Range of Enemy Courses of Action	3-35

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xiii

	Step 4 Activity 3 – Analyse Centre of Gravity and Build Construct	3-46
	Step 4 Activity 4 – Evaluate and Prioritise Enemy Courses of Action	3-50
	Annex A Symbols Used for Intelligence Preparation of the Battlespace	
	Annex B Example Intelligence Preparation of the Battlespace Briefing Format	
	Annex C Example Modified Combined Obstacle Overlay and Preparation Notes	
	Annex D Example Conventional Threat Doctrinal Overlay	
	Annex E Example Intelligence Collection Plan	
CHAPTER 4	STEP 2 – MISSION ANALYSIS	4-1
SECTION 4-1	OVERVIEW	4-1
SECTION 4-2	MISSION ANALYSIS PROCESS	4-3
	Step 2 Activity 1 – Review the Situation	4-3
	Step 2 Activity 2 – Analyse the Superior Commander's Intent and Identify the Mission	4-3
	Step 2 Activity 3 – Analyse Tasks	4-5
	Step 2 Activity 4 – Determine Freedom of Action	4-6
	Step 2 Activity 5 – Identify Critical Facts and Assumptions	4-7
	Step 2 Activity 6 – Confirm the Mission	4-8
	Step 2 Activity 7 – Analyse Own Tasks	4-8
	Step 2 Activity 8 – Consolidate Intelligence Preparation of the Battlespace and Mission Analysis	4-9
	Step 2 Activity 9 – Mission Analysis and Commander's Guidance	4-14
SECTION 4-3	MISSION ANALYSIS OUTPUTS	4-14
	Annex A Mission Analysis Aide-Memoire	
	Annex B Roles and Responsibilities of Key Staff	
	Annex C Example Commander's Intent Statement	
	Annex D Example Warning Order	

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xiv

Annex E Example Targetable Critical Vulnerability and Essential Task List

Annex F Example Decisive Events Methods Matrix

Annex G Mission Analysis Briefing Format

CHAPTER 5 STEP 3 – COURSE OF ACTION DEVELOPMENT 5-1

SECTION 5-1 OVERVIEW 5-1

SECTION 5-2 COURSE OF ACTION DEVELOPMENT PROCESS 5-2

Step 3 Activity 1 – Create Course of Action Concepts 5-2

Step 3 Activity 2 – Test Course of Action Concepts 5-7

Step 3 Activity 3 – Fully Develop Courses of Action 5-8

SECTION 5-3 COURSE OF ACTION DEVELOPMENT OUTPUTS 5-10

SECTION 5-4 STAFF INTERACTION 5-11

Annex A Course of Action Development Aide-Memoire

Annex B Course of Action Development Briefing Format

Annex C Force Ratio Comparison Tables

Annex D Example Course of Action Statement and Overlay

CHAPTER 6 STEP 4 – COURSE OF ACTION ANALYSIS 6-1

SECTION 6-1 OVERVIEW 6-1

SECTION 6-2 COURSE OF ACTION ANALYSIS ACTIVITIES 6-4

Step 4 Activity 1 – Review Essential Information 6-4

Step 4 Activity 2 – Select and Prepare the Wargame 6-5

Step 4 Activity 3 – Wargame the Courses of Action 6-6

Step 4 Activity 4 – Record the Wargame Results 6-10

Step 4 Activity 5 – Course of Action Analysis Brief 6-12

Annex A Course of Action Analysis Aide-Memoire

Annex B Course of Action Analysis Briefing Format

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xv

Annex C Wargaming Records – Example Wargame Matrix and Event Overlay

Annex D Example Decision Support Overlay

Annex E Wargaming Methods

Annex F Staff Responsibilities During Wargaming

CHAPTER 7 STEP 5 – DECISION AND EXECUTION 7-1

SECTION 7-1 OVERVIEW 7-1

SECTION 7-2 CONDUCT 7-1

Step 5 Activity 1 – Refine Plan/Issue Orders and Conduct Rehearsals 7-1

Step 5 Activity 2 – Execute, Monitor and Adjust the Plan 7-6

CHAPTER 8 BATTLESPACE OPERATING SYSTEM PLANNING 8-1

SECTION 8-1 OVERVIEW 8-1

SECTION 8-2 BATTLESPACE OPERATING SYSTEM PLANNING IN PRELIMINARY ANALYSIS AND INTELLIGENCE PREPARATION OF THE BATTLESPACE 8-2

SECTION 8-3 BATTLESPACE OPERATING SYSTEM PLANNING IN MISSION ANALYSIS 8-2

Inputs 8-2

Actions 8-3

Outputs for Mission Analysis Brief 8-4

SECTION 8-4 BATTLESPACE OPERATING SYSTEM PLANNING IN COURSE OF ACTION DEVELOPMENT 8-6

Inputs 8-6

Actions 8-6

Outputs 8-7

SECTION 8-5 BATTLESPACE OPERATING SYSTEM PLANNING IN COURSE OF ACTION ANALYSIS 8-7

Inputs 8-8

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~~FOR OFFICIAL USE ONLY~~*xvi*

	Actions	8-8
	Outputs	8-8
SECTION 8-6	BATTLESPACE OPERATING SYSTEM PLANNING IN EXECUTION	8-9
SECTION 8-7	CONCLUSION	8-9
	Annex A Intelligence, Surveillance and Reconnaissance Battlespace Operating System Planning Aide-Memoire	
CHAPTER 9	INDIVIDUAL MILITARY APPRECIATION PROCESS	9-1
SECTION 9-1	OVERVIEW	9-1
SECTION 9-2	STEP 1 – PRELIMINARY ANALYSIS	9-3
SECTION 9-3	INTELLIGENCE PREPARATION OF THE BATTLESPACE	9-4
	Intelligence Preparation of the Battlespace Activity 1 – Define the Battlespace Environment	9-4
	Intelligence Preparation of the Battlespace Activity 2 – Describe the Battlespace Effects	9-5
	Intelligence Preparation of the Battlespace Activity 3 – Evaluate the Enemy	9-7
	Intelligence Preparation of the Battlespace Activity 4 – Determine Enemy Courses of Action	9-10
SECTION 9-4	STEP 2 – MISSION ANALYSIS	9-12
	Step 2 Activity 1 – Analyse the Superior Commander's Intent and Identify Own Mission	9-12
	Step 2 Activity 2 – Analyse Tasks	9-12
	Step 2 Activity 3 – Determine Freedom of Action	9-13
	Step 2 Activity 4 – Identify Critical Facts and Assumptions	9-14
	Step 2 Activity 5 – Confirm the Mission	9-14
	Step 2 Activity 6 – Analyse Own Troops	9-15
	Step 2 Activity 7 – Consolidate Intelligence Preparation of the Battlespace and Mission Analysis	9-15
SECTION 9-5	STEP 3 – COURSE OF ACTION DEVELOPMENT	9-17

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xvii

	Step 3 Activity 1 – Create Course of Action Concepts	9-17
	Step 3 Activity 2 – Develop Course of Action Concepts	9-18
	Step 3 Activity 3 – Test Course of Action Concepts	9-21
	Step 3 Activity 4 – Fully Develop the Selected Course of Action	9-23
SECTION 9-6	STEP 4 – COURSE OF ACTION ANALYSIS	9-26
	Step 4 Activity 1 – Test Own Force Intelligence, Surveillance, Reconnaissance Plan	9-26
	Step 4 Activity 2 – Answer the Course of Action Analysis Questions	9-27
SECTION 9-7	STEP 5 – DECISION AND EXECUTION	9-28
	Step 5 Activity 1 – Develop and Issue Orders	9-28
	Step 5 Activity 2 – Complete Rehearsals	9-28
	Step 5 Activity 3 – Execute and Monitor the Mission	9-28
SECTION 9-8	CONCLUSION	9-29
CHAPTER 10	COMBAT MILITARY APPRECIATION	10-1
	PROCESS	
SECTION 10-1	OVERVIEW	10-1
SECTION 10-2	STEPS OF THE COMBAT MILITARY APPRECIATION PROCESS	10-3
	Step 1 – Mission Analysis	10-5
	Step 2 – Enemy/Threat Analysis	10-5
	Step 3 – Terrain Analysis	10-6
	Step 4 – Develop and Execute	10-6
SECTION 10-3	OUTPUTS AND OUTCOMES	10-7
SECTION 10-4	CONCLUSION	10-8
	Bibliography	1

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ILLUSTRATIONS

Figure 1–1:	The Military Appreciation Process	1-2
Figure 1–2:	Time–Planning Relationship	1-4
Figure 1–3:	Military Appreciation Process Overview and Outputs	1A-2
Figure 3–1:	Defining the Battlespace Environment	3-4
Figure 3–2:	Example Area of Operation	3-6
Figure 3–3:	Example Area of Interest	3-7
Figure 3–4:	Describing the Battlespace Effects	3-10
Figure 3–5:	Example Overlay Showing Observation, Fields of Fire, and Concealment and Cover	3-12
Figure 3–6:	Example Combined Obstacle Overlay	3-15
Figure 3–7:	Grouping Mobility Corridors into Avenues of Approach	3-17
Figure 3–8:	Example Weather Effects Matrix	3-21
Figure 3–9:	Enemy Evaluation	3-28
Figure 3–10:	Example Target Value Matrices	3-31
Figure 3–11:	Example Situation Overlay	3-40
Figure 3–12:	Example Event Overlay	3-43
Figure 3–13:	Example Combined Course of Action Overlay/Situation Overlay with Event Overlay	3-52
Figure 3–14:	Symbols Used for Intelligence Preparation of the Battlespace	3A-2
Figure 3–15:	Example Modified Combined Obstacle Overlay	3C-2
Figure 3–16:	Example Modified Combined Obstacle Overlay Preparation Notes	3C-3
Figure 3–17:	Example Conventional Threat Doctrinal Overlay	3D-1
Figure 3–18:	Example Intelligence Collection Plan	3E-2
Figure 4–1:	Activities of Mission Analysis	4-2
Figure 4–2:	Decisive Event Planning in the Military Appreciation Process	4-13
Figure 4–3:	Example Targetable Critical Vulnerability and Essential Task List	4E-3
Figure 4–4:	Example Decisive Events Methods Matrix	4F-3
Figure 5–1:	Course of Action Development Activities	5-2
Figure 5–2:	Single Line of Operation	5-3
Figure 5–3:	Force Ratio Comparison	5C-2
Figure 5–4:	Combat Power Force Ratio Comparison	5C-3
Figure 5–5:	Example Course of Action Overlay	5D-2
Figure 6–1:	Course of Action Analysis Activities	6-3
Figure 6–2:	Example Wargame Matrix	6C-2
Figure 6–3:	Example Event Overlay	6C-3
Figure 6–4:	Example Decision Support Overlay	6D-3

Figure 6–5:	Example Synchronisation Matrix – Preliminary Phase	6D1-3
Figure 6–6:	Example Synchronisation Matrix – Phase 1	6D1-4
Figure 6–7:	Example Synchronisation Matrix – Phase 2	6D1-5
Figure 6–8:	Example Synchronisation Matrix – Phase 3 (Start)	6D1-6
Figure 6–9:	Example Synchronisation Matrix – Phase 3 (End)	6D1-7
Figure 6–10:	Belt Method	6E-2
Figure 6–11:	Avenue-in-depth Method	6E-3
Figure 6–12:	Box Method	6E-4
Figure 7–1:	Decision and Execution Stage Summary	7-7
Figure 9–1:	The Military Appreciation Process	9-2
Figure 10–1:	Combat Military Appreciation Process	10-4
Figure 10–2:	Planning Process Flow Diagram	10-7

TABLES

Table 3–1:	Enemy Course of Action Activities and Outputs	3-34
Table 3–2:	Example Event and Intelligence, Surveillance and Reconnaissance Matrix to Support a Combined Course of Action Overlay	3-44
Table 3–3:	Example Centre of Gravity Construct for a Mechanised Brigade in Mobile Defence	3-47
Table 3–4:	Example Intelligence Preparation of the Battlespace Briefing Format	3B-2
Table 4–1:	Mission Analysis Aide-Memoire	4A-2
Table 4–2:	Mission Analysis Briefing Suggested Format	4G-2
Table 5–1:	Course of Action Development Aide-Memoire	5A-2
Table 5–2:	Course of Action Development Briefing Format	5B-1
Table 6–1:	Course of Action Analysis Aide-Memoire	6A-3
Table 6–2:	Course of Action Analysis Briefing Format	6B-1
Table 8–1:	Intelligence, Surveillance and Reconnaissance Planning Aide-Memoire	8A-2

GLOSSARY

1. The principal source for Australian Defence Force terms and definitions is the Australian Defence Glossary located at <http://adg.eas.defence.mil.au/adgms>. Terms and definitions contained within this publication are in accordance with the business rules, guidelines and conventions for the Australian Defence Glossary at the time of its release.

adversary

A party acknowledged as potentially hostile to a friendly party and against which the use of force may be envisaged.

air defence

All measures designed to nullify or reduce the effectiveness of hostile air action.

area of interest

The area of concern to a commander relative to the objectives of current or planned operations, including the areas of influence, operations and/or responsibility, and areas adjacent thereto.

area of operations

That portion of a theatre necessary for military operations and their administration as part of a campaign.

battlespace operating system

The combination of personnel, collective training, major systems, supplies, facilities, and command and management organised, supported and employed to perform a designated function as part of a whole.

branch

An option for a particular phase within a line of operation of a campaign or operation designed to anticipate decisive points and provide the commander with the flexibility to maintain the

initiative. Note: A branch is a deviation from, and then return to, the same line of operation.

centre of gravity

Characteristics, capabilities or localities from which a nation, an alliance, a military force or other grouping derives its freedom of action, physical strength or will to fight.

civil-military cooperation

The coordination and cooperation, in support of the mission, commander and civil actors, including the national population and local authorities, as well as international, national and non-governmental organisations and agencies.

combat service support

The support provided to deployed forces, primarily in the fields of administration and logistics.

combat support

The provision of air base services and other operations support activities necessary to sustain air operations from major and small air bases in Australia and airheads in both Australia and abroad

command and control

The process and means for the exercise of authority over, and lawful direction of, assigned forces.

commander's critical information requirement

Critical information a commander needs to make timely decisions which include priority intelligence requirements, friendly force information requirements and essential elements of friendly information.

commander's intent

A formal statement, usually in the concept of operations or general outline of orders, given to provide clear direction of the commander's intentions.

constraint

An action imposed by a superior commander or another authority, which must be undertaken. Note: May be derived from a specified or an implied task, for example, tasking of a subordinate commander to maintain a reserve for employment that may be employed by the superior commander on order.

control measures

1. For counterinsurgency, restrictive measures imposed upon a civil population and relating to such matters as movement, registration or the possession of foodstocks or weapons.
2. Directive given graphically or orally by a commander to subordinate commands in order to assign responsibilities, coordinate fires and manoeuvre, and to control combat operations.

course of action

A possible plan open to an individual or commander that would accomplish, or is related to the accomplishment of, the mission. Note: It is initially stated in broad terms with the details determined during staff wargaming.

critical capability

A characteristic or key element of a force that, if destroyed, captured or neutralised, would significantly undermine the fighting capability of the force and its centre of gravity. Note: It is not necessarily a weakness but any source of strength or power that is capable of being attacked or neutralised. Example: an adversary's air defence.

critical event

An event that describes where and when the enemy is expected to take significant action or make crucial decisions during an anticipated course of action. Note: These events may be developed or grouped into enemy decisive events and provide a focus for detailed course of action analysis.

critical requirement

An essential condition, resource or means that is required for a critical capability to be fully functional.

critical vulnerability

An aspect of a critical requirement which is deficient or vulnerable to direct or indirect attack that will create decisive or significant effects.

decision point

A point in space and time, identified during the planning process, where it is anticipated that the commander must make a decision concerning a specific course of action

decisive event

A major event or effect that is a precondition to the successful disruption or dislocation of the enemy centre of gravity within the framework of the superior commander's intent.

decisive terrain

Terrain that may have an extraordinary impact on the outcome of the operation. The designation of decisive terrain implies that the success of the operation depends on the seizure or retention of the terrain.

echelon

A subdivision of a headquarters, for example, forward echelon, rear echelon.

end state

The desired outcome for the operation or the state which the commander wishes to exist when the operation, mission or activity is complete.

enemy

Any nation, group or body designated as enemy by the Australian Government.

Note:

1. Enemy is a strategic term used by the Australian Government.

environment

The surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation.

essential elements of friendly information

Key questions likely to be asked by adversary officials and intelligence systems about specific friendly intentions, capabilities, and activities, so they can obtain answers critical to their operational effectiveness.

essential task

Those tasks which must be completed to allow achievement of the mission or superior commander's intent.

force element

A component of a unit, a unit, or an association of units having common prime objectives and activities.

forward edge of the battle area

The foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating, designated to coordinate fire support, the positioning of forces, or the manoeuvre of units.

friendly

A contact positively identified as friendly.

high-value target

1. Assets which are likely to be required for the completion of the enemy commander's mission.
2. A target the enemy commander requires for the successful completion of the mission. The loss of

high-value targets would be expected to seriously degrade important enemy functions throughout the friendly commander's area of interest.

hostile force

Any civilian, paramilitary, or military force or terrorist, with or without national designation, that has committed a hostile act, exhibited hostile intent, or has been designated hostile by the Australian Government.

information operations

The operational level planning and execution of coordinated, synchronised and integrated lethal and non-lethal actions against the capability, will and understanding of target systems and/or target audiences, particularly decision-making, while protecting and enhancing our own.

intelligence, surveillance and reconnaissance

A collection activity that synchronises and integrates the acquisition, processing and provision of information and single-source intelligence by sources and agencies tasked to satisfy a collection requirement.

key terrain

Any locality or area the seizure or retention of which affords a marked advantage to either combatant.

line of operation

In a campaign or operation, a line linking decisive points in time and space on the path to the centre of gravity.

main effort

A concentration of forces or means, in a particular area and time, where a commander seeks to bring about a decision.

method

A description of the means by which the commander achieves their purpose explained in terms of effects created on the enemy.

mission command

A philosophy of command and a system for conducting operations in which subordinates are given a clear indication by a superior of their intentions. Note: The result required, the task, the resources and any constraints are clearly enunciated; however, subordinates are allowed the freedom to decide how to achieve the required result.

mobility and survivability

The mobility and survivability battlespace operating system provides a diverse range of effects that contribute in the broadest sense to knowing and shaping the physical dimension. These effects are generated by five types of support that are integrated through the command, control, communication, computers and intelligence of the mobility and survivability effort. These systems include:

1. geospatial support to enhance knowledge of the physical dimension;
2. mobility support to enhance friendly freedom to physically manoeuvre;
3. counter mobility support to deny the enemy freedom to physically manoeuvre;
4. survivability support to reduce the effects of hazards; and
5. sustainability support to enable a force to maintain the necessary level of fighting power.

modified combined obstacle overlay

A product used to depict the battlefield's effects on military operations. It is normally based on a product depicting all obstacles to mobility, modified to also depict the following which are not prescriptive nor inclusive:

1. cross-country mobility classifications (such as RESTRICTED);
2. objective;

3. avenues of approach and mobility corridors;
4. likely locations of countermobility obstacle systems;
5. defensible terrain;
6. likely engagement areas; and
7. key terrain.

movement

The activity involved in the change in the location of equipment, personnel or stocks as part of a military operation which requires the supporting capabilities of mobility, transportation, infrastructure, movement control and support functions.

named area of interest

A geographical area where information which will confirm or deny enemy intentions can be collected.

objective

A clearly defined and attainable goal for a military operation, for example, seizing a terrain feature, neutralising an adversary's force or capability or achieving some other desired outcome that is essential to a commander's plan and towards which the operation is directed.

operation order

A directive, usually formal, issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation.

penetration

In land operations, a form of offensive which seeks to break through the enemy's defence and disrupt the defensive system.

personnel

Those individuals required in either a military or civilian capacity to accomplish the assigned mission.

phase line

A line utilised for control and coordination of military operations, usually a terrain feature extending across the zone of action.

purpose

Describes why a commander is conducting an operation and the contribution to the superior commander's plan.

reconnaissance

A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy, or to secure data concerning the meteorological, hydrographic or geographic characteristics of a particular area.

reserve

A force held to counter unforeseen situations or to impact on future events

restriction

A prohibition on activities that a superior commander or another authority might impose. Note: A restriction may be:

1. legal (imposed by international and domestic laws);
2. moral and ethical (these limitations are now very largely absorbed into international norms and values); or
3. political (which include, in the case of multinational operations, what is considered acceptable by all contributing countries).

stakeholder

A person, entity or organisation with a pecuniary and/or significant interest or influence in a particular issue.

surveillance

The systematic observation of aerospace, surface or sub-surface areas, places, persons or things by visual, aural, electronic, photographic, or other means.

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threat

A potential event or intention that could adversely affect the security of a facility, asset or function, for example, loss, damage, destruction, reduced capacity and compromise.

warning order

A preliminary notice of an order or action which is to follow.

ABBREVIATIONS

1. The principal source for Australian Defence Force abbreviations is the Australian Defence Glossary located at <http://adg.eas.defence.mil.au/adgms>. Abbreviations contained within this publication are in accordance with the business rules, guidelines and conventions for the Australian Defence Glossary at the time of its release. The following abbreviations are used throughout this publication; however, commonly used terms have been presented in their abbreviated format throughout the publication and have not been included in this list.

AA	avenue of approach
AD	air defence
AI	area of interest
AO	area of operations
ASCOPE	area, structures, capabilities, communications, organisation, people, events
BOS	battlespace operating systems
CAR	combined arms rehearsal
CC	critical capability
CCIR	commander's critical information requirement
CDP	commander's decision point
CMAP	combat military appreciation process
COG	centre of gravity
COS	chief of staff
CONOPS	concept of operations
CR	critical requirement
CS	combat support
CV	critical vulnerability
DE	decisive event
DP	decision point
DSO	decision support overlay
EA	engagement area
ET	essential tasks
FE	force element

FASSD	feasible, acceptable, suitable, sustainable, distinguishable
FRAGO	fragmentary order
HPT	high pay-off target
HVT	high-value target
HVTL	high-value target list
IMAP	individual military appreciation process
IPB	intelligence preparation of the battlespace
IR	intelligence requirement
ISR	intelligence, surveillance and reconnaissance
LOO	line of operation
MA	mission analysis
MC	mobility corridors
MCOO	modified combined obstacle overlay
MDCOA	most dangerous course of action
ME	main effort
MLCOA	most likely course of action
MOP	measure of performance
NAI	named area of interest
OPLAN	operation plan
ORBAT	order of battle
OS	offensive support
PIR	priority intelligence requirement
ROC	rehearsal of concept
SMAP	staff military appreciation process
SMEAC	situation, mission, execution, administration and logistics, command and signals
SOM	scheme of manoeuvre
TAI	target areas of interest
TASKORG	task organisation
TCV	targetable critical vulnerability
TPL	time phase line
TTP	tactics, techniques and procedures

2. The following abbreviations appear in tables and figures within the publication.

Bn battalion

C41	command, control, communications, computers and intelligence
CATK	counterattack
CI	counterintelligence
CIS	communication and information system
C-ISR	counter-intelligence, surveillance, reconnaissance
CIMIC	civil-military cooperation
CIVPOL	civilian police
COMMS	communication
Coy	company
Div	division
EBA	engineer battlefield assessment
EEFI	essential elements of friendly information
FFIR	friendly forces information requirement
FSC	fire support coordination
FSCL	fire support coordination line
FSCoord	fire support coordination
HN	host nation
IO	information operations
Inf	infantry
IVO	in vicinity of
LAV	light armoured vehicle
mech	mechanised
MS	mobility and survivability
obj	objective
pl	platoon
PL	phase line
PME	principal mission element
POL	petrol, oils and lubricants
RAS	risk appreciation summary
recon	reconnaissance
VBIED	vehicle-borne improvised explosive device

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CHAPTER 1

MILITARY APPRECIATION PROCESS OVERVIEW

SECTION 1-1. BACKGROUND

- 1.1** The military appreciation process (MAP) is a decision-making and planning tool applicable at all levels that can be used by a commander or at a higher level by a commander and their staff. By its nature it is command-led, iterative and cyclical, and it is used to develop a tactical plan in response to a given situation across the spectrum of operations.
- 1.2** The MAP consists of the following five steps:
- Step 1 – Preliminary Analysis (see [Chapter 2](#));
 - Step 2 – Mission Analysis (MA) (see [Chapter 4](#));
 - Step 3 – COA Development (see [Chapter 5](#));
 - Step 4 – COA Analysis (see [Chapter 6](#)); and
 - Step 5 – Decision and Execution (see [Chapter 7](#)).
- 1.3** These steps are supported by the continuous process of intelligence preparation of the battlespace (IPB) (see [Figure 1-1](#)).

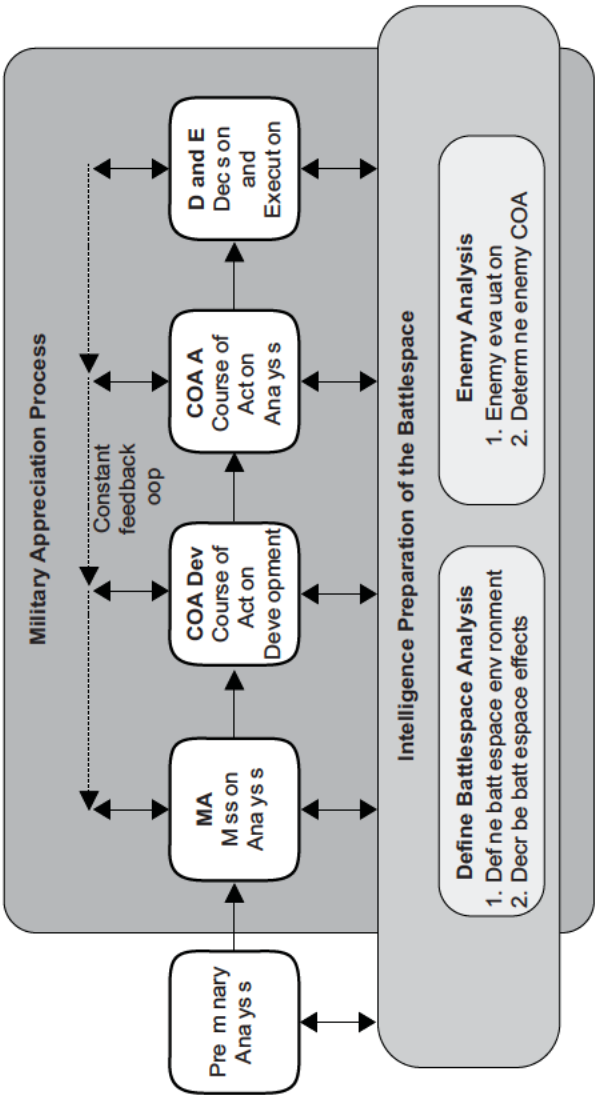


Figure 1-1: The Military Appreciation Process

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- 1.4 The MAP has a top-down planning focus where the situation and commander's intent determine the COA concepts that are then developed and refined in subsequent steps. [Annex B to Chapter 4](#) details the responsibilities of the commander and staff.

SECTION 1-2. APPLICATION OF THE MILITARY APPRECIATION PROCESS

- 1.5 The MAP can be applied individually or by a commander and staff, the choice being based on the planning time available and staff resources. The primary focus of this publication is for a commander leading a staff planning process. [Chapter 9](#) details the individual military appreciation process (IMAP) and relates to commanders conducting individual planning.
- 1.6 The focus of any planning process should be to develop a timely, flexible, tactically sound, fully integrated and synchronised plan that increases the likelihood of mission success with the fewest casualties possible. However, any operation may develop faster than and quite differently from that envisaged in the initial staff military appreciation process (SMAP). Even the most detailed analysis cannot anticipate every possible enemy action, unexpected opportunity or change in orders. In these situations it may not be possible or appropriate to follow or review the full SMAP, but it is critical to identify when the situation or predicted situation has changed. The commander may therefore need to direct how the SMAP is to be abbreviated, accepting a lesser degree of analysis. This can only be done effectively when the commander and staff are familiar with the full process. A graphical overview of the SMAP is shown [Annex A](#).
- 1.7 The following four techniques can be applied to save time in the MAP:
- a. Increase the commander's involvement in the MAP, allowing them to make decisions during the process without having to wait for detailed briefings after each step.

- b. Include more specific direction in the commander's guidance, limiting options and focusing staff on the planning aspects that the commander feels are most important.
- c. Limit the number of COA to be developed and analysed to only one, in extreme cases, in order to achieve a workable plan that meets the mission in the time available.
- d. Maximise parallel planning with the early issue of WNGO, and the sharing of all information with subordinates, especially IPB products. While this is an extremely effective method of increasing tempo, it must be balanced against the risk that the efforts of subordinates will be wasted.

1.8 The relationship between time constraints and planning considerations is outlined in [Figure 1-2](#).

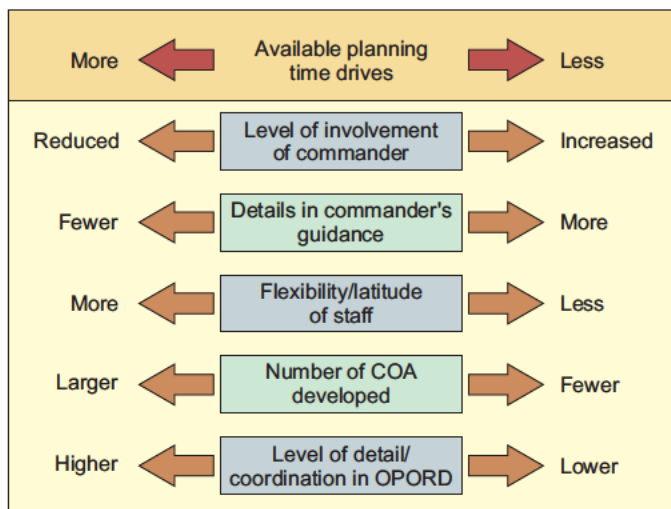


Figure 1-2: Time-Planning Relationship

Annex:

- A. [Overview and Outputs of the Staff Military Appreciation Process](#)

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ANNEX A TO CHAPTER 1

OVERVIEW AND OUTPUTS OF THE STAFF MILITARY APPRECIATION PROCESS

1. [Figure 1–3](#) shows the overview and outputs of the SMAP.

1A-2

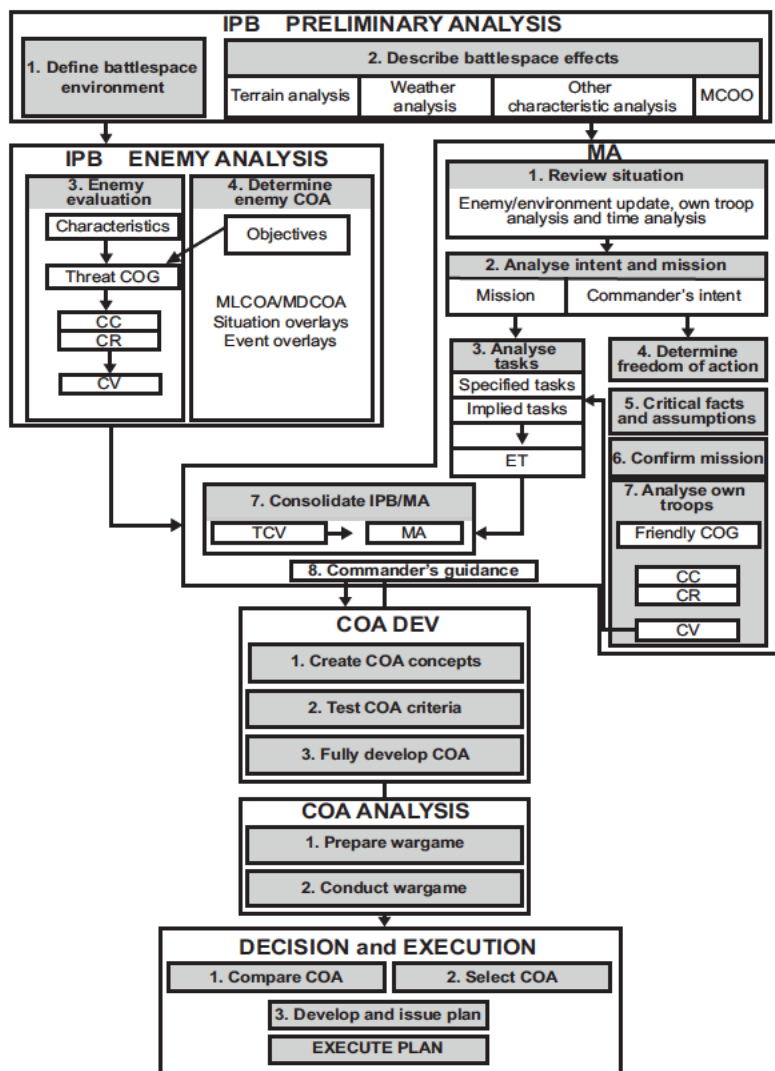


Figure 1–3: Military Appreciation Process Overview and Outputs

CHAPTER 2

STEP 1 – PRELIMINARY ANALYSIS

Overview

- 2.1** Preliminary analysis is the first step in the MAP and is used predominantly to focus the commander and/or planning group on an impending operations planning activity. The MAP commences with the receipt of an OPORD, a fragmented order (FRAGO), a WNGO or guidance from a higher HQ. Once the new mission is received, the commander and/or key staff must conduct an initial analysis of the situation; this is known as the preliminary analysis.

Scope

- 2.2** This initial assessment defines the purpose, the time available for planning and the desired end state without pre-empting full MA or IPB.

Outputs

- 2.3 Issue Commander's Initial Guidance.** The commander will issue initial guidance to the staff and/or subordinates. It should cover the following:
- a. the situation (threat, stakeholders, friendly forces, environment);
 - b. the purpose and end state;
 - c. imposed key timings;
 - d. the time available for planning, including any abbreviations to the MAP or planning focus;
 - e. initial information requirements and reconnaissance effort;
 - f. initial risk guidance; and
 - g. any requirement for a WNGO, including preliminary movements.

-
- 2.4 Issue Warning Order.** To maximise parallel planning and the time available for subordinate planning, an initial WNGO may be issued to subordinates at this time. This WNGO can be confirmed or refined at the end of the MA, and again on completion of the MAP while the final plan is being produced.
- 2.5 Conduct Planning Time Appreciation.** Time determines the level of detail to which the staff can plan. The commander must weigh up the desired degree of perfection in planning as opposed to the need to act before the enemy does in order to seize and retain the initiative. The time plan is thus one of the most important early decisions taken by the commander.
- 2.6** The 'one-third, two-thirds' rule should be applied when developing a time plan, that is, staff should allocate one-third of the available time before an operation commences to produce and disseminate the plan. The other two-thirds are required for subordinate battle procedure.
- 2.7** Of the one-third of the time available, a recommended percentage allocation to each of the steps in the process is as follows:
- a. IPB (including ground reconnaissance) – concurrent with MA and ongoing;
 - b. preliminary analysis – 10 per cent;
 - c. MA – 20 per cent;
 - d. COA development – 20 per cent;
 - e. COA analysis – 40 per cent; and
 - f. orders and execution – 10 per cent.
- 2.8 Identify Imposed Key Timings.** A time appreciation is conducted by determining a critical time line and planning in reverse order. Imposed key timings are given by the superior commander and may include:
- a. the time by which the superior commander's end state is to be achieved, and
 - b. H-hour and known phase time lines.
-

CHAPTER 3

INTELLIGENCE PREPARATION OF THE BATTLESPACE

SECTION 3-1. OVERVIEW

- 3.1** The IPB is a systematic yet dynamic process for analysing the enemy and the environment. It is designed to support staff planning and prepare the foundations for informed military decision-making within the MAP. IPB is a processing medium through which intelligence staff provide an ongoing assessment of environmental effects on operations, and an estimate of enemy capabilities, intent, COA, centre of gravity (COG) and critical vulnerabilities (CV). Key outputs of IPB include the modified combined obstacle overlay (MCOO) and the identification of critical enemy vulnerabilities for further consideration in decisive event (DE) planning.
- 3.2** The four steps of IPB are as follows:
- Step 1 – Define the Battlespace Environment (see [Section 3-2](#));
 - Step 2 – Describe the Battlespace Effects (see [Section 3-3](#));
 - Step 3 – Evaluate the Enemy (see [Section 3-4](#)); and
 - Step 4 – Determine Enemy COA (see [Section 3-5](#)).
- 3.3** All intelligence product development should directly support planning. IPB interaction with the MAP creates the commander's priority intelligence requirement (PIR). These are essential as they direct what the collection priorities should be.
- 3.4** The identification of a mission or likely tasks will also allow the IPB to focus further on the issues of immediate concern and relevance to the likely mission.

-
- 3.5** Higher HQ are responsible for providing their intelligence assessments and products to their subordinate HQ to assist in planning. Once these are received, subordinate HQ can focus on their areas of responsibility, aided with intelligence on the wider battlespace.
- 3.6** IPB assists the commander in applying and maximising combat power selectively in the battlespace at the decisive time and place as follows:
- a. by describing the operating environment and the effects of that environment on both friendly and enemy operations;
 - b. by determining the enemy's likely COA, including enemy intelligence collection activities, the enemy's COG and the enemy's CV; and
 - c. by integrating friendly collection activities to meet the commander's decision requirements relative to gaps in knowledge or the triggering of the commander's decision point (CDP).

Intelligence Preparation of the Battlespace and Decision-making

- 3.7** IPB begins with the commencement of Step 1 of the MAP – Preliminary Analysis (see [Chapter 2](#)). It may be triggered by the receipt of orders, a change in the enemy situation or a shift in operational posture.
- 3.8** All aspects of the IPB process should be addressed prior to the conclusion of Step 2 of the MAP – MA (see [Chapter 4](#)) to enable optimal intelligence inputs to be used in DE planning and to completely inform the commander prior to the commander's guidance being delivered. Inherent in the IPB process is the requirement to continually review, refine and understand the environmental effects on operations and the adversary.

Intelligence Preparation of the Battlespace Outputs and Military Appreciation Process Inputs

- 3.9** IPB outputs constitute the intelligence inputs to the MAP. The IPB process is ongoing, with each element being updated when there is change. Central updates are provided to all staff by the intelligence cell at predetermined stages in the MAP. The principal staff are briefed on critical issues throughout the process whenever the S2 deems it necessary.
- 3.10** The commander's decision cycle will often not allow time for the production and consideration of traditional lengthy written intelligence products. Therefore, the delivery of the IPB outputs is becoming more graphical in nature to convey complex analysis in a simple visual form. This achieves a reduction of decision-action cycles within the MAP. Detailed written analysis in the form of traditional intelligence products can be produced by the intelligence cell when time permits.
- 3.11** The symbols used for IPB are shown in [Annex A](#) and an example of an IPB briefing format is shown in [Annex B](#).

SECTION 3-2. INTELLIGENCE PREPARATION OF THE BATTLESPACE STEP 1 – DEFINE THE BATTLESPACE ENVIRONMENT

- 3.12** The battlespace includes all aspects of the environment encompassed by the area of operations (AO) and the area of interest (AI). This includes the operational environment (oceanic, continental, aerospace, littoral, and electromagnetic) and the relevant aspects of society, politics, culture, religion (including gender and child protection aspects) and the economy. Definition of the battlespace identifies specific features of the environment, or activities and their physical space, that may influence own COA. It also determines the initial intelligence requirements (IR) and any assumptions required.
- 3.13** Complex terrain poses additional constraints and challenges. It is composed of physical, human and informational elements

that interact in a mutually reinforcing fashion leading to extremely high density operating environments and enormous friction in military activities. Hostile forces may use complex terrain in an attempt to operate below the land force's detection and discrimination thresholds, thereby creating a high level of uncertainty. In this situation, planning and tactical action may need to commence with incomplete or insufficient information. This step consists of four activities (see [Figure 3-1](#)).

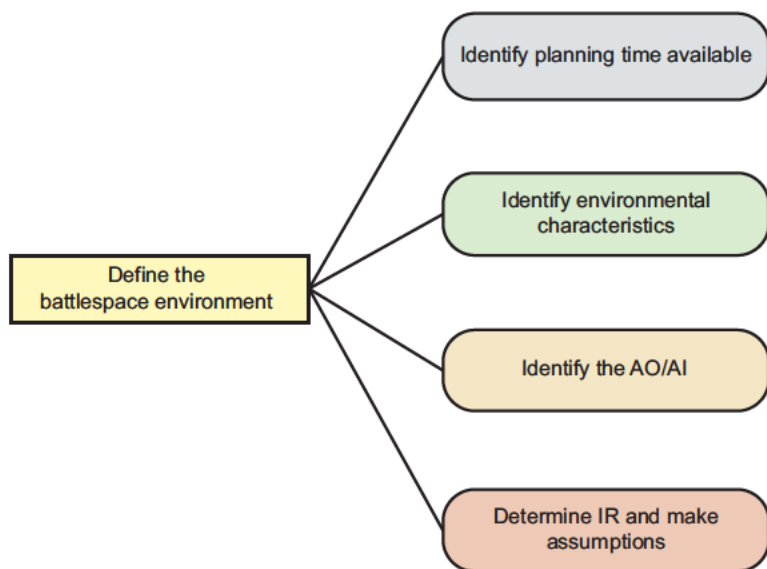


Figure 3-1: Defining the Battlespace Environment

Step 1 Activity 1 – Identify Planning Time Available

- 3.14** A timeline is developed using a reverse planning approach to determine the time available for the IPB process. The time allocated to the initial IPB must relate to the time by which that information is required by the staff conducting the MA.

Step 1 Activity 2 – Identify Environmental Characteristics

3.15 Key environmental factors of the battlespace that will influence enemy or friendly COA need to be identified. These include:

- a. geography, terrain and weather;
- b. population demographics (eg, ethnic groups, religious groups, gender and child protection aspects, ages and wealth);
- c. political or socioeconomic factors (eg, the role of clans, gangs or tribes);
- d. infrastructure, including transportation and telecommunications;
- e. ROE, legal restrictions, treaties and agreements; and
- f. general enemy capability, location, mobility, weapon types and ranges.

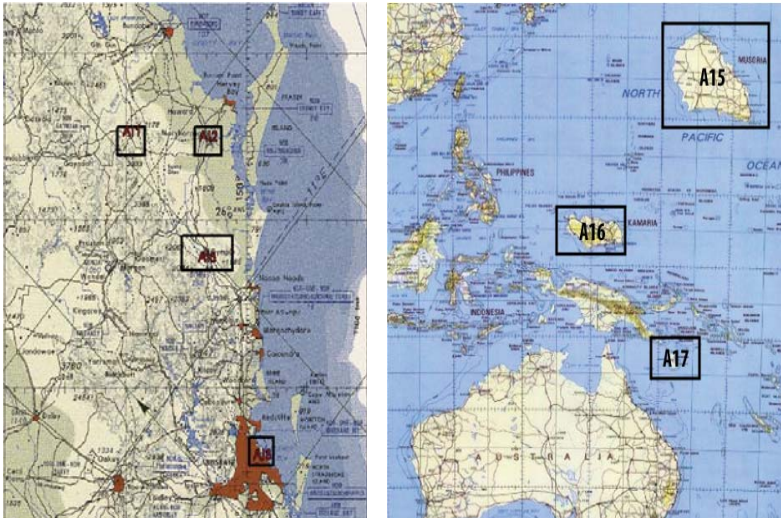
Step 1 Activity 3 – Identify the Area of Operations/Area of Interest

3.16 The AO is the geographic area in which the commander is assigned the responsibility and authority to conduct military operations. An example AO is shown in [Figure 3–2](#).



Figure 3–2: Example Area of Operation

- 3.17** The AO is where the command will conduct its operations. The evaluation of the battlespace effects is generally more thorough and detailed within the AO than it is within the AI. The AO is normally confined within the boundaries specified in the OPORD or contingency plan from the higher HQ that defines the commander's mission.
- 3.18** The AI is the geographical area (including airspace) from which information and intelligence are required for the planning and conduct of operations within the AO. An example AI is shown in [Figure 3–3](#).



- AI1: Biggenden crossroads for SSR, lateral to AI2
- AI2: Maryborough crossroads for MSR, lateral to AI1
- AI3: Jimna MAF MDZ
- AI5: MUSORIA political strategic direction
- AI6: KAMARIA potential strategic support
- AI7: LEGAIS amphibious task group location

Figure 3-3: Example Area of Interest

3.19 The AI can be larger than the AO or can consist of smaller discrete areas outside the AO. AI are characterised by the following:

- a. other friendly force task locations critical to achieving the higher commander's intent;
- b. anticipated future task locations;
- c. the time frame for the conduct of operations and the location of any friendly force activities or capabilities that could influence operations during that time;

-
- d. the locations of enemy forces able to project power or move into the AO within the time frame of friendly operations;
 - e. the ability to be subdivided into sub-AI (eg, ground, air and political AI) to focus and coordinate intelligence gathering as required; and
 - f. the absence of restrictions other than the requirement to identify any factor that may threaten or assist in the accomplishment of the commander's intent.

Step 1 Activity 4 – Determine Intelligence Requirements and Make Assumptions

3.20 Intelligence Requirements. IR comprise questions about the enemy or environment for which there is a need to collect information and produce intelligence. At the operational and tactical levels, IR are usually expressed as specific questions about an enemy's order of battle (ORBAT), deployments and intentions, and local environmental conditions.

3.21 Information Requirements. Once the IR are determined and prioritised by the commander, the intelligence staff decide how the commander's IR are to be met by determining what information is required. Information requirements are simply those elements of information which need to be collected and processed to meet the IR. An IR may generate multiple information requirements or, if the IR itself is a simple one, it may translate directly into a single information requirement. Information requirements may be identified by discussion within the HQ staff, as a result of an intelligence estimate, or as a result of the IPB process.

3.22 Information requirements are promulgated to subordinate units and formations in the intelligence, surveillance and reconnaissance (ISR) collection plan. The ISR collection plan tasks those subordinate assets most likely to be able to gain the specific information required on the battlespace and enemy. It is developed and refined progressively throughout the IPB as information requirements on the battlespace and enemy are identified and answered. The ISR collection plan is

managed by the collection manager, who is located in the S2 cell but liaises heavily with the S3 cell. IR outside the scope of own capabilities are submitted to senior and flanking formations, units and agencies.

- 3.23 Assumptions.** In reality it may not be possible to meet or completely answer some of the IR in the time available. The enemy will be doing its best to deny or deceive friendly ISR collection efforts to answer the IR. When some IR cannot be met or are in doubt, assumptions on the environment, the enemy and other factors must be made to keep the planning process moving. These assumptions must be listed and the commander briefed to provide their own verification. The ongoing confirmation of assumptions, where possible, forms a key part of intelligence collection operations. When an assumption is made a method must immediately be put in place to prove the assumption true or false. Normally this involves an asset being tasked to answer the question the assumption poses. If any assumption proves to be false, assessments and decisions based on that assumption must be re-examined. All assumptions must be continually reassessed as IR are fulfilled.

SECTION 3-3. INTELLIGENCE PREPARATION OF THE BATTLESPACE STEP 2 – DESCRIBE THE BATTLESPACE EFFECTS

- 3.24** Describing the battlespace effects involves evaluating and then integrating all the environmental effects that influence both friendly and enemy operations. This reveals the full range of broad enemy COA available and the whole character of the terrain, weather, politics, gender and child protection aspects, and economics, enabling the commander to quickly exploit opportunities and counter otherwise unanticipated threats. Describing the battlespace effects consists of four activities (see [Figure 3-4](#)).

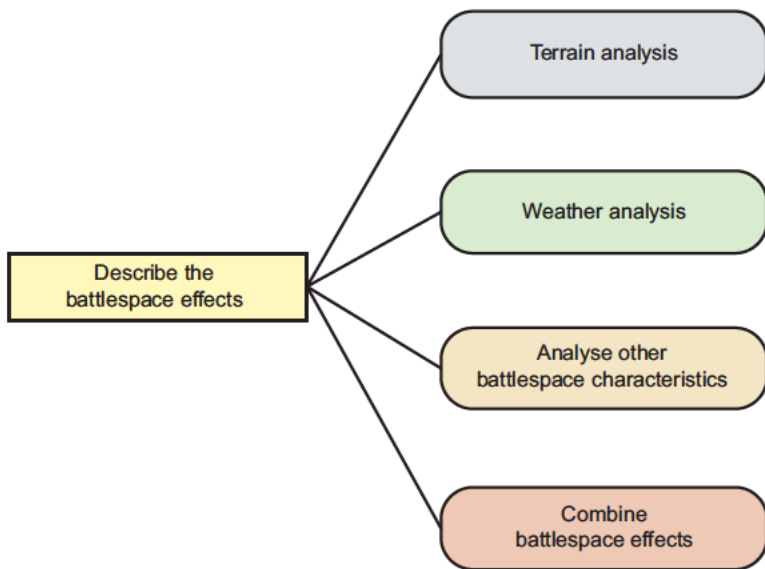


Figure 3-4: Describing the Battlespace Effects

Step 2 Activity 1 – Terrain Analysis

3.25 Terrain analysis consists of an evaluation of the military aspects of the battlespace's terrain to determine its effects on military operations. The aspects evaluated are observation and fields of fire, cover and concealment, obstacles, key terrain and decisive terrain and avenues of approach (OCOKA). These aspects are then combined into one overlay known as the MCOO. The MCOO is the foundation overlay upon which all other IPB products are based. An example of MCOO and together with preparation notes is shown in [Annex C](#).

3.26 Observation and Fields of Fire. Observation is the ability to see the enemy visually or through the use of surveillance devices. Fields of fire are the areas that a weapon system covers effectively from a given point. Areas of good observation and fields of fire are marked by parallel diagonal lines on the observation and fields of fire overlay. This is the first step in

developing the MCOO. The observation and fields of fire overlay is used to identify the following:

- a. potential engagement areas (EA);
- b. defensible terrain and specific system positions;
- c. vulnerable areas for manoeuvring forces; and
- d. surveillance positions.

3.27 Concealment and Cover. Concealment is protection from observation but not from fire. Cover is protection from the effects of fire. Areas offering good concealment and cover are marked on the concealment and cover overlay. This is the second step in developing the MCOO. This overlay is used to identify the following:

- a. defensible terrain and potential battle positions; and
- b. potential assembly, deployment, dispersal and hide areas.

3.28 An example of the analysis of observation and fields of fire, and concealment and cover overlay is shown in [Figure 3–5](#).

3-12

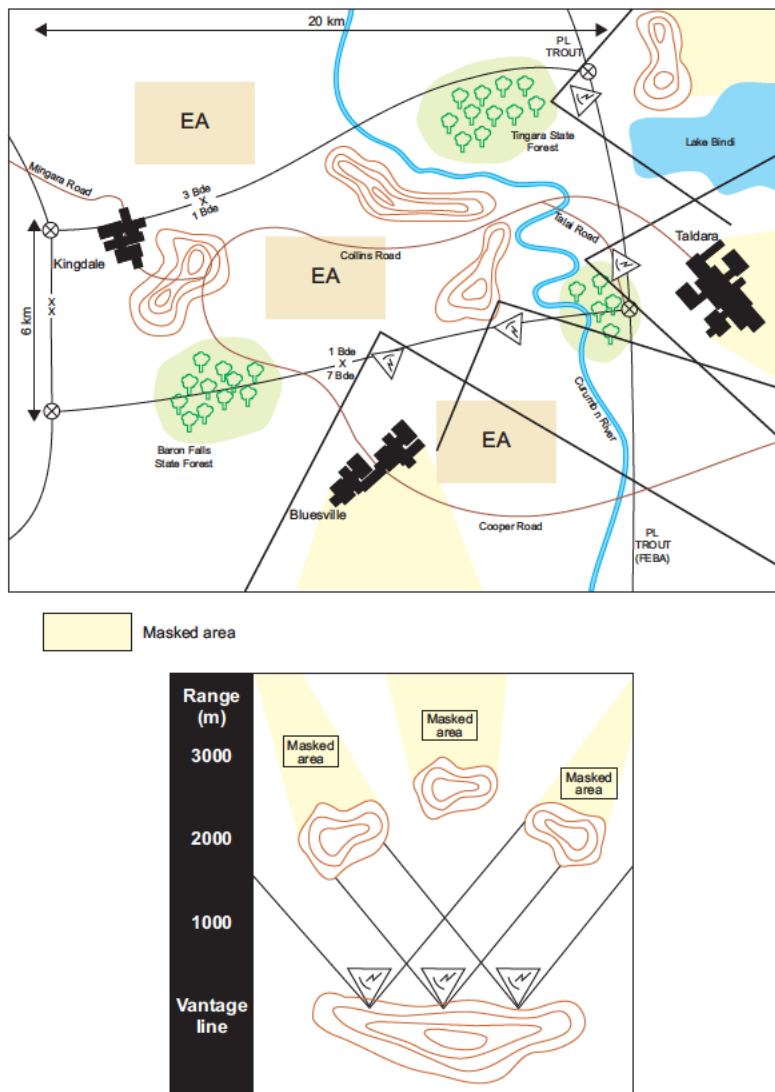


Figure 3-5: Example Overlay Showing Observation, Fields of Fire, and Concealment and Cover

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- 3.29 Obstacles.** Obstacles are natural or artificial terrain features that stop, impede or divert military movement. The effect of each obstacle on the mobility of the evaluated force (friendly and enemy) should be determined. Overlays are prepared for each type of obstacle as required. Factors to consider include:
- a. vegetation (tree spacing and trunk diameter);
 - b. surface drainage (stream width, depth, velocity, bank slope and height);
 - c. surface materials (soil types and conditions that affect mobility);
 - d. surface configuration (slopes that affect mobility);
 - e. obstacles (natural and artificial, as well as ground and low-level air mobility);
 - f. transportation systems (bridge classes and road rating); and
 - g. the effects of weather and conditions such as flooding, fires or dust.
- 3.30** The effects of all obstacles are combined onto one obstacle overlay called the combined obstacle overlay. An example of this overlay is shown in [Figure 3–6](#), which illustrates the cumulative evaluation of all obstacles using the following three classifications:
- a. *Unrestricted.* Unrestricted terrain is that which is free of any movement restrictions and allows a wide manoeuvre of forces supported by well-developed road networks. Typically unrestricted terrain for armoured or mechanised forces is flat to moderately sloping, with widely spaced obstacles such as trees or rocks. Unrestricted terrain is not marked on the overlay.
 - b. *Restricted.* Restricted terrain is that which hinders movement and manoeuvre in formation to some extent but requires little effort to enhance mobility. Restricted terrain for armoured or mechanised forces typically consists of moderate to steep slopes, or moderate to

densely spaced obstacles such as trees, rocks or buildings. Lines of communication may be hindered by poorly developed roads. Restricted terrain areas are depicted by diagonal lines marked on the overlay.

- c. *Very Restricted.* Very restricted terrain is that which severely hinders or slows movement and manoeuvre in formation, and requires effort to enhance mobility. Very restricted terrain for armoured or mechanised forces is typically characterised by steep slopes and large or densely spaced obstacles with little or no supporting roads. It should be noted that very restricted terrain does not allow a force to deploy through the terrain in linear tactical formation. However, a force deployed in column will usually have little difficulty crossing such terrain. Additionally, terrain that is very restricted for armour would usually be considered only restricted for dismounted infantry. Historically, very restricted terrain has offered an unexpected approach that has achieved surprise despite the tactical risk involved. Very restricted terrain is depicted by cross-hatched lines marked on the overlay.

3-15

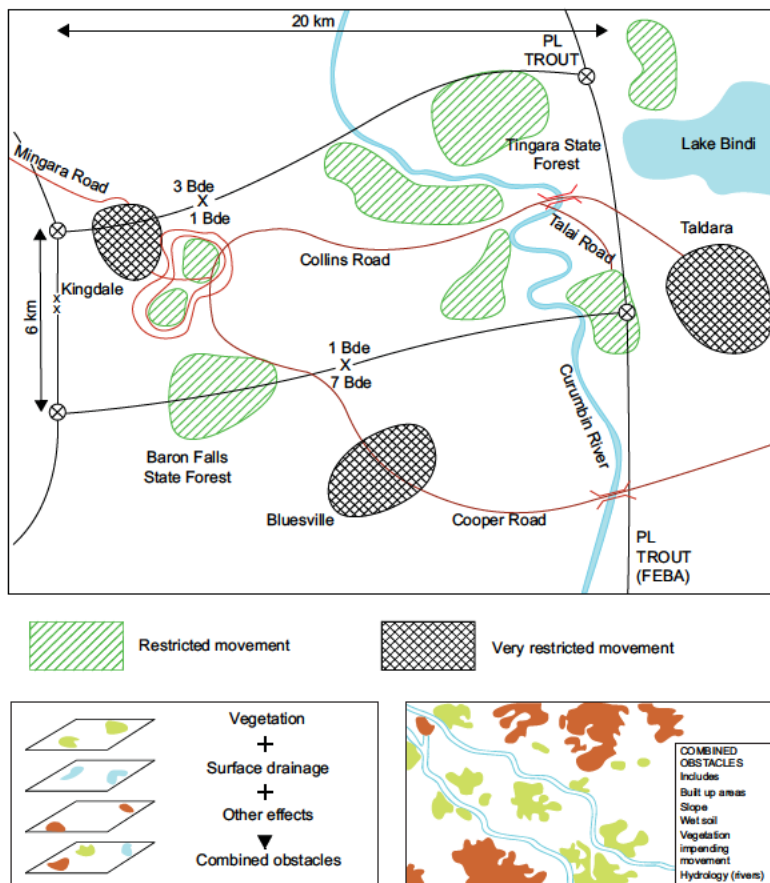


Figure 3-6: Example Combined Obstacle Overlay

3.31 Key and Decisive Terrain. Key terrain is any locality or area the seizure, retention, or control of which affords a marked advantage. Key terrain is often selected for battle positions or objectives. It is evaluated by assessing the impact of its seizure by either force upon the results of battle. Key terrain is depicted by a large 'K' in a circle.

3.32 Decisive terrain, also known as vital ground, is key terrain that has an extraordinary impact on the operation. The designation of decisive terrain implies that the success of the entire operation depends on the seizure or retention of a single piece of ground; thus it is not commonly used. Decisive terrain is depicted on a combined obstacle overlay by a large 'D' in a circle.

3.33 Avenues of Approach. An avenue of approach (AA) is an air or ground route of an attacking force of a given size leading to its objective or to key terrain in its path. All COA involving manoeuvre depend on available AA. During offensive operations the evaluation of AA leads to a recommendation on the best AA for friendly forces to the objective, and identification of AA available to the enemy for withdrawal or the movement of reserves. During defensive operations, AA that support the enemy's offensive movements and allow the withdrawal and movement of friendly reserves are identified. AA are developed using the following methods:

- a. *Identifying Mobility Corridors.* Mobility corridors (MC) are areas through which a force will be channelled because of terrain constrictions. The combined obstacle overlay is evaluated to identify corridors wide enough to support manoeuvre by forces in tactical formations. If friendly and enemy forces require MC of different width, perhaps due to doctrinal or equipment differences, it may be necessary to conduct two separate evaluations. MC are generally located in unrestricted terrain following the lines of roads and tracks. However, restricted terrain within very restricted terrain could also be utilised as an MC in certain situations.
- b. *Categorising Mobility Corridors.* MC must be categorised according to the size and type of the tactically deployed group that can be accommodated. Categorisation calculations are based two levels below friendly command level (in very restricted terrain the categorisation will be lower as required). For example, at

battalion level, MC are identified down to enemy platoon or troop size.

- c. *Grouping Mobility Corridors to Form Avenues of Approach.* An AA must provide ease of movement and enough width for the dispersal of a force large enough to significantly affect the outcome of the operation (normally one level below command level). For example, at battalion level, AA are identified down to enemy company or squadron size. Unlike MC, AA may include areas of very restricted terrain (since these show the general area through which a force may move). An example showing the grouping of MC into AA is provided in Figure 3–7.

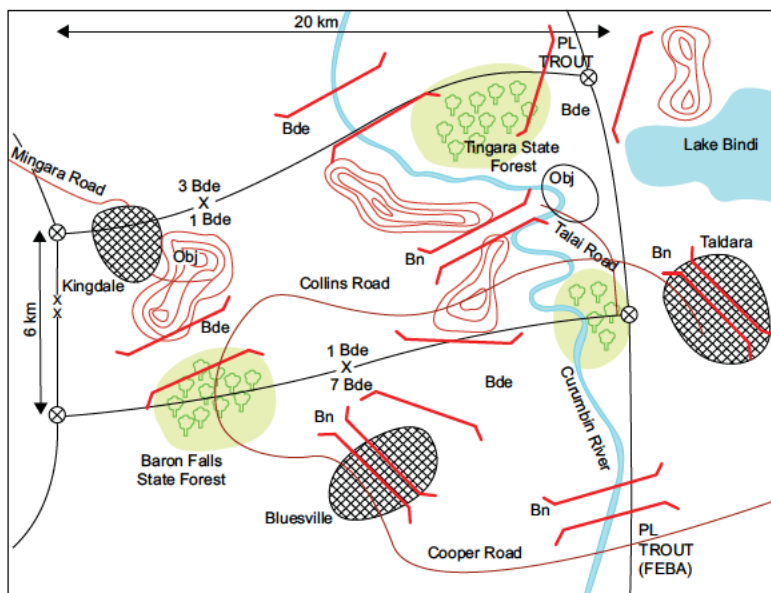


Figure 3–7: Grouping Mobility Corridors into Avenues of Approach

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- d. *Evaluating the Suitability of Avenues of Approach.* Each AA is assessed in accordance with its suitability for:
- (1) access to key terrain and adjacent AA;
 - (2) a degree of canalisation and movement;
 - (3) the use of concealment and cover;
 - (4) the use of observation and fields of fire;
 - (5) sustainability (lines of communication support); and
 - (6) providing direct access to the objective.
- e. *Evaluating the Effects of Avenues of Approach on Courses of Action.* An analysis of terrain must reflect its combined effects on possible broad enemy and friendly COA. To achieve this, the areas are identified within each AA according to their potential for use as:
- (1) EA (defensive) and ambush sites (offensive);
 - (2) battle positions covering killing areas and ambush sites;
 - (3) immediate or intermediate objectives (key terrain dominating AA or objectives); and
 - (4) other areas as required (assembly and dispersal areas, observation points, artillery firing positions, air defence [AD] positions, intelligence and target acquisition positions, forward arming and refuelling points, landing zones, drop zones, and infiltration routes).
- f. *Prioritising Avenues of Approach.* AA are prioritised in accordance with how well they support the physical ability of the enemy to move along them. Most importantly, AA must not be confused with the enemy's direction of attack or axis of advance, either of which may be different from AA in order to achieve tactical surprise.
-

- 3.34 Produce Modified Combined Obstacle Overlay.** All terrain analysis results are combined into the MCOO. An example MCOO, together with preparation notes, is contained in [Annex B](#). The MCOO consists of a combined obstacle overlay showing cross-country mobility restrictions with the following additional information:
- a. key and decisive terrain (key terrain is grouped to correspond to likely battle positions or objectives);
 - b. MC grouped into prioritised and labelled AA (friendly and enemy);
 - c. objectives;
 - d. EA;
 - e. defensible terrain (the terrain or area which dominates the AA, EA or objectives);
 - f. countermobility obstacle systems (friendly and enemy); and
 - g. area, structures, capabilities and communications, organisation, people, events (known by the mnemonic ASCOPE and discussed further in [paragraph 3.40a](#)) or political, military, economic, social, infrastructure and information (known by the mnemonic PMESII and discussed further in [paragraph 3.40b](#)).

Step 2 Activity 2 – Weather Analysis

- 3.35** Weather analysis consists of identifying the effects of weather and producing the weather effects matrix.
- 3.36 Identify the Effects of Weather.** The effects of weather are assessed by analysing the following categories:
- a. *Visibility.* Low visibility assists in concealing manoeuvre on the battlespace. Visibility may be affected by:
 - (1) extreme temperature – affects thermal sights;
 - (2) cloud cover – reduces illumination for passive image intensifiers;

-
- (3) precipitation – reduces line of sight visibility; and
 - (4) the available light – affected by moon phases associated with early evening, nautical twilight, sunrise, sunset, moonrise and moonset.
- b. *Winds.* The combat effectiveness of forces downwind is adversely affected by blowing dust, smoke, sand or rain. Upwind forces usually have better visibility. CBRN operations favour upwind forces. Strong winds limit airborne, air assault and aviation operations. Wind-blown dust, sand, snow or rain can hamper radars and communication systems.
 - c. *Rain.* Rain affects soil trafficability, visibility and the functioning of electro-optical systems. Heavy rain reduces the quality of stocks in storage. Heavy snow degrades communication systems and the effectiveness of many munitions and air operations.
 - d. *Cloud Cover.* Cloud cover limits illumination and reduces the solar heating of targets. Heavy cloud degrades the performance of many target acquisition systems, infra-red guided artillery and general aviation operations.
 - e. *Temperature and Humidity.* Temperature and humidity extremes reduce personnel and equipment capabilities, require special personnel shelters and equipment, and reduce aircraft payloads. Temperature 'crossovers', where background and target temperatures are almost equal, degrade thermal target acquisition systems.
- 3.37 Produce Weather Effects Matrix.** The effect of weather on military operations is shown on a weather effects matrix and on the MCOO as appropriate. It is critical that the influence of weather is calculated on its effects on combat systems, personnel, equipment and types of military operations. Effects are graded as favourable, unfavourable and marginal. An example weather effects matrix is shown in [Figure 3–8](#).

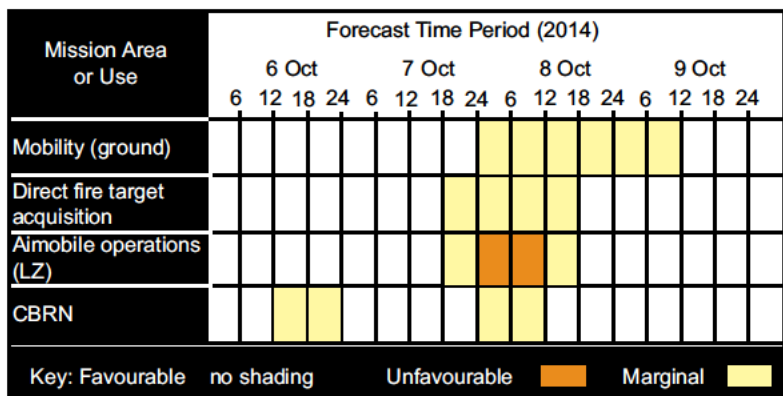


Figure 3-8: Example Weather Effects Matrix

Step 2 Activity 3 – Analyse Other Battlespace Characteristics

- 3.38** Other characteristics include any other aspects of the battlespace not addressed by terrain and weather analysis. There are two elements to this analysis; namely, the identification of the characteristics and the evaluation of their effect on military operations.
- 3.39** The effects of other characteristics in terms of their impact on broad friendly and enemy COA need to be determined. In some situations, particularly at the strategic and operational levels and at the tactical level in military support operations, these effects may be more important than terrain and weather. In particular, this will apply when a variety of limitations have been imposed on the friendly force for political reasons. As far as possible, planners should attempt to display and record the effects on an overlay and a matrix.
- 3.40** Other characteristics vary and will depend on the situation. The following two mnemonics can be useful in analysing other battlespace characteristics:
- ASCOPE:
 - A** = area;

- (2) **S** = structure;
- (3) **C** = capabilities and communication
- (4) **O** = organisation;
- (5) **P** = people; and
- (6) **E** = events; and

b. PMESII:

- (1) **P** = political;
- (2) **M** = military;
- (3) **E** = economic;
- (4) **S** = social;
- (5) **I** = infrastructure; and
- (6) **I** = information.

3.41 In some situations, particularly at the strategic and operational levels, these effects may be more important than terrain and weather. In particular, this will apply when a variety of limitations have been imposed on the friendly force for political reasons. While all human and information terrain characteristics are important, an understanding of the human characteristics of an AO/AI is crucial in asymmetric or complex environments. An analysis of other battlespace characteristics is undertaken using the mnemonic ASCOPE (see [paragraph 3.40a](#)), which addresses six characteristics of the environment:

- a. **Areas.** Areas are localities or aspects of the terrain within an AO that have significance to the lives of the local population. Key civilian areas include the social, ethnic, tribal, political, religious, criminal or other important enclaves. Areas may also include the locations of Australian or approved foreign nationals during an evacuation operation, or the areas where a hostile reception is expected for friendly troops. When based on the urban model, areas depict the urban core or central

business district, industrial areas, outlying high-rise areas, commercial ribbon areas and residential areas, including shantytowns. Considerations include:

- (1) *City Core*. This is the downtown or central business district.
- (2) *Core Periphery*. This is located on the edges of the city core with continuous fronts of brick or concrete and fairly uniform building heights.
- (3) *Commercial Ribbons*. These areas are composed of rows of retail stores, offices and restaurants along both sides of major streets and built-up areas.
- (4) *Residential Sprawl*. These areas consist of mainly low houses or apartments that are one to three storeys tall. They are primarily composed of detached dwellings that are usually arranged in irregular patterns along streets, with many smaller, open areas between structures.
- (5) *Industrial Areas*. These are generally located on or along major sea, rail or highway routes in urban complexes. Older complexes may be located within dense, randomly constructed or close orderly block areas.
- (6) *Outlying High-rise Areas*. These have a similar composition to city core areas but may be composed of clusters of more modern multi-storey high-rise buildings in outlying parts of the city.
- (7) *Shantytowns*. Shantytowns do not necessarily follow any patterns and may be found in many different zones within urban areas. Building construction can range from cardboard and tin to concrete block. As this evaluation aims to determine the human terrain of an environment alien to Australians, input from the local population as to how they divide the area is likely

to support a better understanding of the AO/AI than one generated solely by a friendly force examination.

- b. *Structures.* Analysing a structure involves determining how its location, functions and capabilities can support a military activity. Some important structures include government centres; security and military bases; communications infrastructure; roads, rail, power, water and sewerage infrastructures; airfields; ports; education facilities; hospitals; and places of worship. This tool can also aid in evaluating specific elements of the urban infrastructure that, if damaged, may adversely affect the living conditions within an AO/AI to the detriment of the mission. These elements may include power generation plants, water purification plants, pumping stations and sewage treatment plants. The analysis should also identify the locations of logistic resources that may contribute to mission accomplishment or assist the support activities of hostile forces in the sustainment of violent capabilities. The analysis may reveal specific warehouse sites, hospitals and medical supply locations, food stores and markets, building material locations, fuel storage areas, car or truck lots, maintenance garages, agricultural land, and appliance warehouses.
- c. *Capabilities.* Capabilities can refer to the ability of local authorities, the host nation or some other body to provide a populace with key functions or services. The most essential capabilities are those required to save, sustain or enhance life. The commander can obtain a useful guide by asking what a local population can already do for itself, what it can do for the commander's force and what the commander's force is likely to be directed (as asked) to do for the local population.
- d. *Organisations.* An examination of organisations should include the identification and analysis of each other government agency or non-government organisation present within an AO/AI. It should include an estimate of

these agencies' ability to influence and interact with the local population, security forces and each other. These organisations generally have a hierarchical structure, defined goals, established operations, fixed facilities or meeting places, and a means of financial or logistic support.

- e. *People*. There may be many different kinds of people within an AO/AI. Similar to organisations, people may be indigenous or alien to an AO/AI. An analysis of people should identify them by their various capabilities, needs and intentions. It is useful to separate people into distinct categories (hostiles, adversaries, neutrals and friendlies). When analysing people, the historical, cultural, ethnic, religious, political, economic and humanitarian factors should be considered. The key communicators and the formal and informal processes used to influence people should be identified. Friendly force activities intended to be benign or benevolent might have negative results if a population's perceptions are not first investigated and, subsequently, measured or managed. Perceptions, more than reality, drive decision-making and could influence the reactions of entire populations and ethnic, tribal, political, religious, criminal or other important enclaves. Females and children generally experience armed conflict very differently from men. These differences are wide-ranging and complex. They arise largely from the societal norms of the roles that they perform in their communities. Although often not engaged in combat, females and children can be disproportionately affected by armed conflict. Internal displacement is often a factor that increases vulnerability.¹

1. Further information on gender perspective and its integration can be found in *United Nations Security Council, Resolution 1325, Women, Peace and Security* and *Bi-Strategic Command Directive 40-1, Integrating UNSCR 1325 and Gender Perspective into the NATO Command Structure*.

-
- f. *Events.* Events are routine, cyclical, planned or spontaneous activities that affect organisations, people and military activities. They may include national and religious holidays, agricultural or livestock, market cycles, elections, civil disturbances and celebrations. For example, other battlespace effects include:
- (1) *Logistics Infrastructure.* Logistics infrastructure factors encompass sources of potable water; bulk fuel storage and transport systems; canals, waterways and lochs; communication systems; transportation means and systems, including road and rail networks, transloading facilities and airfields; natural resources; industries and technology; power production facilities; and chemical and nuclear facilities.
 - (2) *Population Demographics.* Population demographics factors include living conditions, cultural distinctions, religious beliefs, political grievances, gender and child protection needs and requirements, political affiliations, education levels, and languages spoken.
 - (3) *Economics.* The area of economics includes all sources of local, regional, national and foreign economic wealth and interests.
 - (4) *Politics.* Political factors range across local, regional and international government systems; treaties, agreements and legal restrictions; and gangs, mafia groups or tribes.
 - (5) *Electronic and Information Spectrum.* Although it is difficult to quantify and represent graphically, planning staff should consider the electronic and information spectrum of the battlespace in terms of its potential impact on friendly and enemy COA.

Step 2 Activity 4 – Combine the Battlespace Effects

3.42 The next task for planners is to integrate the evaluation of the effects of terrain, weather and other characteristics into the MCOO. Focus should be placed on the battlespace environment's total effects on the enemy and friendly broad COA that meet the commander's intent and the available force capability. For example, friendly infantry infiltration lanes should not be shown if there is no light infantry capability in the force. A recommendation is now made indicating which of the broad enemy and friendly COA best support the battlespace environment and which least support it. Although not developed at this point, deductions should be made which support subsequent planning. This is then followed by the production of a simple narrative of broad enemy COA (options) based on the effects of the environment (MCOO) only. The intelligence staff will describe the impact of the characteristics analysed on friendly and adversary operations. These deductions should be expressed in terms of how they affect the following key operational aspects:

- a. mobility; and
- b. military capability (friendly and adversary, including weapon systems; tactics; ISR; command, control, communications, computers and intelligence; logistics; and personnel).

SECTION 3-4. INTELLIGENCE PREPARATION OF THE BATTLESPACE STEP 3 – EVALUATE THE ENEMY

3.43 Enemy evaluation (see [Figure 3–9](#)) initially involves identifying the level of enemy command that is likely to be faced in the particular operation or situation at hand. The ORBAT and capabilities, doctrinal principles and tactics, techniques and procedures (TTP) that the designated enemy prefers to employ are then determined. This provides the commander with a realistic assessment of the capabilities of the designated enemy. Most importantly, it determines the enemy's CV and affects the subsequent development of DE.

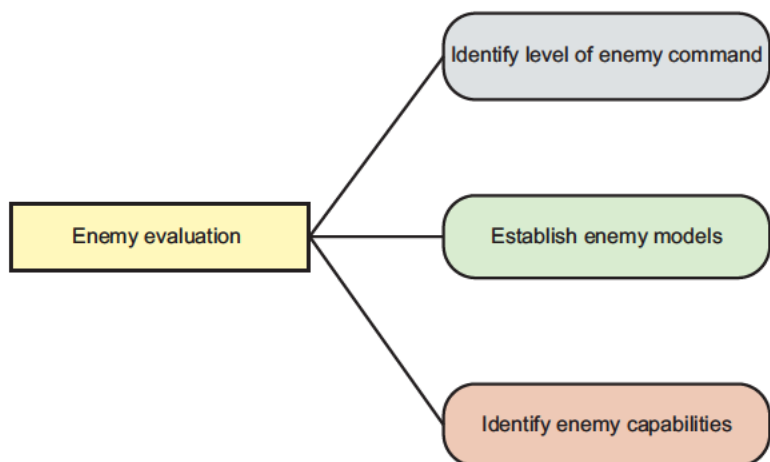


Figure 3–9: Enemy Evaluation

Step 3 Activity 1 – Identify the Level of Enemy Command

- 3.44** This provides the focus for further analysis of the designated enemy, and avoids wasted intelligence effort in looking at either too high or too low a level.
- 3.45** In determining the level of enemy command, the commander and staff will be guided by the higher commander's intent and the assigned mission and tasks. Intelligence estimates and IPB products from higher HQ will also assist in identifying the enemy to be targeted or influenced.
- 3.46** Stakeholder groups include hostiles, adversaries, neutrals and friendly forces.
- 3.47** The four stakeholder groups have the following subsets:
- insurgents;
 - the local population (of which there may be multiple factions);
 - local interest groups;

-
- d. other government agencies;
 - e. allied military forces;
 - f. other nations' intelligence and security agencies;
 - g. non-government organisations;
 - h. political representatives;
 - i. personnel from supporting combat arms units;
 - j. military police;
 - k. civilian police; and
 - l. the media.

3.48 The level of command of a stakeholder group is normally expressed in terms of the organising HQ. For a military stakeholder this is simple (eg, mechanised brigade); for other stakeholder groups it can be more difficult. Levels of command can also be expressed in terms of civil appointments (eg, district administrator) or the number of people the command influences (eg, can organise the responses of 5000 locals).

3.49 A stakeholder's intent is best expressed as their objective and its relevant time line. For military stakeholders this is straightforward (eg, the immediate objective is to seize the key bridges across the Goulburn River); for other stakeholders it is more difficult (eg, to control the commercial traffic flowing into and out of a regional centre within the next 14 days).

Step 3 Activity 2 – Establish Enemy Models

3.50 Enemy models depict how enemy forces prefer to conduct operations under ideal conditions. These models are produced as follows:

- a. produce doctrinal overlays;
- b. describe the preferred tactics and options;
- c. produce a doctrinal high-value target (HVT) matrix; and
- d. produce an enemy ORBAT file.

-
- 3.51 Produce Doctrinal Overlays.** Doctrinal overlays graphically illustrate the deployment pattern and disposition prevalent in the enemy's normal tactics when not constrained by other factors. An example conventional threat doctrinal overlay is shown in [Annex D](#).
- 3.52 Describe the Preferred Tactics and Options.** The description of the preferred TTP and options comprises information on the following:
- the doctrinal scheme of manoeuvre (SOM) for each major enemy element (one down from the level of command assessed as the enemy in enemy MA);
 - the doctrinal activities of enemy battlespace operating systems (BOS) supporting the SOM; and
 - the time event chart describing the normal doctrinal planning timings for the operation and for synchronising BOS activities that support the SOM.
- 3.53 Produce Doctrinal High-value Target Matrix.** Assets that are critical to the enemy commander's successfully completing the operation are identified on the doctrinal template as HVT. HVT are ranked in order of their relative worth to the enemy's doctrinal operations and in terms of any expected changes to their value during the operation. HVT are then grouped into appropriate categories or BOS in a target value matrix (see [Figure 3-10](#)). The target value matrix is continually updated throughout the planning process as the value of HVT alters according to COA developed in Step 4 of the IPB – Determine Enemy COA (see [Section 3-5](#)) and as the situation changes. The target value matrix forms the basis of the friendly forces' targeting process. An updated HVT matrix is produced in Step 4 of the IPB, along with targetable critical vulnerabilities (TCV) that are specific to the enemy COA developed.

HVT Matrix Initial (Conventional Type)

Disrupt	Delay	Limit	Target	Relative Worth			
X			C3 (35 MB HQ, Sig Coy HQ)				
X			OS (2S3, 2S1)				
		X	Manoeuvre (T 81D, T 72BM, BMP 3)				
	X		AD (2S6M)				
X	X		MS (bridging assets)				
X			ISR (UAV, BRDM 2)				
X	X		Nuclear/chemical				
		X	CSS				

HVT Matrix Initial (Asymmetric Type)

Disrupt	Delay	Limit	Target	Relative Worth			
X			Insurgent commanders (may have some names)				
X			IED emplacements				
X			Logistics/finance facilitators				
X			Safe houses (may have some locations)				
X	X		Cache sites				
		X	Spotters, OP				
X		X	Propaganda messages				
X			Training camps (may have a location)				

Figure 3–10: Example Target Value Matrices

3.54 The following list contains some suggested categories for the HVT matrix:

- a. command, control and communications;

-
- b. fire support (including target acquisition, ammunition, aircraft and fire control);
 - c. manoeuvre;
 - d. AD (including radar, processing centres and HQ); and
 - e. engineers.

3.55 Produce the Order of Battle. Enemy model data is maintained on an ORBAT file that is continually updated as intelligence is gathered on the enemy. Over time, ORBAT will differ considerably from the initial doctrinal overlay as a realistic feel is developed for the enemy. The ORBAT file (when developed) should reflect the actual condition of the enemy's force in comparison to doctrine, organisation and equipment. The enemy file should include an assessment of the combat weighting of the enemy forces to allow force ratio analysis later in the MAP. An example of force ratio tables is shown in [Annex C to Chapter 5](#).

Step 3 Activity 3 – Identify Enemy Capabilities

3.56 Enemy capabilities are the broad COA and supporting operations which the enemy can utilise to influence friendly operations. In general, military forces can conduct offensive or defensive COA which have variations such as the advance, pursuit, attack off the line of march, quick attack and deliberate attack; mobile defence, area defence and delay defence; the withdrawal or retrograde operations. Each of these broad COA can be subdivided further into a variety of more specific COA. The attack, for example, may be a single or double envelopment, or a penetration.

3.57 Supporting operations include enemy capabilities that are providing support to the broad COA or may include specific types of operation. Examples of such operations are the use of air assets, electronic warfare, intelligence collection, engineering and air assault; airborne, amphibious and psychological operations; and deception.

3.58 The aim is to identify the enemy's broad actual capability, as opposed to its theoretical capability, in the situation faced. As

the enemy's actual capability is determined, the doctrinal COA that the enemy is currently unable to execute are progressively discounted or modified. For example, the enemy may have lost the capability to conduct airmobile operations, which prevents these operations becoming a distinct part of a COA. The products of this process are a range of broad and credible enemy capability statements that describe what the enemy is capable of executing.

3.59 Broad enemy capability statements may be expressed in terms similar to the following:

- a. *Example 1.* Insurgent forces are capable of mounting very effective complex attacks against our key nodes within the AO using small, highly mobile forces. These attacks are preceded by extensive reconnaissance and monitoring of our forces using local nationals employed in our bases and a network of informants along known transit routes. Insurgent forces are assessed to incorporate up to 100 fighters and are capable of conducting IED, small arms and intimidation attacks supported by financiers and arms dealers across the state border. The insurgent information action campaign remains robust and dedicated to disrupting task force efforts within the AO, targeting our perceived injustices to the local population.
- b. *Example 2.* The 9th Mechanical Division is currently located in Greenbank, consolidating after securing the city. The division is at 93 per cent combat effectiveness and is capable of breaking out to resume the offensive in seven days after resupply and detailed reconnaissance. The division is capable of advancing on three axes to contact friendly force defences prior to conducting a deliberate attack using either a penetration or a single envelopment. This may be supported by deep operations using reconnaissance forces, an airmobile battalion and offensive fire.
- c. *Example 3.* The enemy has the capability to attack, with up to three mechanised divisions and one tank division,

supported by 80 daily sorties of fixed-wing aircraft, in 10 days time.

SECTION 3-5. INTELLIGENCE PREPARATION OF THE BATTLESPACE STEP 4 – DETERMINE ENEMY COURSES OF ACTION

- 3.60** The identification and development of likely enemy COA assists in the creation and development of friendly COA. The design of an enemy COG construct and identification of enemy CV is the basis for subsequent development of the DE at the end of MA.
- 3.61** Information gained from Step 3 of the IPB – Evaluate the Enemy (see [Section 3-4](#)) is merged with the MCOO and progressively refined to develop enemy COA. Enemy COA are graphically represented by situation overlays. Indications of where to detect enemy COA are shown on event overlays.
- 3.62** [Table 3–1](#) details activities and outputs during determination of enemy COA.

Table 3–1: Enemy Course of Action Activities and Outputs

<i>Activities</i>	<i>Outputs</i>
Identify enemy likely objectives and desired end state.	Enemy objectives and end state. Situation overlay.
Develop full range of enemy COA.	Situation overlay and event overlay for each COA.
Analyse COG and build construct.	COG construct with CV for each COA. COA-specific HVT matrix.
Evaluate and prioritise enemy COA.	COA listed in prioritised order.

3-35

<i>Activities</i>	<i>Outputs</i>
Compile the combined COA overlay.	Completed combined situation overlay and event overlay.
	Updated ISR collection plan.

Step 4 Activity 1 – Identify Enemy Likely Objectives and Desired End State

- 3.63 Levels of Objectives and End State.** The designated enemy commander's likely objectives and end state are refined relative to the enemy evaluation conducted in Step 3 of the IPB – Evaluate the Enemy (see [Section 3-4](#)). The way in which the enemy views friendly forces and perceives the friendly force COG must be defined. Friendly force planning staff should provide their assessed friendly force CV to the S2 staff in order that the enemy's intent and likely objectives, and the blue force vulnerability analysis can be compared by the two staffs. This will assist in the derivation of likely objectives and end states for each of the enemy command's subordinates down two levels.
- 3.64** Each subordinate level of the enemy command's objective must meet the likely objective of its parent command. In reality, intelligence will rarely be able to confirm enemy objectives and end states. Therefore, assumptions are made on enemy objectives and end states to keep the planning process moving. It is critical that assumptions are discussed with and agreed by the commander, and are continually reviewed.
- 3.65 Types of Objectives.** During conflict between conventional forces enemy objectives tend to be either terrain or force related. Terrain-related objectives (intermediate, immediate and subsequent) often focus on key terrain. Force-related objectives usually focus on rear or reserve forces.

Step 4 Activity 2 – Develop a Full Range of Enemy Courses of Action

- 3.66 Develop Enemy Courses of Action.** To create enemy COA, the consolidated list of broad and credible doctrinal COA

identified in Step 4 of the IPB – Determine Enemy COA is compared against enemy likely objectives. Broad COA that do not accomplish the enemy's likely objectives and end state are eliminated at this point. The remaining broad COA are then examined against the effects of the battlespace identified in Step 2 of the IPB – Describe the Battlespace Effects (see [Section 3-3](#)), and a determination is made as to how terrain, weather and other factors support (encourage), limit (discourage) or alter each COA. The broad COA which are open to the enemy from Step 3 of the IPB– Evaluate the Enemy (see [Section 3-4](#)) (such as deliberate attack, hasty attack, defend and delay) are then refined into a set of specific COA statements. The following factors are used to consider and develop specific COA statements:

- a. enemy intent or desired end state,
- b. likely attack or counterattack objectives,
- c. the effects of the battlespace environment on operations and broad COA,
- d. enemy vulnerabilities or shortages of equipment or personnel,
- e. current dispositions,
- f. the locations of main and supporting efforts,
- g. enemy perception of friendly forces and friendly force vulnerabilities,
- h. deception and enemy efforts to present an ambiguous situation or achieve surprise, and
- i. enemy targeting of friendly force CV.

3.67 Develop Enemy Course of Action Description and Options.

Enemy COA descriptions and options are now developed. This step provides a description of the forces depicted on the situation overlay. A COA description can range from a narrative statement to a detailed synchronisation matrix depicting the activities of each enemy force element (FE) and BOS in detail. The description should include the COA's earliest time lines,

phases, decisions and the decision point (DP) at which the enemy commander will have to make key decisions during, and after, execution of the COA. The COA description is used to support staff wargaming and to develop the event overlay and supporting indicators. COA description and option development involves two activities, which need to be performed as follows:

- a. *Identify Critical Decisive Events.* Planners must identify when and where the enemy is expected to take major actions or make decisions during the COA. These are recorded as critical events in the description of the COA. Each event is linked to the time phase line (TPL) and geographic features on the situation overlay.
- b. *Identify Enemy Decision Points.* Following the selection of critical events, enemy DP are allocated. An enemy DP is the last possible point on the battlespace, associated with critical events, at which the enemy commander still has options available, such as executing a branch or sequel. Branches are options that the enemy commander has to conduct a number of different COA before achieving the objective. Sequels are options that require the enemy commander to conduct follow-on or exploitation COA after successfully achieving the objective. The locations of branches and sequels are identified as possible enemy DP and recorded in the COA description. The purpose of identifying enemy DP is to understand the elements that give the enemy plan cohesion. This understanding allows the collection plan to be focused on the identification of indicators. The friendly force plan would focus on disrupting these nodes of cohesion.

3.68 Test Course of Action Against Criteria. Each enemy COA is tested against the following criteria using the mnemonic FASSD:

- a. *F = Feasible.* Does the COA have the physical means, time, and ground and air space available to accomplish the COA? The economy of effort and main effort (ME)

activities that the enemy could utilise to concentrate sufficient combat ratios to carry out the COA are determined.

- b. *A = Acceptable*. Is the designated enemy force commander willing to take the risk that this COA entails? Each COA risk (cost) versus potential gain must be determined. The reasons for and against are recorded.
- c. *S = Suitable*. Does the COA accomplish the enemy's likely objective or desired end state?
- d. *S = Sustainable*. The COA is assessed for sustainability by phase in deep, close and rear areas. For example, have planners allowed enough time for forces to prepare, deploy or reconstitute for subsequent operations? Are the logistics support and cost for this COA realistic or unattainable?
- e. *D = Distinguishable*. Is the COA significantly different from the others? Is it a variation rather than a distinctly different COA? Differences are established by comparing the following features for each COA:
 - (1) the effect on the friendly operation;
 - (2) the use of reserves or the second echelon;
 - (3) the location of the ME;
 - (4) the SOM and task organisation (TASKORG); and
 - (5) the opportunity for or capability of the enemy to break with doctrine or past operating habits, or indications that it may do so.

3.69 Produce the Situation Overlay. The situation overlay is a graphic depiction of expected enemy dispositions and actions for each COA. It is the doctrinal overlay modified to reflect the constraints imposed by the effects of the battlespace. The situation overlay should portray the full enemy COA from start point to objective. Each situation overlay should fully represent each enemy COA to be waged in the COA analysis stage of the MAP.

3.70 Intelligence staff must be prepared to provide an initial brief on the situation overlays for each enemy COA during the MA brief. Detailed situation overlays are not required until COA analysis, and should be developed progressively as more information becomes available to assist analysis. The commander directs which enemy COA are to be developed further at the MA brief. Under the individual method, as a time-saving measure, only the most likely and most dangerous COA may be developed.

3.71 Constructing a Situation Overlay. A situation overlay is constructed as follows:

- a. The doctrinal overlay is merged with the MCOO relevant to the designated phase of the operation to be described.
- b. The doctrinal overlay dispositions are adjusted to fit with the reality of the battlespace effects as depicted in the MCOO and current knowledge of enemy doctrine, objectives and intent, ME, deception and surprise.
- c. All relevant detail must be included on the situation overlay (eg, EA, objectives and obstacles) as well as the locations and activities of HVT.
- d. TPL are drawn on the overlay. TPL are used to depict the expected movement of enemy forces such as attack, advance, counterattack, reserve, second echelon, and deep and rear elements. TPL are based on doctrinal movement rates modified by battlespace conditions, observed enemy movement rates and the expected delay caused by friendly actions. Initially TPL timings are indicated by an anticipated time, for example, H-5 hours. This can be replaced with actual times as these become known.

3.72 An example situation overlay is shown in [Figure 3-11](#).

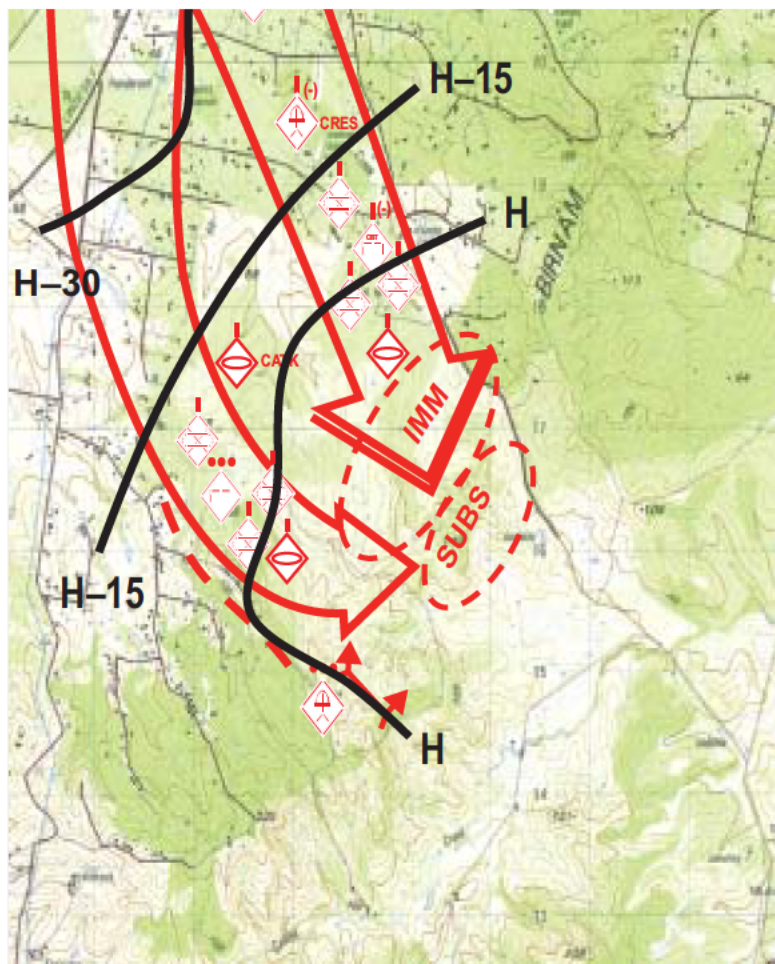


Figure 3-11: Example Situation Overlay

3.73 Produce an Event Overlay. The event overlay, developed by the S2 staff, is a key tool for operational staff and planners. It forms the foundation for synchronising intelligence collection and for the commander's decision support graphics.

- 3.74** The event overlay uses the situation overlay to determine where all critical events are likely to occur, so that named areas of interest (NAI) and DP can be identified for collection by ISR platforms. The event overlay will also indicate known locations within each COA where enemy assets are vulnerable to friendly targeting. These locations are depicted as target areas of interest (TAI). The collection that occurs at NAI will assist the staff to confirm or deny which COA the opposing forces are conducting.
- 3.75 Named Areas of Interest.** NAI are a geographical areas where information is gathered to satisfy specific IR. The activities sighted or not sighted in NAI will confirm or deny enemy intentions.
- 3.76** NAI may incorporate a specific point, route or area and can match obvious natural terrain features. NAI should be made large enough to encompass the indicators. Sources and agencies tasked to collect in the NAI must be capable of covering the area sufficiently to answer the information requirements. NAI can be depicted as points, against geographic features, along routes and as boxed areas.
- 3.77** NAI are prioritised in order to best employ the finite collection resources available to the commander.
- 3.78 Target Areas of Interest.** TAI are geographical areas or points, usually along an MC, where CV are exposed to targeting by the friendly force. Each TAI is cross-referenced with the COA it supports and the HVT matrix. This information can be included in the HVT matrix as an additional column once the TAI are identified. TAI identification (by number or name) is conducted jointly by the intelligence and operations staffs. The intelligence staff list the CV from the COG construct, and the operations (including offensive support [OS]) staff consider the capabilities and availability of friendly resources to target the CV appropriately. These staff also consider the effects of targeting on the friendly force mission and prioritise the use of all available resources to achieve high pay-off targets.

- 3.79** The event overlay is a key tool for the effective tasking of ISR collection assets to gather information relevant to IR and for the effective targeting of key enemy assets. It is reviewed and updated during staff wargaming against friendly COA in COA analysis, as surveillance plans and CDP evolve. An event overlay is produced as follows:
- a. produce the intelligence collection plan,
 - b. refine the HVT matrix, and
 - c. construct the event overlay and matrix.
- 3.80** An example event overlay with DP, TPL, NAI and TAI marked is shown in [Figure 3-12](#).

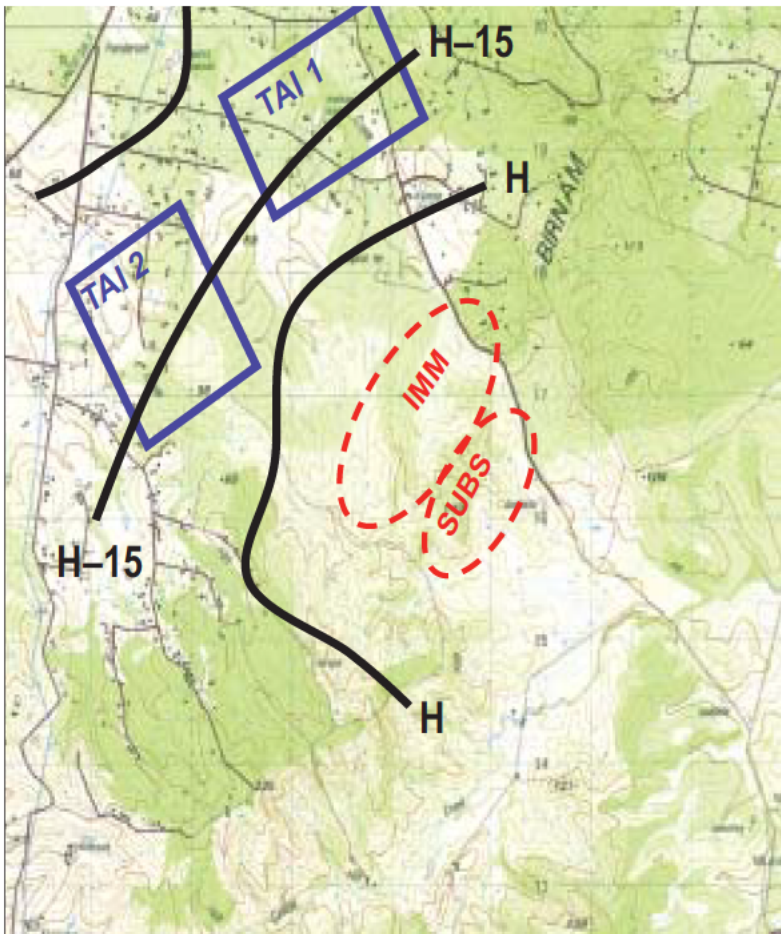


Figure 3-12: Example Event Overlay

- 3.81 Event and Intelligence, Surveillance and Reconnaissance Matrix.** The event and ISR matrix (see [Table 3-2](#)) is a collection of indicators of threat COA and the list of NAI identified to sense the indicator. The event and ISR matrix can be used in the development of the ISR plan.

Table 3-2: Example Event and Intelligence, Surveillance and Reconnaissance Matrix to Support a Combined Course of Action Overlay

<i>Where? (Named Areas of Interest)</i>	<i>What? (Indicators)</i>			<i>When?</i>	<i>Notes</i>
	<i>Most Likely Course of Action</i>	<i>Most Dangerous Course of Action</i>	<i>Course of Action x</i>		
NAI 1	Tank Coy + Mech Inf Bn	Tank Pl + Mech Inf Coy		H-30 to H-15	ME from east (single penetration)
NAI 2	Tank Pl + Mech Inf Coy	Tank Coy + Mech Inf Bn		H-30 to H-15	ME from north (single envelopment)
NAI 3	Self-propelled Howitzer Coy	Self-propelled Howitzer Coy		H-60 to H-hour	Best OS location
NAI 4	81 mm Mortar Pl			H-45 to H-hour	ME from east
NAI 5		81 mm Mortar Pl		H-45 to H-hour	ME from north

Where? (Named Areas of Interest)	What? (Indicators)			When?	Notes
	Most Likely Course of Action	Most Dangerous Course of Action	Course of Action x		
NAI 6			Avn Coy	H-60 to H-hour	Fixing force for bypass

Step 4 Activity 3 – Analyse Centre of Gravity and Build Construct

- 3.82** Having ascertained the enemy capabilities and COA, the staff must now focus on determining the CV for subsequent selective targeting and development of DE. The methodology used in analysing the COG to determine the CV is the COG construct.
- 3.83** The COG construct uses the terms ‘critical capability’ (CC) and ‘critical requirement’ (CR). CC are inherent abilities enabling a COG to function. CR are the essential conditions, resources and means that enable a CC to be fully operative.
- 3.84** The four elements to be determined in the COG construct are as follows:
- a. the enemy COG,
 - b. the CC,
 - c. the CR, and
 - d. the CV.
- 3.85** A detailed example of an enemy COG construct for a mechanised brigade in mobile defence is provided in [Table 3–3](#).

Table 3-3: Example Centre of Gravity Construct for a Mechanised Brigade in Mobile Defence

Enemy Centre of Gravity	Achieve a Clean Break	Comments			
		OS.	Manoeuvre.	MS.	
CC CR	C2.				
	Communications.	Brigade artillery group.	T-80 tanks.	Bridging equipment.	
	Resupply lines (POL).	Divisional artillery group.	BTR-70s.	BTR-80s.	
	Report lines.	Mortars in the Mech Inf Coy.	CATK force.		
	Traffic control points.	Locations to cover a clean break.			
	Withdrawal routes.				

Enemy Centre of Gravity	Achieve a Clean Break	Comments		
CV	VHF communications vulnerable to electronic attack.	Locations of artillery are vulnerable to identification by ISR and targeting by counter-battery fire and air assets.	T-80s can be observed in open terrain and vulnerable to attack by Australian tanks, anti-armour weapons and OS.	BTR-80s are vulnerable to direct fire ambush IVO GS0606.
	Rehearsals of withdrawal routes can be observed, so are vulnerable to detection by friendly ISR assets.		BTR-70s are vulnerable when moving between positions in a defensive location.	Bridging equipment is vulnerable to OS during a breach along Flagstone Road North at choke points.
	Withdrawal routes can be threatened with cut-off, forcing an early withdrawal.			

-
- 3.86 Determine Enemy Centre of Gravity.** The first requirement is to identify the enemy's COG. Although this can be difficult, a thorough analysis of the enemy at the relevant level of war will indicate that there are certain characteristics or entities from which the enemy draws physical strength, the will to fight or freedom of action. The key to identifying which of these becomes the COG is to relate the enemy's characteristics and objectives to the constraints imposed by the battlespace.
- 3.87 Determine Critical Capabilities.** Once the COG has been determined, the capabilities upon which the COG is based, namely the CC, need to be identified. This requires an analysis of the COG to determine what gives it its strength. If the enemy's COG is the ability to generate superior combat power at a decisive point, then the CC that comprise that COG could include armour, mechanised infantry and fire support. As any military force comprises many capabilities, the term 'critical' is applied to those that directly support the COG.
- 3.88 Determine Critical Requirements.** Having identified the CC upon which the COG is based, the requirements for those capabilities to be fully operative are identified. These are the CR. The term 'critical' is again applied to demonstrate the linkage to the COG. Each CC is analysed individually in order to identify those aspects of the capability that enable it to function as a system or entity. C2, CSS and doctrine are among the requirements common to all capabilities.
- 3.89 Determine Critical Vulnerabilities.** Once the CR have been identified they should be analysed to determine whether they have any inherent vulnerabilities. Possible vulnerabilities are then listed before being examined closely to determine those that are indeed critical to the assessed COG. This produces a list of CV, which are those characteristics or key elements of a force that, if destroyed, captured or neutralised, will significantly undermine the fighting capability of the force and its COG. At this stage it will become apparent that some CV will relate to more than one CR.
-

Step 4 Activity 4 – Evaluate and Prioritise Enemy Courses of Action

3.90 The full range of credible enemy COA must be evaluated and prioritised according to assessed likelihood. Evaluation and prioritisation consists of the following processes:

- a. Identify each COA's strengths and weaknesses by:
 - (1) evaluating the impact of battlespace effects on each COA (how the effects encourage or discourage the COA);
 - (2) identifying the degree of risk for each COA;
 - (3) identifying each COA's potential to be used by the enemy as a deception plan;
 - (4) identifying each COA's potential to surprise friendly forces; and
 - (5) evaluating the enemy's current dispositions and activities to determine whether one COA is already being favoured over another (bearing in mind deception).
- b. Compare the information ascertained for all COA and rank them in order of likelihood. The level of associated danger to friendly plans is assessed by the S2 staff but confirmed by the commander and planning staff. The priority list is then modified as intelligence is updated and as the situation changes. It is important to be aware that adoption of a friendly force COA and resultant activities on the battlespace will cause a reaction amongst the enemy forces that may also require the enemy COA priority list to change.

3.91 Compile the Combined Course of Action Overlay. The combined COA overlay is the most useful briefing overlay to use when contributing to the MAP. For each COA it shows the combination of situation and event overlays. It enables the identification of NAI and DP regardless of which COA is taken,

and contributes to friendly force development of an ISR plan. An example combined COA overlay is shown in [Figure 3–13](#).

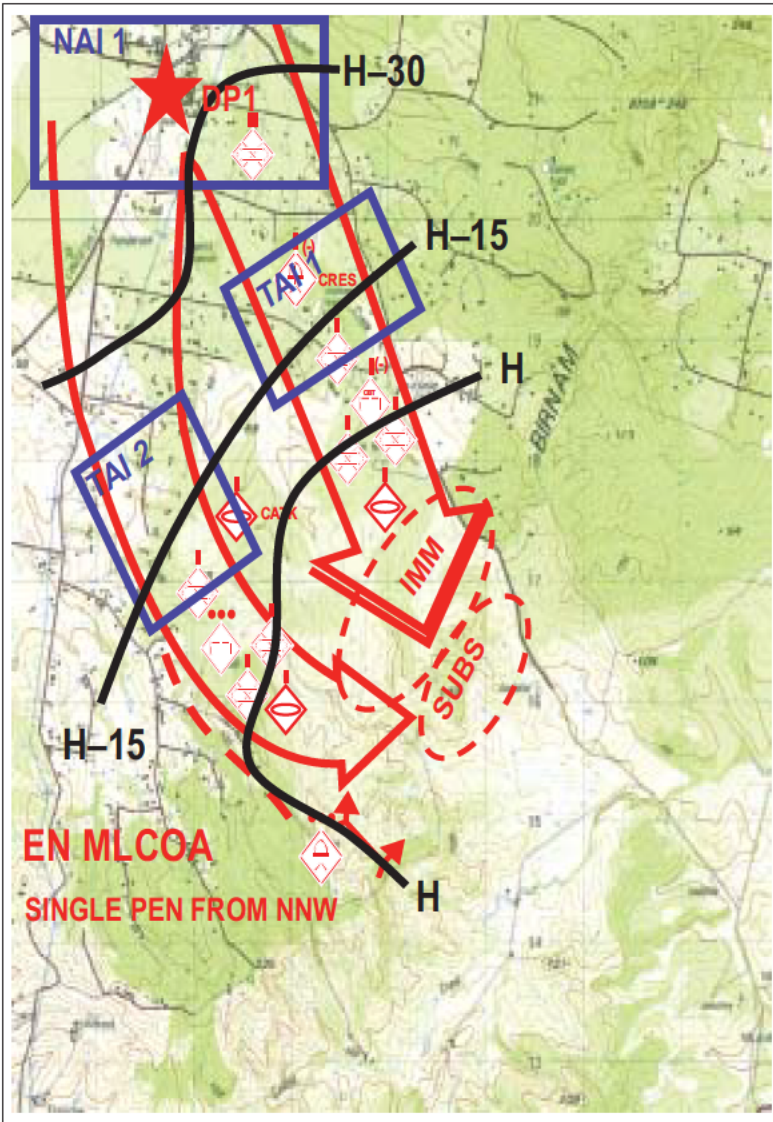


Figure 3–13: Example Combined Course of Action Overlay/Situation Overlay with Event Overlay

3.92 Produce the Intelligence Collection Plan. At the conclusion of this step, intelligence staff update the collection plan which has been ongoing from Step 1 of the IPB – Define the Battlespace Environment (see [Section 3-2](#)). The intelligence collection plan (see [Annex E](#)) is developed and refined by identifying the IR required to determine which COA the enemy has adopted, or will adopt, and answer the commander's PIR. These IR are additional to those already identified in battlespace analysis. An intelligence collection plan is produced as follows:

- a. *Identify Indicators.* Indicators are unique enemy activities or capabilities which, if revealed, fulfil information requirements, thus leading to the achievement of the commander's IR. Intelligence staff will concentrate their collection efforts on those indicators that prove or disprove which COA the enemy has chosen.
- b. *Identify Named Areas of Interest.* Indicators can be related to collection tasks by allocating a descriptor of 'where to look, what to look for and when to look'. By examining enemy COA overlays, the intelligence staff identify specific areas where critical events are expected to occur. These areas are NAI. NAI confirm or deny enemy COA, or indicate where specific enemy FE may be logically identified within a COA. NAI can also relate to environmental information requirements. NAI are listed in order of importance to become the priority areas for intelligence collection. An NAI may incorporate a specific point, route or area and can match obvious natural terrain features. NAI should be made large enough to encompass indicators, yet of a size capable of ease of coverage by surveillance and other intelligence collection assets.
- c. *Recommend Intelligence, Surveillance and Reconnaissance Assets for Collection.* The third step is to recommend which ISR assets are best suited to meet collection requirements. The priority list of NAI and

information requirements forms an integral part of the intelligence collection plan and is promulgated as the ISR plan. ISR assets are tasked to observe NAI in accordance with the ISR plan. A detailed example of an ISR BOS planning aide-memoire is provided in [Annex A to Chapter 8](#).

3.93 Refine the High-value Target Matrix. Based on the importance of the enemy BOS contributing to the success of the enemy COA, the HVT priority list is revised. The following three actions are required to refine the HVT matrix:

- a. *Compare Enemy Battlespace Operating Systems with Enemy Courses of Action.* Enemy BOS and COA may be compared as follows:
 - (1) Describe how and where each enemy BOS provides support for each enemy COA at each critical event and possible DP.
 - (2) Identify any enemy BOS that must be used to support an enemy COA and the time, phase or circumstances in which these must be used to make the COA successful.
 - (3) Re-order the HVT priority list in order of the most valuable enemy BOS contribution to the success of enemy COA.
- b. *Identify Target Area's of Interest.* A TAI is a geographical area or point, usually along an MC, where enemy BOS are vulnerable to targeting by the friendly force given an enemy COA. These areas (with probable timings) become potential TAI, which can subsequently be used as EA if required. Each TAI is cross-referenced with the COA it supports and the HVT matrix. TAI are normally linked to the relevant NAI and DP in terms of 'where' a target is identified and 'where' it can be engaged. TAI identification is conducted by the J/S/G3, J/S/G2 and joint OS staff. The J/S/G2 staff evaluate the enemy force and the impact of interdiction on enemy capabilities. The J/S/G3 and joint OS staff consider the capabilities and

availability of interdiction resources, the effects of interdiction on accomplishing friendly operations, and priorities for the use of available resources.

- c. *Re-prioritise the High-value Target Matrix.* Planners must refine the HVT matrix with a re-prioritised high-value targets list (HVTL), cross-referenced to TAI and enemy COA.

3.94 IPB uses a series of written products, overlays and matrices to portray AA, MC, likely enemy COA, timings, critical events that will help confirm or deny enemy COA, likely target areas, assets and enemy DP. However, the analysis and the delivery of the product of the analysis are the most important components of the IPB. Such analysis allows friendly COA to be wargamed against the entire range of possible events and enables the commander to be fully prepared for possible contingences. It rapidly identifies NAI, TAI and enemy DP to allow the efficient employment of ISR assets and the early detection of the enemy plan. IPB allows ISR activities to be synchronised with manoeuvre and firepower assets to defeat an enemy as it is identified in the battlespace.

3.95 While essentially an intelligence staff process, IPB will require input from the commander and other staff at all stages. A thorough IPB can be extremely time and resource intensive. When constrained for time, intelligence staff will focus on providing the analysis of the battlespace and enemy with the maximum use of graphics to convey the message.

Annexes:

- A. [Symbols Used for Intelligence Preparation of the Battlespace](#)
- B. [Example Intelligence Preparation of the Battlespace Briefing Format](#)
- C. [Example Modified Combined Obstacle Overlay and Preparation Notes](#)
- D. [Example Conventional Threat Doctrinal Overlay](#)

E. Example Intelligence Collection Plan

ANNEX A TO CHAPTER 3

SYMBOLS USED FOR INTELLIGENCE PREPARATION OF THE BATTLESPACE

1. [Figure 3-14](#) illustrates the symbols used for IPB.

3A-2








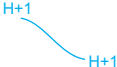


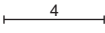



TERM	COLOUR	SYMBOL
Restricted going	Green or brown	
Very restricted going	Green or brown	
Man-made obstacles	Black	
Primary AA	Red (threat) Blue (friendly)	
Secondary AA	Red (threat) Blue (friendly)	
MC	Red (threat) Blue (friendly)	
Key terrain	Blue or purple	
TPL	Red (threat) Blue (friendly)	
NAI (point)	Any	
NAI (area)	Any	
NAI (linear)	Any	
TAI (point)	Any	
TAI (area)	Any	
DP	Red (threat) Blue (friendly)	

Figure 3–14: Symbols Used for Intelligence Preparation of the Battlespace

ANNEX B TO CHAPTER 3

EXAMPLE INTELLIGENCE PREPARATION OF THE BATTLESPACE BRIEFING FORMAT

1. An example IPB briefing format is shown in [Table 3-4](#).

Table 3-4: Example Intelligence Preparation of the Battlespace Briefing Format

<i>Inputs</i>	<i>Activities</i>	<i>Outputs</i>
Enemy situation update	<ol style="list-style-type: none">1. Overall context of enemy situation.2. Orientate commander to the map.	Mark incidents on map if appropriate. AO/AI, if required, boundaries and significant features.
Assumptions	<ol style="list-style-type: none">3. Key deductions about battlespace and weather effects.	<p>Comprehensive statement on the effects of the weather on personnel and equipment for the next 24 to 72 hours.</p> <p>Comprehensive statement on the overall effect of the terrain types to be encountered and their effect on enemy and friendly COA.</p>

3B-3

Inputs	Activities	Outputs
MLCOA	<ol style="list-style-type: none"> 4. Brief mission and PME. 5. Brief SOM. 6. Indicate main/supporting effort by phase. 7. Brief BOS concepts by phase. 8. Describe the HVT matrix for MLCOA. 9. Brief COG focusing on the CV. 10. Brief TCV. 	<p>Use the situation overlay with time and phases marked.</p> <p>Detail by timings and event (see Annex E for an example SOM).</p>

3B-4

<i>Inputs</i>	<i>Activities</i>	<i>Outputs</i>
MDCOA	11. Brief mission and PME. 12. Brief SOM. 13. Indicate main/supporting effort by phase. 14. Brief BOS concepts by phase. 15. Describe the HVT matrix for MDCOA, if there is a change to MLCOA. 16. Brief COG, focusing on the CV. 17. Brief TCV.	Use the situation overlay with time and phases marked. Detail by timings and event (see Annex E for an example SOM).
Event overlay	18. Show graphically with COA, time, phase, DP, and NAI and TAI. 19. Brief the event and ISR matrix.	NAI, indicators, timing, linked to a particular COA.
Take questions from the commander		

LWD 5-1-4, The Military Appreciation Process, 2015

3C-1

ANNEX C TO CHAPTER 3

EXAMPLE MODIFIED COMBINED OBSTACLE OVERLAY AND PREPARATION NOTES

1. An example MCOO is shown in [Figure 3–15](#) and example preparation notes for a MCOO are shown in [Figure 3–16](#).

3C-2

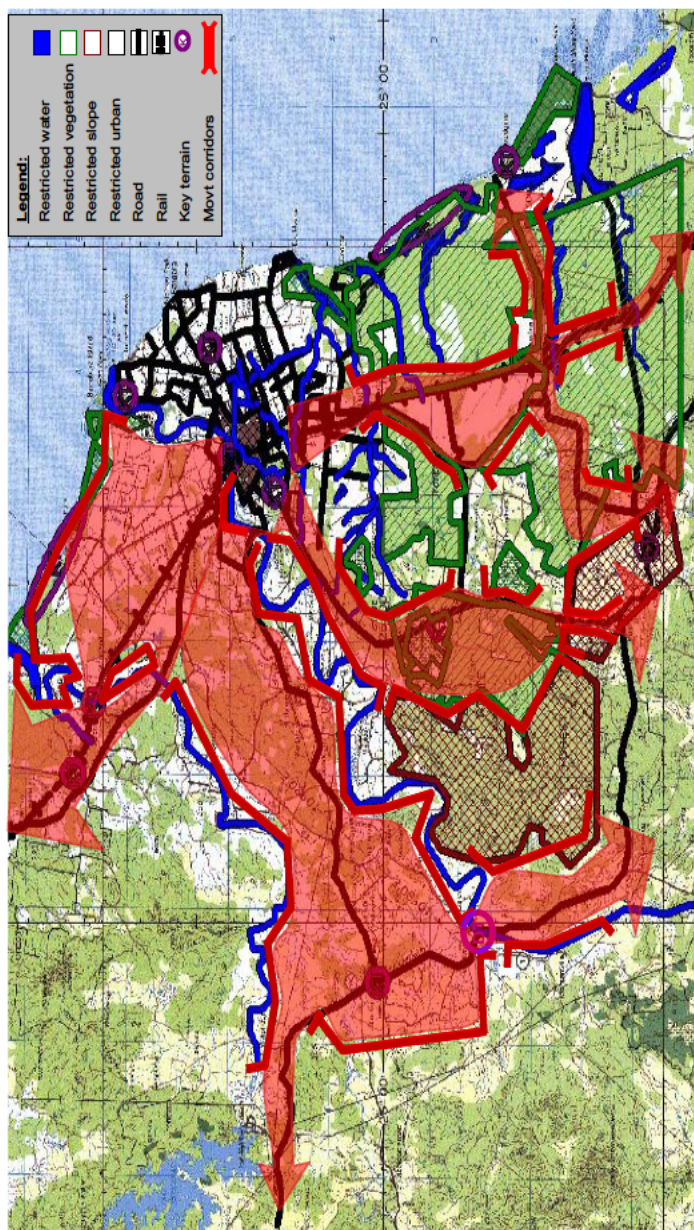


Figure 3-15: Example Modified Combined Obstacle Overlay

3C-3



	Colour	Restricted	Very restricted	Note
Definition		Terrain hinders movement and manoeuvre in formation to some extent but requires little effort to enhance mobility	Terrain that severely hinders or slows movement and manoeuvre in formation and requires effort to enhance mobility	
Symbology				500 m spacing between hatches Hatches at 45° Edges thicker than cross-hatching Filter out any areas showing restrictions that are less than 200 m² for a 1 50 000 overlay
Vegetation	Green	Medium vegetation Vineyard Orchard	Dense vegetation Rainforest Pine plantation Mangroves	Mark road clearing as 100 m wide for single-lane roads/tracks and 200 m wide for double-lane roads/tracks
Slope	Brown	20–30°	>30°	Mark as vegetation when both slope and vegetation restrictions apply
Built-up areas	Black		All built-up areas	Mark as built-up area when both slope and built-up area restrictions apply
Hydrography	Blue	Areas subject to inundation	Swamps Saline coastal flat	Mark all major watercourses and significant perennial streams Mark areas of open water such as large lakes and dams
Remarks	Criteria are based on the mobility of a Musorian Mechanised Division employing T72s and BTR70s as the principal A vehicles Seasonal weather effects are assumed			

Figure 3–16: Example Modified Combined Obstacle Overlay Preparation Notes

3C-4

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3D-1

ANNEX D TO CHAPTER 3

EXAMPLE CONVENTIONAL THREAT DOCTRINAL OVERLAY

1. An example conventional threat doctrinal overlay is shown in Figure 3–17.

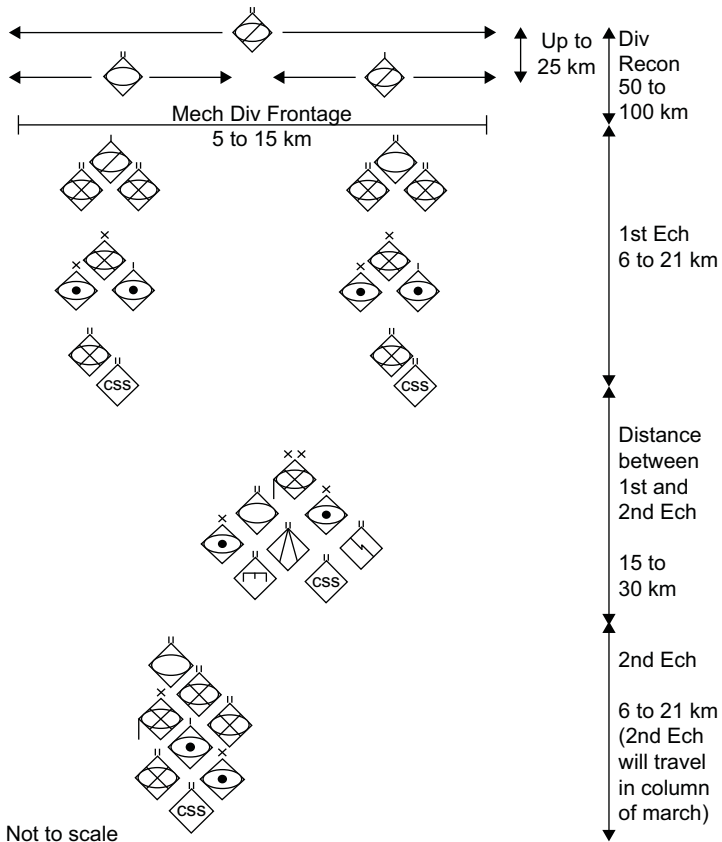


Figure 3–17: Example Conventional Threat Doctrinal Overlay

3D-2

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3E-1

ANNEX E TO CHAPTER 3

EXAMPLE INTELLIGENCE COLLECTION PLAN

1. An example intelligence collection plan is shown in [Figure 3–18](#).

Formation/Unit Period Covered from Intelligence Requirement		to Collection Plan (Classification)		Sources and Agencies																	Time/Form of Report	Remarks
Information Requirements	Indicators	Specific Orders and Requests	Own Sources								Other Sources									(u)	(v)	
			(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)	(t)			
(a)	(b)	(c)																				

Figure 3–18: Example Intelligence Collection Plan

CHAPTER 4

STEP 2 – MISSION ANALYSIS

SECTION 4-1. OVERVIEW

- 4.1 MA, along with IPB, is the dynamic and continual process of review and re-evaluation of the operational situation by the commander and their staff. It is the critical part of the decision-making process for extracting and deducing from a superior's orders the tasks necessary to fulfil the mission. It places in context the effect to be achieved in the overall design for operations, and enables the commander to assess the assigned tasks as well as the purpose behind them. Implicit in this concept is the requirement for subordinate commanders to understand the overall intent of their commanders in order to determine the existing tasks and freedoms of action.
- 4.2 At the conclusion of the MA, the enemy CV are drawn from the IPB and analysed to determine those able to be targeted or influenced by available own forces. These TCV are then consolidated with the list of essential tasks (ET) from the MA to determine the DE. These DE provide a focus for the development of own COA and the remainder of the MAP.
- 4.3 Following the MA brief, the commander provides guidance to the staff and confirms the mission, purpose, initial method (broad COA concepts based on the DE) and end state. The commander's guidance provides the basis for all subsequent decision-making and planning. During this step an initial WNGO is issued.
- 4.4 The activities of MA are set out in [Figure 4–1](#).

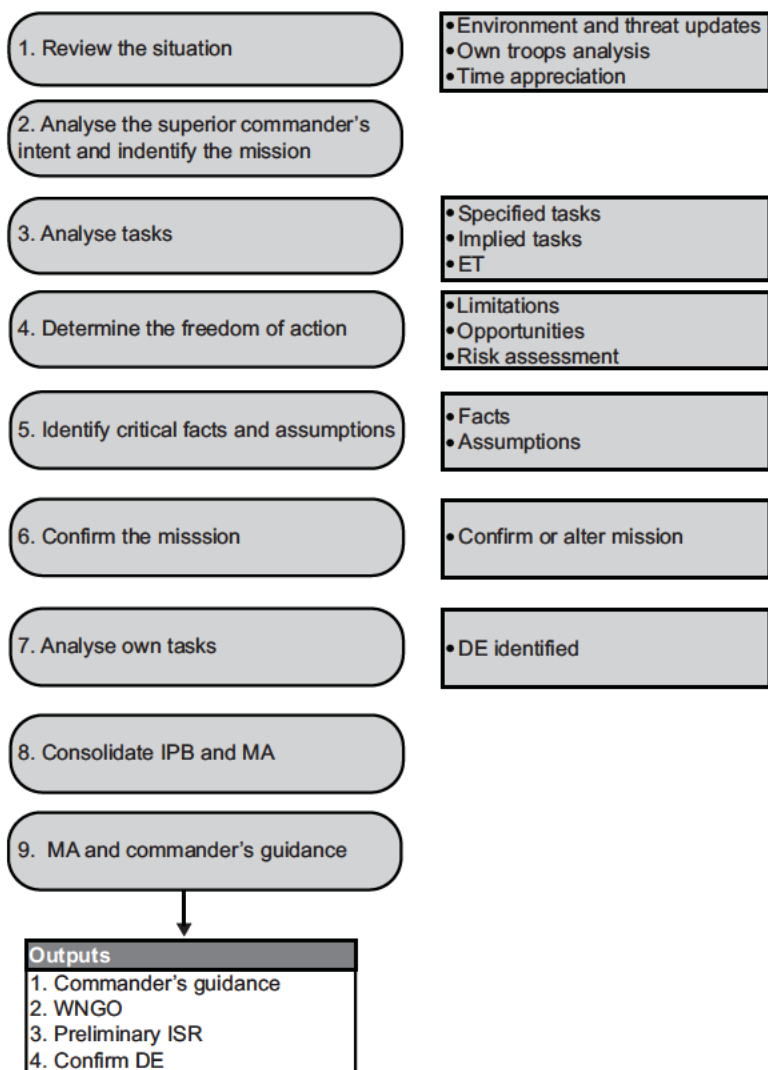


Figure 4–1: Activities of Mission Analysis

- 4.5 A detailed MA aide-memoire is provided in [Annex A](#), and the roles and responsibilities of key staff for the MAP are detailed in [Annex B](#).

SECTION 4-2. MISSION ANALYSIS PROCESS

Step 2 Activity 1 – Review the Situation

- 4.6 Reviewing the situation involves the receipt of intelligence updates through the IPB process. These updates take the form of intelligence briefs and include products from the IPB such as a MCOO, an enemy COG construct and an HVT matrix, as well as the broad most likely course of action (MLCOA) and most dangerous course of action (MDCOA). Any IPB update should include a review of the AO, AI and the effects of the battlespace on friendly force operations. If a new operation is being conducted in an unfamiliar environment it may take some time before IPB updates are available; however, the MA should be progressed as far as possible while the IPB products are developed. Close and early staff integration in this regard will assist the MA.

Step 2 Activity 2 – Analyse the Superior Commander's Intent and Identify the Mission

- 4.7 **Format of Commander's Intent.** A commander's intent is given in terms of the following:
- purpose,
 - method, and
 - end state.
- 4.8 **Purpose.** The purpose determines the reason for the operation and is usually derived from the 'in order to' part of the mission statement and the higher commander's intent.
- 4.9 **Method.** The 'method' portion is a description of the method by which the commander is to achieve their purpose, explained in terms of the effects to be created on the enemy. The method focuses on the achievement of DE.

-
- 4.10 End State.** The end state describes the commander's desired outcome for the operation or the state that the commander wishes to exist when the operation is complete. It defines the success criteria for the operation and may include descriptions of status and the locations of both enemy and friendly forces. It also provides information regarding the disposition of forces for transition into the next phase of operations.
- 4.11 Analysis of the Intent.** The commander's intent must be analysed one and two up. An understanding of the superior commander's intent for the entire force, as well as the subordinate's specific and implied role within it, is critical. At the conclusion of this analysis the subordinate must clearly understand the part their force is to play within the higher intent.
- 4.12 Relationship between Intent and Mission.** Mission command raises the importance of the commander's intent above that of the mission statement. In a rapidly changing situation the overall intent of the commander will probably not change, but the options available to achieve that intent are likely to vary considerably. For example, during a brigade attack the ME may be switched from a unit that has stalled to another unit. The unit now designated ME must check its original mission and alter it, if necessary, to one that will achieve the mission of the brigade ME in accordance with the commander's intent. In this example, the commander's intent has not changed but the method employed to achieve it has.
- 4.13 Format of Mission Statement.** The elements of a mission statement are 'who, what, where, when and why'. Combined, these elements define the overall task and purpose; for example, '3 Bde (who) is to capture the crossing points (what) over the Crocodile River (where), NLT 240600hr (when), in order to facilitate the 1 Div advance to Obj DINGO (why)'.
- 4.14 Identify Own Mission Statement.** The superior commander will normally assign the mission directly in verbal or written orders, or it may need to be deduced in response to a changed situation. Regardless of how the mission statement is received or derived, it must be confirmed by testing against the demands of the situation and, most importantly, the superior
-

commander's intent. When a changed situation leads to a restated mission, there is a requirement to brief the higher commander of the reorientation, if the situation permits.

- 4.15** An example commander's intent statement is shown in [Annex C](#).

Step 2 Activity 3 – Analyse Tasks

- 4.16** MA enables commanders at all levels to identify clearly their specified tasks, implied tasks and ET, thus ensuring that they have thought through their mission carefully.
- 4.17 Specified Tasks.** These tasks are directed by the superior commander and are normally found in the concept of operations (CONOPS) tasking paragraphs. However, they may also be found in coordinating instructions (particularly in relation to timings) and support annexes. Coordination with higher HQ and adjacent units or formations can also result in additional specified tasks. All specified tasks must be clearly identified.
- 4.18 Implied Tasks.** These tasks are not specified by the superior commander but are the tasks that are necessary to meet the superior commander's intent. The analysis of the superior commander's intent will identify the implied tasks. Not all implied tasks will be identified during MA; some will be revealed later during COA development and COA analysis. However, an attempt to identify all implied tasks must be made under MA as this provides the basis upon which the COA are developed. Implied tasks may include the passage of lines, obstacle crossings, breaching operations and the seizure of key terrain. They do not include routine or SOP operations such as establishing liaison with adjacent units.
- 4.19 Essential Tasks.** ET are those tasks that must be successfully conducted to achieve the mission and the superior commander's intent. ET are identified from the list of specified and implied tasks, and additionally may include protection of friendly force CV. They should be compared to the mission to ensure that it is still the most appropriate expression of the superior commander's intent. These tasks will form the basis

for the selection criteria for the planning and testing of the COA through DE.

Step 2 Activity 4 – Determine Freedom of Action

4.20 The commander's freedom of action involves identifying the broad range of actions that can be conducted to achieve the superior commander's intent. In order to ascertain what the commander can do, it is necessary to identify and rule out what the commander cannot do. This will involve the consideration of factors which limit possible actions and an analysis of the situation to identify potential opportunities for action. The limitations determine the commander's freedom of action.

4.21 Limitations. The limitations on the operation include restrictions and constraints. Restrictions are a prohibition on activities that a superior commander or another authority might impose. Restrictions may be legal (imposed by international and domestic laws); moral and ethical (these limitations are now very largely absorbed into international normalities and values); or political (which include, in the case of multinational operations, what is considered acceptable by all contributing countries).

4.22 Constraints. A constraint is an action imposed by a superior commander or another authority which must be undertaken. Constraints may be derived from specified or implied tasks. An example is the tasking of a subordinate commander to maintain a reserve force that may be employed by the superior commander upon order. Constraints may be specified or implied, but are most likely identified from ET. Constraints are actions that must be undertaken, while restrictions are prohibited actions.

4.23 Opportunities. In analysing the battlespace and the superior commander's intent, it is important that the commander and the staff do not overlook the consideration of potential opportunities. Opportunities can be described as the possible ways and means open to a commander that may well extend beyond the parameters identified by specified and implied limitations. Opportunities should be viewed from the

perspective of the battlefield environment, timings and each friendly BOS.

- 4.24 Risk Assessment.** Higher HQ may specify a risk that the superior commander is willing to accept to accomplish the mission. The commander must use their own judgment and determine what risk is acceptable in order to accomplish the mission. Risk management is an integral and ongoing aspect of the MAP.

Step 2 Activity 5 – Identify Critical Facts and Assumptions

- 4.25** There are two categories of information concerning assigned tasks. These are the facts and assumptions that are identified as a result of the commander and staff using deductive reasoning to consider all the factors applicable to the situation.
- 4.26 Facts.** Facts are statements of known data (eg, the situation, threat and friendly force dispositions, available troops, unit strengths and materiel readiness). The mission and the commander's intent (one and two levels up) are key facts. Facts also include staff projections and assessments of tangible and intangible factors (eg, subordinate unit fatigue levels, morale, and Class 5 stocks and replacements).
- 4.27 Assumptions.** These are developed as substitutes for facts to allow planning to continue without delay. An assumption is only appropriate if it is valid. For example, 'assuming away' potential problems, such as poor weather or reasonable threat options and capabilities, because these are too difficult to predict is an invalid use of assumptions. Valid assumptions are those that have a good chance of occurring. For example, the threat being able to concentrate sufficient combat power at the decisive point of an attack is a valid assumption unless there is a specific reason (fact) that will prevent this from occurring (such as a deep operation against the enemy reserve).
- 4.28** Assumptions critical to the planning process must be clarified as soon as possible. Any assumption made about the battlespace environment or the threat should be resolved by preliminary tasking of intelligence or reconnaissance assets. These tasks should be presented in the collection plan and

within a FRAGO or WNGO. An example WNGO is shown in [Annex D](#).

Step 2 Activity 6 – Confirm the Mission

4.29 The mission statement must now be confirmed to ensure that it meets the needs of the superior commander's intent and is in accordance with the current situation. The exact wording of the mission statement, if it is to assist in achieving the superior commander's intent, must clearly reflect the unit or formations primary purpose. All factors relevant to the design of the mission statement must be considered. The staff confirms or changes the mission in accordance with current analysis, and briefs the commander on any proposed changes during the MA briefing, or sooner if practicable. Changing an assigned mission should not be undertaken lightly. The commander must seek the approval of the superior commander as soon as possible.

Step 2 Activity 7 – Analyse Own Tasks

4.30 TASKORG are reviewed to determine the actual combat power of the force available. To achieve this, all available assets are reviewed two levels below the level of the HQ conducting the MAP, including any attachments and detachments. This analysis must also identify the friendly force COG, which must be protected, and the broad options these forces can employ against the threat. At this stage the logistics staff must determine the logistic capabilities available to support the operation and identify any logistic deficiencies that would prevent an operation from being conducted. Own force combat power is determined and recorded as an ORBAT in the same manner as the enemy's ORBAT in IPB (see [paragraph 3.55](#)), to allow force ratio comparison later in the MAP. Attention should be paid to the following considerations when analysing own troops:

- a. *Manoeuvre Assets and Capabilities.* All manoeuvre assets to be used for the operation and their current combat value and capability are identified. For example, a brigade may only have the combat value of a

full-strength battalion because of its battle losses or its lack of combat supplies and therefore may only be able to cope with battalion-level tasks. Manoeuvre shortfalls and options to overcome these are identified.

- b. *Combat Support Assets and Capabilities.* All combat support (CS) assets with their combat value and capability, together with any CS shortfalls and options to overcome these, are identified.
- c. *Combat Service Support Assets and Capabilities.* The CSS state of the force, together with any shortfalls and options to overcome these, are identified.
- d. *State of Morale.* Strategies to overcome any morale problems are identified.
- e. *Friendly Force Centre of Gravity.* The friendly force COG should be analysed in a manner similar to that of the enemy's, to identify CV that will be the target of enemy operations (see [paragraph 3.82](#) to [paragraph 3.89](#)). Once friendly CV are identified they are passed to the intelligence staff to aid with development of enemy COA (identification or confirmation of enemy objectives and end states). The security of friendly forces' own CV must be considered during planning and may form ET.

4.31 Refine Time Appreciation. Time appreciation needs to be refined based on current intelligence. In relation to the one-third of time available (see [paragraph 2.6](#) and [paragraph 2.7](#)), a recommended percentage of time allocated to MA is 20 per cent.

Step 2 Activity 8 – Consolidate Intelligence Preparation of the Battlespace and Mission Analysis

4.32 Derivation of Decisive Events. Having determined the tasks and freedoms during previous activities, the staff consolidates all work undertaken thus far in the MAP to derive the DE. DE are derived from ET and/or TCV which are critical to achieving the end state. Their sequencing forms a line of operation (LOO). Some DE may be achieved concurrently.

-
- 4.33** Derivation of DE is an important activity, as they form the basis of development of the friendly force COA and are a key element of the commander's guidance issued at the end of the MA brief. Creating COA concepts using DE ensures that the COA developed will defeat the enemy through the CV identified by the commander while achieving their mission and the higher commander's intent.
- 4.34** It should be noted that the involvement of the staff in the derivation of the DE is very much influenced by the commander's style, the available planning time, the operational situation, and the number and experience level of the staff. In an SMAP, conducted by a large and experienced HQ, the commander may be well served in directing the staff to draft the DE for confirmation in their guidance following the MA brief. This is not to suggest that the commander is divorced from a key element of the planning process, but rather that the staff can greatly assist a busy commander in deriving the DE. In most cases, the commander will determine the DE and other key elements of their guidance during their own concurrent MAP and direct the staff accordingly. Alternatively and time permitting, the commander and staff may refine the DE during the MA brief. If this is unclear, clarification of the degree of staff input required should be sought by the COS during the initial guidance given by the commander on receipt of the mission.
- 4.35 Determine Enemy Targetable Critical Vulnerabilities.** The first step in deriving DE is to review the enemy CV identified in COG analysis during IPB. The planner then determines which of these CV can be influenced or exploited by the organisation planning the operation, using existing capabilities and resources. These CV are referred to as TCV. This consideration will be based upon the review of the status and combat power of own troops in the first part of the MA. Staff should be careful not to discard CV as being untargetable too early, therefore prematurely reducing the numbering of options available to the commander. In some cases a CV may become targetable with the allocation of additional capabilities from the higher commander. For example, the enemy's reliance on the integrity of C2 structures may be regarded as a TCV, should
-

the allocation of an electronic attack capability be a reasonable request to a higher commander.

- 4.36 Consider Essential Tasks.** The next aspect to be considered involves the ET drawn from the MA. By definition, these tasks should be considered essential to the achievement of the mission and the higher commander's intent.
- 4.37 Merge Targetable Critical Vulnerabilities with Essential Tasks.** The planner should now merge the two TCV and ET lists. It is not necessary to prioritise or sequence these at this stage. An example TCV and ET list is shown in [Annex E](#).
- 4.38 Determine the Decisive Events.** Determination of DE involves a combination of synthesis of the analysis from the IPB and MA, and intuitive thinking to identify major events that will form the basis of COA concepts. The planner must review the TCV and ET and determine the activities, in terms of targets and effects, which will achieve decisive outcomes against the enemy and in pursuit of the mission's purpose. They must then determine how these activities may be grouped into major events. These major events are then tested to confirm that each of them will contribute to the disruption or dislocation of the enemy COG, achievement of the commander's intent and preservation of own forces. If the major events achieve those outcomes, they are considered decisive. It should be noted that DE should not be sequenced at this point, nor should the major events dictate the forces involved or the methods employed. These activities take place when COA concepts are created.
- 4.39** The resultant list of DE should be refined to aid clarity in the next step, which is COA development. More than one TCV or ET may be encompassed in a single DE. Some DE may be purely task related, while others may be entirely CV. Some DE may achieve ET and also have a concurrent or subsequent effect upon CV. The refined list of DE does not need to be sequenced or prioritised yet, as this will occur in the first stage of the COA development. The refined DE method matrix records those DE which must be achieved to meet the ET and undermine the enemy through CV. An example DE method matrix is shown in [Annex F](#).

- 4.40** The IPB and MA are consolidated to determine the DE prior to the MA brief. This is a critical step in the MAP. DE focus the planning effort on developing COA that will defeat the enemy through TCV while achieving the mission and higher commander's intent. The activities involved in DE planning in the MAP are shown sequentially in [Figure 4-2](#).

4-13

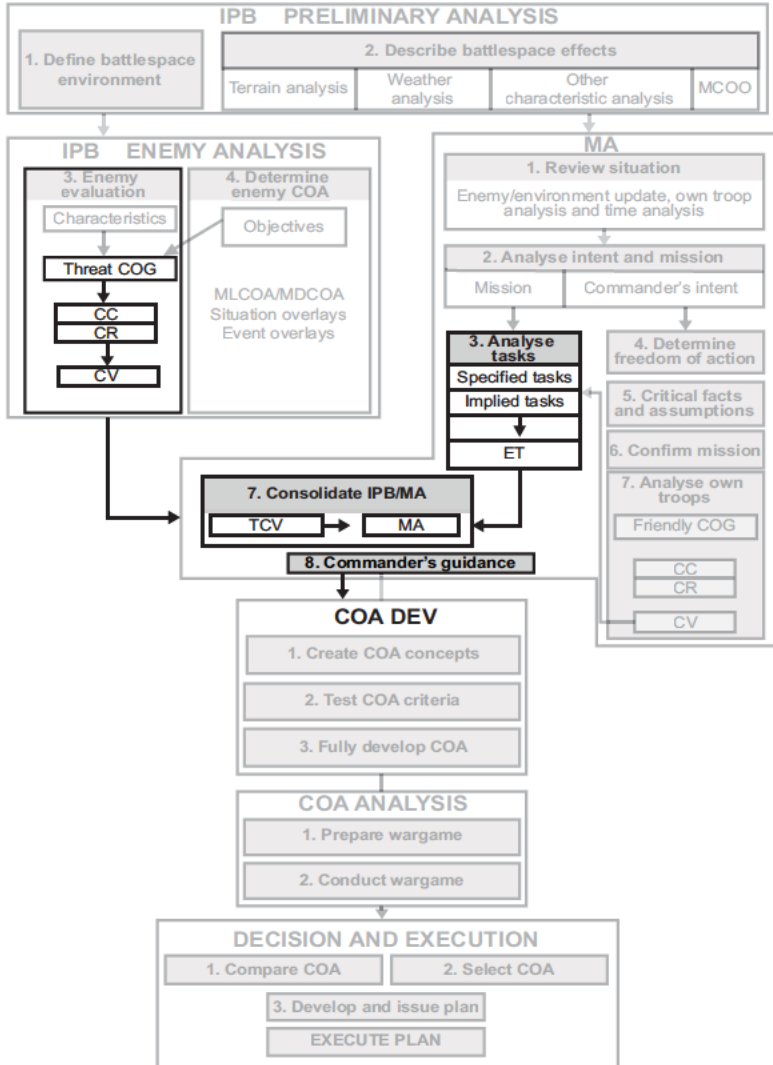


Figure 4-2: Decisive Event Planning in the Military Appreciation Process

Step 2 Activity 9 – Mission Analysis and Commander's Guidance

- 4.41** The conclusion of MA is marked by the delivery of the MA brief to the commander. This brief is designed to ensure that all areas of MA and IPB have been thoroughly investigated and that the commander's intent and concept are understood. The MA brief should not be a unit readiness briefing. Staff officers must know the status of subordinate and supporting units and include relevant information as it applies to the situation. The MA brief is not just for the benefit of the commander, but for the staff, including subordinate commanders when possible. Often this is the only time the entire staff is present, and affords the only opportunity to ensure a thorough understanding of the task and subsequent planning.
- 4.42** Guidelines for the staff officer MA briefing format are detailed in [Annex G](#).

SECTION 4-3. MISSION ANALYSIS OUTPUTS

- 4.43 Commander's Guidance.** The products of MA are the commander's guidance and the issuing of a FRAGO or confirmation of an initial WNGO. The use of WNGO maximises concurrent activity and the efficient use of available time. The commander's guidance is critical as it focuses the staff on the commander's intent and the timely, effective development of COA. At times the commander's guidance may be at variance with the general direction taken by the staff during MA. If this occurs, the staff will need to reorientate their focus prior to COA development to align their thinking with that of the commander.
- 4.44 Development of Guidance.** The commander will normally develop their guidance based on their own analysis of the situation, or they may refine the guidance during or after the MA brief. As with DE, the level of involvement of the staff in framing elements of the commander's guidance is heavily influenced by the commander's style, the available planning time, the operational situation, and the number of staff and their levels of experience. If this is unclear, clarification of the degree of staff

input required should be sought by the COS during the initial guidance given by the commander on receipt of the mission.

- 4.45** The detail of the guidance will also depend on the variables listed in [paragraph 4.44](#). The commander's guidance can be broad and general in nature, which will give the staff maximum latitude and allow a proficient staff to develop flexible and effective COA. As time becomes more constrained, the commander's guidance must become more specific and directive. The more detailed the elements of the guidance, the more quickly the staff can complete the plan, but the greater the risk of overlooking or insufficiently examining aspects that might affect mission execution.
- 4.46 Essential Elements of Guidance.** Regardless of the situation, the commander should give their personal guidance on the confirmed mission, their intent and the DE. These essential elements will provide the minimum guidance required for staff to develop COA without nugatory or wasted effort. The level of detail specified in the method element of the intent statement will normally be minimal. This is because the commander may not be able to completely detail the effects anticipated on the enemy until each COA has been fully developed in the next step (see [Chapter 5](#)). To do so may pre-empt COA development by the staff. The effect of the operation on the enemy will not be fully articulated until the commander selects the plan. However, should the commander wish to focus the staff on planning for specific effects, more detail on the method element of the intent should be provided.
- 4.47** Ideally, the commander's guidance should address the following 10 elements, which can also form the basis of the WNGO:
- a. confirm the mission;
 - b. the commander's intent;
 - c. DE;
 - d. the enemy COA to be developed;
 - e. the higher commander's deception objective;

-
- f. the commander's critical information requirements (CCIR);
 - g. the time plan;
 - h. the time, location and type of orders;
 - i. broad COA concepts based on DE; and
 - j. rehearsal details.

4.48 Confirm the Mission. The commander confirms the mission statement as being a correct reflection of the overall task and purpose of the force in accordance with the superior commander's intent.

4.49 Commander's Intent. During the MA process the commander develops their intent for the operation. After reviewing the MA briefing and the confirmed mission, they express their intent statement. The commander's intent is the commander's personal expression of why an operation is being conducted and what they hope to achieve. It is usually expressed in terms of the following three elements:

- a. *Purpose.* The purpose explains why an operation is being conducted, and is usually derived from the 'in order to' element of the mission statement and the higher commander's intent. It explains the contribution of the operation to the higher commander's plan.
- b. *Method.* The commander gives a description of the method by which they plan to achieve their purpose, explained in terms of effects created on the enemy. The method focuses on the enemy rather than the ground or friendly troop SOM. While it is inextricably linked to the SOM, it does not provide detailed tasks or actions. Rather it uses such verbs as 'dislocate', 'disrupt' and 'pre-empt' to describe the desired effects on the enemy. It can include a description of the enemy COG and the DE that will be achieved. The level of detail specified by the commander in the method element will depend on the desire or requirement to focus the staff on planning COA with specific effects on the enemy.

-
- c. *End State.* The end state describes the commander's desired outcome for the operation or the state which the commander wishes to exist when the operation is complete. It defines the success criteria of the operation and may include descriptions of the status and locations of both enemy and friendly forces. It also provides information regarding the disposition of forces for transition into the next phase of operations.

4.50 Decisive Events. It is critical for the DE to be confirmed prior to the COA development in order to focus all subsequent staff effort.

4.51 Enemy Courses of Action to be Developed. The commander directs which threat COA are to be developed to support the next two steps of the MAP. As a minimum this will include the MLCOA and MDCOA.

4.52 Higher Commander's Deception Objective. The commander can choose to state their general concept for their deception objective and how it must support their higher commander's concept.

4.53 Commander's Critical Information Requirements. The commander alone decides which information is critical, based on their experience, the mission, the higher commander's intent and input from the staff. The staff nominates information requirements to become the CCIR. The CCIR are situation dependent and specified by the commander for each operation. The commander must continuously review the CCIR during the planning process and adjust them as situations change or as assumptions are confirmed or proven otherwise. During the MAP, the CCIR most often arise from IPB and wargaming.

4.54 The CCIR are normally expressed as the following:

- a. PIR – questions about the enemy or the environment for which there is a priority need to collect information and produce intelligence;

- b. essential elements of friendly information – information regarding friendly forces that needs to be denied to the enemy's information-gathering systems for the success of the operation (eg, the location of own reserves); and
- c. friendly forces information requirements – information about the activities or capabilities of own or adjacent units.

4.55 Confirmatory Warning Order. Immediately after the commander gives their guidance, the staff will send subordinate and supporting units a confirmatory WNGO to initiate timely battle procedure. If an initial WNGO was issued after the commander's initial guidance on receipt of the mission, this should be confirmed or altered as required. A full WNGO, however, cannot be issued until after the commander's decision is made. The initial WNGO should contain, but is not limited to, the following:

- a. the confirmed mission;
- b. the commander's intent;
- c. the possible tasks;
- d. deception guidance (where applicable);
- e. specific priorities;
- f. the time plan; and
- g. reconnaissance to be initiated by subordinate units.

4.56 Broad Course of Action Concepts Based on Decisive Events. At the conclusion of the MA, COA development commences. The commander (and preferably their subordinate commanders with their principal staff officers) begin developing the broad COA that are to be developed in detail in the COA development.

4.57 Rehearsals. Rehearsals are a key aspect of the execution phase. Rehearsal techniques, detailed in [Chapter 7](#), provide options for employment depending on how much time is available and whether or not the commander can be involved

completely in the rehearsals. Details regarding the location, timing and nature of rehearsal may be disseminated by the commander.

Annexes:

- A. [Mission Analysis Aide-Memoire](#)
- B. [Roles and Responsibilities of Key Staff](#)
- C. [Example Commander's Intent Statement](#)
- D. [Example Warning Order](#)
- E. [Example Targetable Critical Vulnerability and Essential Task List](#)
- F. [Example Decisive Events Methods Matrix](#)
- G. [Mission Analysis Briefing Format](#)

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ANNEX A TO CHAPTER 4

MISSION ANALYSIS AIDE-MEMOIRE

1. An MA aide-memoire is shown in [Table 4–1](#).

4A-2

Table 4-1: Mission Analysis Aide-Memoire

<i>Inputs</i>	<i>Activities</i>	<i>Outputs</i>
Intelligence update Situation overlay Battlefield intelligence	<ol style="list-style-type: none"> 1. Review the situation: <ol style="list-style-type: none"> a. environment and threat update; b. own troops analysis: <ol style="list-style-type: none"> (1) own COG and CV; (2) state of manoeuvre, CS and CSS assets; and (3) state of morale; and c. time appreciation (1/3, 2/3 preparation). 2. Analyse the superior commander's intent and identify mission. 	<p>Most likely threat COA.</p> <p>Most dangerous threat COA.</p> <p>Initial time plan.</p>
Superior commander's guidance/orders		<p>Superior commander's intent.</p> <p>Determination of planner's part in the superior commander's intent.</p>

4A-3

Inputs	Activities	Outputs
	<div>3. Analyse tasks:<div>a. specified tasks, and</div><div>b. implied tasks, and</div><div>c. ET.</div></div>	Priority of tasks.
	<div>4. Determine freedom of action:<div>a. limitations:<div>(1) constraints (imposed actions); and</div><div>(2) restrictions (prohibited actions); and</div></div><div>b. acceptable degree of risk (cost versus gain).</div></div>	<div>Limitations.</div> <div>Acceptable degree of risk.</div>
	<div>5. Identify critical facts and assumptions:<div>a. facts (known/measurable data); and</div><div>b. assumptions (must be viable substitute for facts).</div></div>	Critical facts and assumptions.

4A-4

Inputs	Activities	Outputs
Changes to situation	6. Confirm mission.	Confirm mission. Back-brief to superior commander.
IPB products MA Task list	7. Consolidate IPB and MA: a. determine enemy TCV, b. consider ET, and c. determine DE.	DE.

4A-5

<i>Inputs</i>	<i>Activities</i>	<i>Outputs</i>
Staff MA brief	<p>8. Receive commander's guidance:</p> <ul style="list-style-type: none"> a. confirm mission; b. commander's intent (purpose, method and end state); c. DE; d. enemy COA to be developed; e. broad COA concept based on DE; f. deception objective (if applicable); g. CCIR (PIR, EEFI, FFIR); h. time plan (when order is to be issued); i. time, location and type of orders; and j. details of rehearsal (what, when and where). 	<p>WNGO issued.</p> <p>Commander's guidance.</p> <p>DE must be determined.</p> <p>and confirmed before COA development.</p>

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ANNEX B TO CHAPTER 4

ROLES AND RESPONSIBILITIES OF KEY STAFF

The Commander

1. As the commander is responsible for the direction of the decision-making process, it follows that they must be fully involved in the MAP, providing guidance during the MA, and that, as they make the decisions, they must be involved in the decision and execution. The extent to which the commander is involved in the detailed development and analysis of the COA will depend on a number of considerations, including:
 - a. the prevailing situation (in particular, the time available to make a decision);
 - b. the state of training and experience of the staff;
 - c. the level of decision-making required;
 - d. the potential complexity of the required decision; and
 - e. the style and personality of the commander.
2. The commander may also undertake their own individual MAP while their staff enhance situational awareness and conduct the MA. The commander's individual MAP allows the development of their own commander's intent and provides guidance to their staff. It drives the MAP and results in a command decision that allows the commander to influence the direction that the staff will take when solving the problem.
3. While the format for the commander's MAP is largely their choice, it should adhere to the format for an individual MAP. The commander integrates their personal knowledge of the situation (including the results of any reconnaissance and personal discussions with higher commanders) with their intuition and experience. The commander may choose to draw upon those products from higher HQ and from their own staff in the conduct of their analysis. They will normally need to

4B-2

complete an initial IPB and MA to be in a position to issue their guidance for COA development.

4. The commander is also responsible, when the plan is finalised, for reporting back to their superior to ensure that the plan is coordinated and meets the senior commander's intent. This back-brief should follow an SOP format.

The Staff

5. The staff are responsible for completing the bulk of the MAP under the direction of the commander, or their principal staff officer/COS. (A graphical overview of the staff appreciation process and outputs is shown in [Annex A to Chapter 1.](#)) At lower tactical levels, the staff is concerned with the detailed evaluation of information and the conduct of checks on behalf of the commander. At the higher tactical levels and at the operational level (particularly in joint and combined operations), staff members will be required to conduct their own planning in their BOS specialties, which will contribute to the core MAP. In addition, they will often be required to develop options, or COA, for the commander to compare and decide upon. However, while members of the staff may recommend a COA to the commander, they do not make the decision.
6. BOS planning and analysis supports each step of the MAP, and should form the basis for staff and BOS briefings and annexes to orders and plans. Staff officers and BOS advisers are required to support ongoing planning by providing staff checks, facts and staff conclusions. BOS analysis must be used to validate MAP assumptions or to replace assumptions with facts. It must also be used as the basis for the comparison of viable COA during Step 3 of the MAP – COA Development (see [Chapter 5](#)) and Step 4 of the MAP – COA Analysis (see [Chapter 6](#)).

The Chief of Staff

7. The COS synchronises the staff effort. They manage, coordinate and discipline the staff's work while providing quality control over the MAP process. They must thoroughly understand the commander's intent and guidance so that they

4B-3

can supervise the entire MAP in the commander's absence. They ensure that the staff has the information, guidance and facilities it needs. They provide time lines to the staff, establish back-brief times and locations, and provide any unique instructions that are required. Most importantly, they ensure that each of the functional areas within the staff continually liaises with the others to ensure that their work remains coordinated and not tangential to the direction of the problem-solving process.

8. While the commander allows the COS to direct the staff effort on their behalf, the COS does not have a command function and can only implement command decisions on behalf of the commander after consultation or direction.
9. The SMAP is a dynamic group decision-making process. As such, it is prone to the strengths and weaknesses evident in a social environment. It requires continual development of both the individual BOS expertise and the collective staff effort. The COS should be a team builder, ensuring that the group always remains output focused. Tendencies by sub-groups and individuals towards fragmentation and misaligned priorities must be moderated through strong leadership and an emphasis on the commander's intent.

4B-4

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ANNEX C TO CHAPTER 4

EXAMPLE COMMANDER'S INTENT STATEMENT

1. The expression of a commander's intent is very much a personal process that reflects the style of the particular commander who is issuing it.
2. In this example the reader should be able to determine the enemy's perceived weaknesses or CV and how the commander intends to expose them. The critical activities or DE that need to occur to achieve the commander's shaping effect should also be evident.
3. The link between the commander's intent and the SOM is critical to their subordinates' understanding of the commander's plan. While the intent describes how the enemy will be shaped, the SOM details how own forces will be used to achieve the desired end state.

COMMANDER'S INTENT STATEMENT

Purpose

4. 1 Bde is to advance to and capture Warwick through the Boonah corridor. The speedy capture of Warwick should lead to the positional dislocation of the enemy's divisional counterattack force in relation to the ANZAC Div ME on the Mount Lindsay Highway.

Method

5. I assess the enemy COG to be their remaining tank forces. With these they can generate powerful reserves capable of either mounting spoiling attacks against my advancing forces or establishing clean breaks for delay forces which have been decisively engaged. These actions would reduce the tempo of my advance. The CV I intend to exploit are the relative superiority of my anti-armoured systems at night and the

weakness of their C2 capacity to effectively direct their reserves when denied reliable intelligence. DE in my plan are: pre-empt their ability to establish a delay intercept line on the Boonah River by seizing the crossing points early. Decisively engage the bulk of their delay forces on their first intercept line while simultaneously threatening their flank and line of withdrawal. Draw their armoured reserves into ground of my choosing where they will be fixed and destroyed. This will facilitate a quick advance to and capture of Warwick.

End State

6. My end state is to have established a quick defence of Warwick, to have destroyed at least 60 per cent of the enemy's 35 Mech Bde tank forces, to have established secure logistic LOC, and to be poised to conduct further offensive operations in support of the ANZAC Div capture of Brisbane.

4D-1

ANNEX D TO CHAPTER 4

EXAMPLE WARNING ORDER

SECURITY CLASSIFICATION

Copy XX of 23

HQ 3 BDE

HMAS CANBERRA

14 1000K NOV XX

909-1-11**HQ 3 BDE/OPS/OUT/01/XX****See distribution**

WNGO 01/XX - OPERATION HUMMOCK

Ref:

- A. MAP Op HUMMOCK Special 1:100,000.
- B. MAP SG 56 BRISBANE Ed 1, 1:100,000.
- C. WNGO Op Hummock dated 14 Nov XX.
- D. CJTF OPINST 02/XX Op HUMMOCK dated 28 Oct XX.
- E. CTU 630.1.2 OPORD 03/XX dated XX Oct XX.
- F. ANZAC DIV SOP.
- G. 3 BDE SOP.

SECURITY CLASSIFICATION

SECURITY CLASSIFICATION

Page 2 of 6

1. Situation

- a. **Enemy.** 7 Inf Div are defending BDB IOT retain FOM to spt the withdrawal of 1 MEA on own terms. 7 ID will conduct an aggressive mobile urban defence from within BDB city reinforced with FE from 2 and 9 MD. 16 Inf Bde operate in the outlying areas of Childers, Maryborough and Biggenden, with 18 Inf Bde defending the approaches and key locations within BDB. End state will be achieved when 1 MEA has successfully retired, Australian FE are focused on rebuilding civilian infrastructure and Australian SAG are interdicted, in doing so preventing it from targeting the retirement.

b. Friendly Forces:

- (1) **COMD CJTF 630 Intent.** s33(a)(ii)
s33(a)(ii)

s33(a)(ii)

- (2) s33(a)(ii)

s33(a)(ii)

- (3) **COMD CTU 630.1.2 Intent.** s33(a)(ii)
s33(a)(ii)

s33(a)(ii)

- c. **Civilians.** BDB and surrounding AO pre-conflict population was assessed at approximately 70,000 pers (approx 49, 000 in BDB). The ethnic make up of the AO is similar to the remainder of SE Qld with the majority of pers being Australian citizens. Approximately 3500 Musorian expats are thought to live in the AO, mainly in the BDB, GIG area, and their sympathies are assessed as mixed, although only a minority are assessed as actively supporting 1 MEA. Several NGO have representation in JFAO North and possibly AO BEAR but their capacity to provide services is assessed as low.

SECURITY CLASSIFICATION

SECURITY CLASSIFICATION

Page 3 of 6

2. **Mission** s33(a)(ii)
s33(a)(ii)
s33(a)(ii)
- a. **1 AR BG.** s33(a)(ii)
s33(a)(ii)
- b. **2 RAR BG.** s33(a)(ii)
- c. **5 RAR BG.** s33(a)(ii)
s33(a)(ii)
- d. **2 CAV BG.** s33(a)(ii)
s33(a)(ii)
- e. **3 CSSB.** s33(a)(ii)
3. **Degree of Notice to Move.** s33(a)(ii)
s33(a)(ii)
4. **Time and Place of Orders.** s33(a)(ii)
s33(a)(ii)
5. **Prelim Moves:**
s33(a)(ii)
a. s33(a)(ii)
s33(a)(ii)
b. s33(a)(ii)
s33(a)(ii)
6. **Admin.** s33(a)(ii)
s33(a)(ii)
7. **Ack Instr.** s33(a)(ii)
s33(a)(ii)

S. M. ARCHER

BRIG

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Distribution:**SECURITY CLASSIFICATION**

SECURITY CLASSIFICATION

Page 4 of 6

	Copy No.
COMD	1
COS	2
S1	3
S2	4
S3	5
S4	6
S5	7
S6	8
S8	9
CO 1 AR	10
CO 2 RAR	11
CO 5 RAR	12
CO 3 CSR	13
CO 3 CSSB	14
CO 4 REGT	15
CO 5 AVN	16
OC A SQN 3 CER	17
OC A SQN 2 CAV	18
	19

SECURITY CLASSIFICATION

4D-5

SECURITY CLASSIFICATION

Page 5 of 6

20

21

22

23

SECURITY CLASSIFICATION

4D-6

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4E-1

ANNEX E TO CHAPTER 4

EXAMPLE TARGETABLE CRITICAL VULNERABILITY AND ESSENTIAL TASK LIST

1. An example TCV and ET list is shown in [Figure 4–3](#).

4E-2

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4E-3

Enemy Targetable Critical Vulnerability ⁽¹⁾	Friendly Critical Vulnerability ⁽¹⁾	Essential Tasks
<ul style="list-style-type: none">● En manoeuvre assets and reserve vulnerable to detection, direct and indirect fires at en choke points in manoeuvre corridors during lodgment.● En COMMS deficiencies vulnerable to EW targeting to disrupt coordinated response during lodgment and on approach to securing key objectives.● En vulnerable to dislocation due to insufficient combat power to react to more than one POE.● En vulnerable to dislocation from flanking forces due to limited and targetable manoeuvre corridors.	<ul style="list-style-type: none">● C3 of lodgment assets vulnerable to disruption to de-synchronise and isolate individual friendly elements.● Predictability of lodgment assets in terms of launch times and objectives (tidal windows, APOD, SPOD, etc.).● Predictable approaches and LZ due to reliance on air assets to achieve massed lodgment.● LOC vulnerable to disruption or denial by en due to size and predictability of locations and routes of major CSS nodes.	<ul style="list-style-type: none">● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)
Decisive Events		
<ul style="list-style-type: none">● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)	<ul style="list-style-type: none">● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)● s33(a)(ii)	
<p>Note: Fr CV may either influence the method by which a DE is achieved or form an ET. All ET either form an individual DE or combine to create a DE.</p> <p>Notes: 1. Not all en TCV and fr CV will form DE. They may simply influence the method by which a DE is achieved (see en TCV and Fr CV in bold type).</p>		

Figure 4–3: Example Targetable Critical Vulnerability and Essential Task List

4E-4

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ANNEX F TO CHAPTER 4

EXAMPLE DECISIVE EVENTS METHODS MATRIX

1. An example DE methods matrix is shown in [Figure 4-4](#). Each DE can be achieved through a number of different methods. The chosen methods for each DE is shown in red text and in sequence from 1 to 8.

4F-2

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4F-3

<i>Decisive Event</i>	<i>Method 1</i>	<i>Method 2</i>	<i>Method 3</i>
s33(a)(ii)	1. s33(a)(ii)	s33(a)(ii)	s33(a)(ii)
s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	2. s33(a)(ii)
s33(a)(ii)	s33(a)(ii)	3. s33(a)(ii)	s33(a)(ii)
s33(a)(ii)	7. s33(a)(ii)	s33(a)(ii)	s33(a)(ii)
s33(a)(ii)	4. s33(a)(ii)	4. s33(a)(ii)	s33(a)(ii)
s33(a)(ii)	s33(a)(ii)	5. s33(a)(ii)	s33(a)(ii)
s33(a)(ii)	s33(a)(ii)	6. s33(a)(ii)	s33(a)(ii)
s33(a)(ii)	s33(a)(ii)	8. s33(a)(ii)	
Note: Each DE can be achieved through a number of different methods. The chosen methods (see red text) are then sequenced from 1 to 8. These combine to form a COA. Distinguishability between COA can be achieved through the combination of different methods and different sequencing.			

Figure 4–4: Example Decisive Events Methods Matrix

4F-4

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ANNEX G TO CHAPTER 4

MISSION ANALYSIS BRIEFING FORMAT

Staff Officer Mission Analysis Brief Guidelines

1. Prior to the MA briefing, staff officers must know the status of subordinate units, the limitations and capabilities of weapons systems, the AO and AI, the enemy situation and capabilities, and the time available. They must understand the mission and intent of higher HQ. Each staff officer must bring with them to the MA the technical knowledge, estimates and historical data required.
2. This annex provides guidelines to assist the staff officer in their preparation for the MA brief. This list is not all-inclusive; it is generic and should be reviewed and revised to meet individual needs.
3. All staff officers should include the following in their brief:
 - a. specified and implied tasks,
 - b. ET,
 - c. constraints,
 - d. TCV,
 - e. DE,
 - f. time considerations, and
 - g. recommended CCIR.
4. [Table 4–2](#) shows the suggested format for the MA brief.

4G-2

Table 4–2: Mission Analysis Briefing Suggested Format

<i>Briefer</i>	<i>Subject</i>
COS/G/J/S3	<ol style="list-style-type: none">1. Purpose of the briefing.2. Condition of own force (COG, TASKORG and morale).3. Time appreciation.
G/J/S2	<ol style="list-style-type: none">4. Initial intelligence estimate:<ol style="list-style-type: none">a. brief analysis of the AO (terrain, weather and other factors);b. brief threat COG analysis leading to CV; andc. brief on threat situation overlays (MLCOA and MDCOA) as developed to this point.
G/J/S3	<ol style="list-style-type: none">5. Intent and mission of higher and next higher commander.6. Own mission.7. Specified tasks, implied tasks and ET.8. Freedoms of action – limitations and initial risk assessment.9. Critical facts and assumptions.10. Manoeuvre and CS conclusions, shortfalls and constraints.

4G-3

<i>Briefer</i>	<i>Subject</i>
G/J/S1	<ul style="list-style-type: none"> 11. Personnel facts (strengths and shortages and medical status and capability). 12. Personnel assumptions (replacements, HN support, stragglers and POW considerations). 13. Personnel conclusions (projected personnel and medical shortfalls, warstoppers).
G/J/S4	<ul style="list-style-type: none"> 14. CSS brief/update (repair and recovery, transport and sustainability). 15. CSS conclusions, shortfalls and constraints.
G/J/S5	<ul style="list-style-type: none"> 16. Civil affairs brief/update (civil–military analysis, media and foreign nation support). 17. Civil affairs conclusions, shortfalls and constraints.
G/J/S6	<ul style="list-style-type: none"> 18. COMMS facts, assumptions and conclusions. 19. COMMS shortfalls and warstoppers.
FSC	<ul style="list-style-type: none"> 20. Fire support capabilities. 21. Recommended tasks for fire support. 22. HVT by decisive critical events. 23. Impact of IPB, target value analysis, and battlefield geometry on fire support.

4G-4

<i>Briefer</i>	<i>Subject</i>
	24. Protected target list, including cultural, religious, historical and high-density civilian population areas.
MS Coordinator	<p>25. Engineer assets available.</p> <p>26. Capabilities with available assets (eg, number of fighting positions; number, size and density of minefields, and metres of antitank ditch; smoke assets; and nuclear demolition assets).</p> <p>27. Terrain visualisation support through EBA.</p> <p>28. CBRN, including:</p> <ul style="list-style-type: none"> a. assets available, to include reconnaissance, decontamination, smoke, and any constraints; b. CBRN threat status; and c. troop safety criteria.
ADCOORD	<p>29. Current C2 measures for AD (AD warning, weapons control status).</p> <p>30. Enemy air capabilities (most likely air AA, type and number of sorties, HVTL).</p> <p>31. AD assets available.</p>

4G-5

<i>Briefer</i>	<i>Subject</i>
COS/G/J/S3	<p>32. Present recommended restated mission for commander's approval.</p> <p>33. Restate ET and possible constraints to the operation.</p> <p>34. Brief on recommended enemy targetable vulnerabilities.</p> <p>35. Brief on recommended DE if appropriate.</p>
Commander	<p>36. Provide commander's guidance, including:</p> <ul style="list-style-type: none"> a. confirmed or amended mission, b. intent, c. DE, d. threat COA to be developed, e. broad COA concepts based on DE, f. deception objective, g. CCIR, h. time plan, i. type of order to be issued, and j. type of rehearsal.

4G-6

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CHAPTER 5

STEP 3 – COURSE OF ACTION DEVELOPMENT

SECTION 5-1. OVERVIEW

- 5.1** The COA development step of the MAP commences at the conclusion of the MA when the commander confirms the broad COA to be developed. COA development refines the broad concepts into COA statements that provide the commander with a range of workable options from which to choose a solution to achieve the mission.
- 5.2** The COA development step concludes with the production of COA statements and their supporting graphics, including the synchronisation matrix and decision support overlays (DSO) ready for analysis during COA analysis. A COA development aide-memoire shown in [Annex A](#). A detailed briefing format for COA development is provided in [Annex B](#) and the COA development activities are outlined in [Figure 5–1](#).

STEP 3 - COURSE OF ACTION DEVELOPMENT

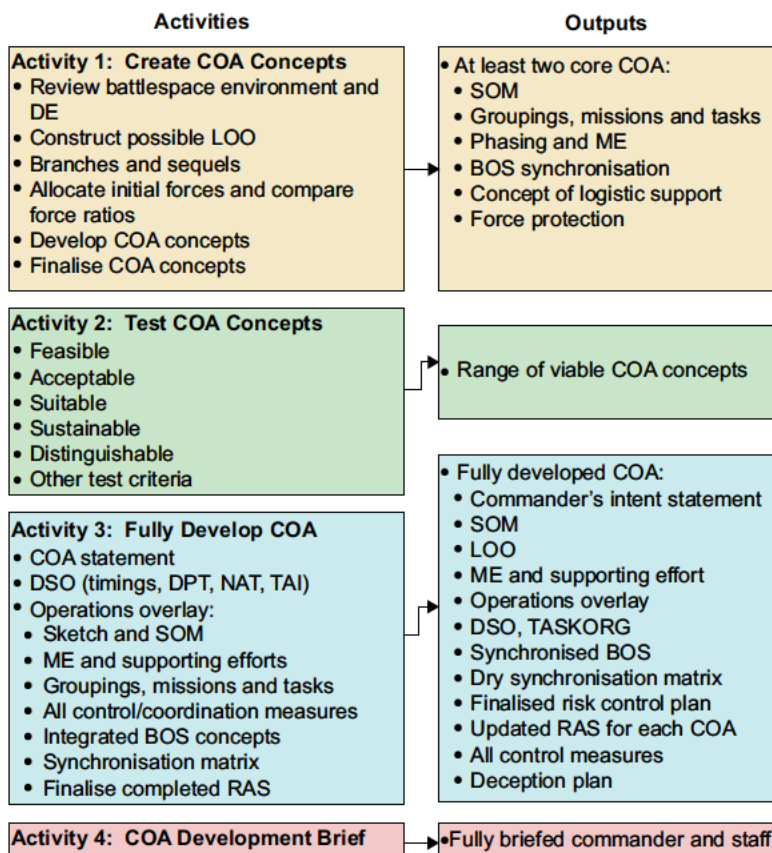


Figure 5–1: Course of Action Development Activities

SECTION 5-2. COURSE OF ACTION DEVELOPMENT PROCESS

Step 3 Activity 1 – Create Course of Action Concepts

5.3 Review Battlespace and Confirm Decisive Events. COA are then developed to the point of establishing a clear SOM for

each COA, including an ME, a concept for phasing (if required), and key supporting BOS activities. COA concepts are then tested to confirm whether they meet the FASSD criteria, before they are fully developed. Interaction between all staff is critical in the early stages of this step to ensure that COA concepts are not developed or considered in isolation. BOS specialist staff may need to undertake separate individual BOS planning and develop BOS concepts in support of the core concept. Further information on BOS planning is contained in [Chapter 8](#).

- 5.4 Construct Possible Lines of Operation.** A LOO is a description of how military force is applied in time and space through DE. Having reviewed and sequenced the DE, the planner constructs possible LOO by using various combinations of DE. At the lower tactical levels it may not be possible to construct more than one LOO owing to a lack of resources or the nature of the situation. At higher levels, a number of LOO may be essential to achieve disparate DE and maintain the initiative. [Figure 5–2](#) depicts a single LOO with a branch and sequel.

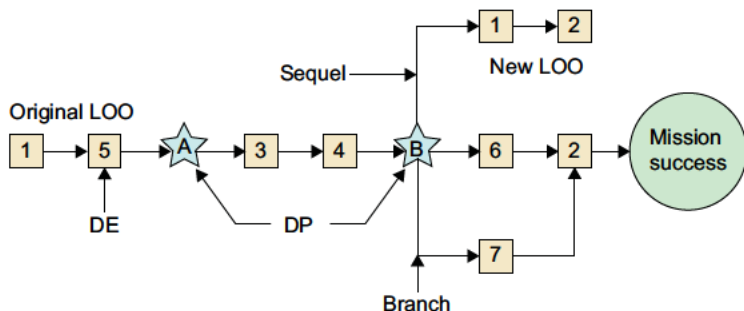


Figure 5–2: Single Line of Operation

- 5.5 Structure of Lines of Operation.** A single LOO can be used to express a simple COA. A LOO is constructed by linking the DE required to achieve the mission. The DE may be prioritised to assist in the allocation of resources. DP are inserted in the LOO if a decision on the next action is required, particularly if

the action is dependent on the outcome of a DE. Differing COA will have different LOO; the key difference is in the sequencing of DE. It should be noted that DE may not always be achieved sequentially; rather, they may be achieved simultaneously. Forces below brigade level will operate in a single LOO, which is an arrangement of DE. When operating at brigade level and above, forces may operate along several LOO, operating with an array of enablers or across a range of environments.

- 5.6 Branches and Sequels.** A DP triggers a branch, a sequel or a continuation along the same LOO. A branch is a deviation from the original LOO, then a return in order to achieve the same end state. The branch may be used either to achieve a separate DE or to achieve the same DE through a different method. A sequel is an option for a commander to conduct a follow-on action after achieving an objective or mission or if the situation has changed. A sequel is a new LOO and may assist the commander to seize the initiative.
- 5.7 Allocate Initial Forces and Compare Force Ratios.** The planner now allocates sufficient forces to achieve successive DE within the LOO. This requires that start states and locations be agreed for both own and enemy forces. The enemy start state is derived from the IPB situation overlays, and the friendly equivalent is determined as a result of any preliminary moves directed in the WNGO given at the conclusion of the MA.
- 5.8** At this stage the allocation of forces is a preliminary estimate and should be considered in outline only, with the necessary detail coming later in the process. For example, a planner may determine that, at a particular DE, the enemy is likely to be a mechanised battalion conducting an advance to contact as a brigade first echelon. If the DE required is to delay the enemy, it may be implied that the minimum own force required to achieve the DE would be a friendly combat team. Broad force ratios can be compared at DE to determine the allocation of forces needed to achieve the desired DE. Force ratio comparison tables are provided in [Annex C](#).
- 5.9 Develop Courses of Action.** The staff must now develop COA using the initial allocation of forces at each DE. At this stage the

COA must not be overly constrained by the many complexities required to synchronise a detailed plan, as this will occur later in the process. One method to ensure that the focus is maintained at the appropriate level is to initially portray the COA in a rough but workable sketch format on 'butcher's paper' or a whiteboard if available. This will facilitate the capture of ideas regarding the COA as they come to mind. This sketch can be subsequently refined to become a COA overlay (see [Annex D](#)).

5.10 The creation of a COA may be aided by working through the following sequence:

- a. *Visualise the Scheme of Manoeuvre.* This activity visualises where friendly forces are now and the desired end state. The staff use their experience to determine how the battle may unfold and the SOM of own forces required to achieve each DE within the COA being developed. Staff may be aided by consulting subordinate unit commanders and staff, or by considering doctrinal options to achieve the end state. Doctrinal options must be modified to avoid allowing the enemy to template our actions in their own version of the IPB process. Surprise and deception should feature in the development of most COA. For example, the operation required may be:
 - (1) an advance to contact,
 - (2) a quick attack,
 - (3) a deliberate attack,
 - (4) a delay defence,
 - (5) a mobile defence,
 - (6) an area defence, or
 - (7) any combination of these.
- b. *Identify and Build a Main Effort.* Identifying and building an ME in a COA will ensure that a momentous effect is achieved through the most efficient use of available resources. Other actions within the COA should support

the ME to achieve a unified effort in key areas required in the COA.

- c. *Consider Phasing.* It may be necessary to phase the operation to allow regrouping or reorientation, a change of ME or a significant change in tasks. The requirement for phasing must be balanced with the desire to retain the initiative and deny the enemy the opportunity to conduct operations such as counterattacks.
- d. *Consider Key Supporting Battlespace Operating Systems.* The integration of the activities and effects of key supporting BOS in the COA needs to be considered. The full integration of BOS effects is detailed in [Chapter 8](#).
- e. *Consider Force Protection.* Force protection is defined as the shaping of the battlespace to conserve and maximise fighting power by protecting own CV. COA must encompass the philosophy of force protection while achieving the DE.
- f. *Assign Command, Control, Communications, Computers and Intelligence Measures.* The employment of command, control, communications, computers and intelligence measures as appropriate to the operation are assigned to aid the C2 of the COA. These will be refined during the COA analysis.

5.11 Each COA has an SOM that includes:

- a. outline groupings;
- b. missions and tasks;
- c. the assignment of ME;
- d. a concept for phasing, if required;
- e. DE achieved by phase;
- f. reserve allocation; and
- g. preliminary synchronisation of BOS.

Step 3 Activity 2 – Test Course of Action Concepts

5.12 COA development strives to develop a range of courses to meet the DE within the guidance provided by the commander. The principal test of a COA is whether it meets the commander's guidance and in particular, their intent. The following is a list of test criteria based on the mnemonic FASSD:

- a. *Feasibility.* The COA is analysed against the following questions:
 - (1) *Time.* Is there sufficient time to execute the concept as envisioned within the agreed operational time line?
 - (2) *Space.* Is there adequate ground and air space to conduct the operations?
 - (3) *Means.* Do friendly forces have the necessary combat power to conduct the operation? Relative combat ratios are checked at the DE in the expected battle. Resources for critical aspects of the operation, such as bridging assets for a river crossing, are checked.
- b. *Acceptability.* The COA is assessed for acceptability by comparing the probable risk (cost) versus the probable outcome of the COA in fulfilling the superior commander's intent. The commander must make a judgment based on understanding of the potential gain of the intended battle in terms of its contribution to the overall success of the campaign, and against the likely cost of the battle in terms of personnel casualties, the time spent and resource usage. This step aims to avoid unnecessary conflict and risk.
- c. *Suitability.* The COA is subjectively assessed as to its suitability for accomplishing the mission in accordance with the superior commander's guidance.
- d. *Sustainability.* The COA is assessed for sustainability by phase in deep, close and rear areas. For example, have

planners allowed enough time for forces to prepare, deploy or reconstitute for subsequent operations? Are the logistics support and cost for this COA realistic or unattainable?

- e. *Distinguishability.* The COA is assessed on its uniqueness in comparison with other COA. Each COA must be a viable alternative and substantially different from other COA. Differences in COA are developed by emphasising distinction in four areas. These comprise the sequence for achieving the DE, the SOM, the focus or direction of the ME, and the TASKORG.

5.13 It may also be appropriate to test the COA against the key principles and basic considerations for that type of operation, and the achievement of DE.

Step 3 Activity 3 – Fully Develop Courses of Action

5.14 The COA that have passed the criteria test in the previous activity are now fully developed in sufficient detail to be analysed during the COA analysis. Each COA should be fully developed in the following areas:

- a. a COA statement including as a minimum:
- (1) the SOM,
 - (2) LOO,
 - (3) the ME,
 - (4) supporting efforts,
 - (5) missions,
 - (6) groupings,
 - (7) tasks,
 - (8) control measures,
 - (9) coordination arrangements,
 - (10) preliminary moves,
 - (11) a synchronisation matrix,

- (12) the deception plan,
- (13) OS, and
- (14) logistic support and so on;
- b. a decision support overlay (DSO) including as a minimum:
 - (1) timings,
 - (2) DP,
 - (3) NAI, and
 - (4) TAI; and
- c. an operations overlay including as a minimum:
 - (1) a complete sketch and SOM;
 - (2) sub-unit groupings, ME, missions and tasks;
 - (3) boundaries, phase lines and report lines;
 - (4) fire support coordination lines;
 - (5) battle positions (primary and secondary), ground routes and air routes;
 - (6) synchronisation of supporting BOS concepts;
 - (7) coordination points, checkpoints, and equipment and casualty collection points; and
 - (8) any other necessary control measures specific to the mission.

5.15 Constructing the Course of Action Method Statement. It should now be possible to fully describe the actions to be taken against the hostile forces by each COA, if not previously directed in the commander's guidance. The description of the effects on the hostile force is directly influenced by the method element of the commander's intent and is referred to as the COA method statement. It can include a description of the hostile force COG and the DE to be achieved, supported by a method statement particular to a given COA. When the

commander selects the final COA at the end of the MAP, the chosen COA method statement becomes the method element of the commander's intent.

- 5.16 Synchronisation.** Each COA is fully developed to produce a synchronisation matrix. At this stage the matrix establishes friendly force tasks, purposes and timings but does not take into account enemy action. Reviewing the synchronisation matrix highlights any BOS synchronisation issues before COA analysis. During COA analysis, the synchronisation matrix can be adjusted to accommodate the predicted impact of hostile forces, terrain or other issues. An example synchronisation matrix is shown in [Appendix 1](#) to [Annex D to Chapter 6](#).

SECTION 5-3. COURSE OF ACTION DEVELOPMENT OUTPUTS

- 5.17** At the conclusion of the COA development, the staff has a number of fully developed COA ready for COA analysis. If the COA are not fully developed, they must be completed before progressing to COA analysis. The main outputs are the COA statements, and overlays and the synchronisation matrix.
- 5.18** The COA statements and overlays and the synchronisation matrix provide the framework for analysis (wargaming) and should contain sufficient detail to allow a rigorous analysis and comparison. COA working sketches should be refined and completed in overlay format prior to COA analysis, and the terrain aspects of the MCOO should be properly incorporated.
- 5.19** The COA statement and overlay cover the 'who, what, when, where, how and why' of the operation. They must clearly portray how the friendly force will defeat the hostile force and achieve the mission, addressing each part of the battlespace framework (deep, close, rear and the reserve). An example of COA statement together with overlay is shown in [Annex D](#). The COA statement and overlay should state, clearly and concisely, the following information:
- a. the activity purpose, method and end state;

- b. the SOM, including grouping, missions and tasks;
- c. the ME;
- d. phasing, if required;
- e. timings; and
- f. synchronisation of supporting BOS.

SECTION 5-4. STAFF INTERACTION

5.20 COA development is driven by the commander's guidance issued at the end of the MA. The commander may subsequently be absent from the HQ for some time undertaking reconnaissance or revisiting the current battle. The staff undertakes the majority of the COA development under the direction of the COS. The following is a list of considerations for the COS in the COA development:

- a. *Time Management.* It is crucial that the COS maintains the direction of the staff to ensure that they adhere to the timings and do not reduce the time available for COA analysis.
- b. *Staff Communication.* Communication between all staff is critical to ensure that COA and hostile force estimates are not developed in isolation. COA must be formulated with an awareness of hostile force COG, TCV and likely approaches or dispositions. Hostile force COA must be developed cognisant of likely own force and friendly force dispositions, or they are of little value as hostile force models.
- c. *Logistic Integration.* The CSS staff must be intimately involved in the COA development. In some cases, COA may be discarded due to CSS limitations, saving considerable effort for all staff. CSS staff should note the early intent apparent at this stage of the process and provide early warning to the CSS chain of command. Additionally, the CSS staff must participate in the activity to test COA criteria in order, to provide an estimate that

-
- each COA is logistically feasible, acceptable, sustainable and suitable.
- d. *Battlespace Operating System Staff.* The BOS advisers must also be available when COA are being developed and tested. They must provide advice on the capability embodied within their BOS. Once the COA are stated, the BOS staff requires time to develop their own BOS concept in support of the core concept. These are required in sufficient detail to enhance the wargame during the COA analysis.
 - e. *Robust Products.* The COS must examine each of the COA products to ensure that they are robust and sufficiently detailed to support the analysis in the next step (see [Chapter 6](#)). Time spent preparing these products saves considerable time during the COA analysis.

Annexes:

- A. [Course of Action Development Aide-Memoire](#)
- B. [Course of Action Development Briefing Format](#)
- C. [Force Ratio Comparison Tables](#)
- D. [Example Course of Action Statement and Overlay](#)

5A-1

ANNEX A TO CHAPTER 5

COURSE OF ACTION DEVELOPMENT

AIDE-MEMOIRE

1. A COA development aide-memoire is shown in [Table 5-1](#).

Table 5–1: Course of Action Development Aide-Memoire

<i>Inputs</i>	<i>Activities</i>	<i>Outputs</i>
<p>Commander's guidance.</p> <p>IPB update and situation overlays.</p> <p>DE analysis carried over from MA.</p>	<ol style="list-style-type: none"> 1. Create COA concepts (if not given by commander): <ol style="list-style-type: none"> a. review DE; b. construct possible LOO; c. allocate initial forces and compare force ratios; and d. develop COA: <ol style="list-style-type: none"> (1) visualise SOM; (2) identify and build an ME; (3) consider phasing; (4) consider key supporting BOS; (5) consider force; 	<p>Identify at least two core COA.</p> <p>Develop a range of COA, including:</p> <ol style="list-style-type: none"> a. phasing, b. ME, and c. group mission and tasks, integration of BOS.

Contents

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Contents

5A-2

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5A-3

Inputs	Activities	Outputs
	(6) consider force protection; and (7) assign C4I measures (objectives, boundaries, FSCL, PL, axis, routes, AA).	
	2. Test COA criteria: a. Is it suitable (does it meet the commander's guidance)? b. Is it feasible (sufficient time, space and means)? c. Is it acceptable (is it worth the risk/cost)? d. Is it distinguishable (is it different)?	Range of viable COA sketches. COA may also be tested against principles of war and considerations for a particular phase.

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Contents

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Contents

Contents

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5A-4

Inputs	Activities	Outputs
COA concept sketches	<div>3. Fully develop COA:<div><div>a. troops to task;</div><div>b. time and space;</div><div>c. C2;</div><div>d. integrate BOS concepts;</div><div>e. update NAI, TAI and DP (event overlay) statement;</div><div>f. construct the COA method; and</div><div>g. develop the COA statement and overlay.</div></div></div>	<div>Produce detailed COA statement and overlay.</div> <div>Identify NAI, TAI and DP to be confirmed in wargaming.</div> <div>Staff COA brief.</div>

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Contents

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5B-1

ANNEX B TO CHAPTER 5

COURSE OF ACTION DEVELOPMENT BRIEFING FORMAT

1. The suggested format for the COA development briefing is shown in [Table 5–2](#).

Table 5–2: Course of Action Development Briefing Format

<i>Briefer</i>	<i>Subject</i>
COS/J/G/S3	<ol style="list-style-type: none">1. Intent of own and higher commander.2. Mission.3. DE.
J/G/S2	<ol style="list-style-type: none">4. Updated intelligence estimate:<ol style="list-style-type: none">a. current enemy situation – enemy MLCOA and MDCOA situation overlays; andb. event overlay updated.

5B-2

<i>Briefer</i>	<i>Subject</i>
J/G/S3	<ol style="list-style-type: none"> 5. Brief on each COA: <ol style="list-style-type: none"> a. COA statement and overlay: <ol style="list-style-type: none"> (1) broad COA concept and DE achieved; (2) SOM: <ol style="list-style-type: none"> (a) close, deep, rear, security and reserve operations; and (b) main supporting and deception efforts.; (3) acceptable levels and areas of risk; and (4) overlay details; and b. COA rationale: <ol style="list-style-type: none"> (1) achievement of DE, (2) enemy CV exploited, (3) deductions from relative combat power analysis, (4) reasons for force positions selected, and (5) reasons for control measures selected.
J/G/S1	<ol style="list-style-type: none"> 6. Update key personnel facts, assumptions and conclusions as necessary. 7. Key estimates for each COA (unit strength, projected casualties, medical capability, stragglers and POW).

5B-3

<i>Briefer</i>	<i>Subject</i>
J/G/S4	<p>8. Update key logistic facts, assumptions and conclusions as necessary.</p> <p>9. Key estimates for each COA (movement, Class 1, 3, 4 and 5 usage, projected equipment readiness, loss and repair).</p>
J/G/S5	<p>10. Update key civil affairs facts, assumptions and conclusions as necessary.</p> <p>11. Key estimates for each COA (local coordinator, displaced persons activities).</p>
J/A/S5	<p>12. Update key CIS facts, assumptions and conclusions as necessary.</p> <p>13. Key estimates for each COA (CIS services to staff, CIS support to DE and DP).</p>
COS/J/G/S3	14. Recommend COA to be analysed.
Commander	<p>15. Direct modification of presented COA as required.</p> <p>16. Modify intent as desired.</p> <p>17. Direct COA to be analysed and time allowed.</p> <p>18. Direct COA comparison criteria if COA analysis and decision and execution steps and briefs are to be combined.</p>

5B-4

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5C-1

ANNEX C TO CHAPTER 5

FORCE RATIO COMPARISON TABLES

1. A force ratio comparison table is shown in [Figure 5–3](#) and a combat power force ratio comparison is shown in [Figure 5–4](#).

Contents

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Friendly Forces					Hostile Forces				
Number	Strength %	Type	F.E.	Total	Number	Strength	Type	F.E.	Total
1	33	LAV squadron	0.20	0.07	0	100%			
0	100				1	100%	VBIED small (car)	0.09	0.09
0	100								
1	100								
Artillery Fire					Artillery Fire				
					0	100%			
0	100								
Morale					Morale				
1	100	Good morale	0.50	0.50	1	100%	Good morale	0.50	0.50
Defensive Works					Defensive Works				
0	100								
0	100								
Friendly Force Equivalent				0.57	Hostile Force Equivalent				0.59
Ratio of friendly force to enemy force 0.96:1					Ratio of hostile forces to friendly forces 1.04:1				
Hasty defence 50%			← Mission → ← Estimated losses →			Deliberate attack 10%			

Figure 5–3: Force Ratio Comparison

Contents

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5C-2

5C-3

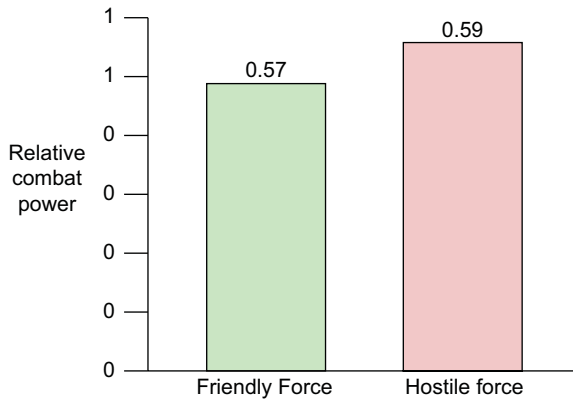


Figure 5-4: Combat Power Force Ratio Comparison

5C-4

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ANNEX D TO CHAPTER 5

EXAMPLE COURSE OF ACTION STATEMENT AND OVERLAY

1. An example format for a COA statement is as follows:

1 Bde defends within bdry and allows no penetration south of PL BASS. En COA entails a mech div, with a mech bde in first echelon, attacking west using COLLINS RD as the main axis. A guard is established between PL TROUT and PL BARRA based on recon, mech inf and armed forces. ME consists of a mech inf BG (SOUTH) defending along the river – focused on bridges over COLLINS RD and TALAI RD. A mounted inf BG (NORTH) operates to the north defending the river and anchors block obstacles in EA STRIKE. Armed heavy bde reserve and CATK force executes CATK into EA STRIKE.

2. An example COA overlay is shown in [Figure 5–5](#).

5D-2

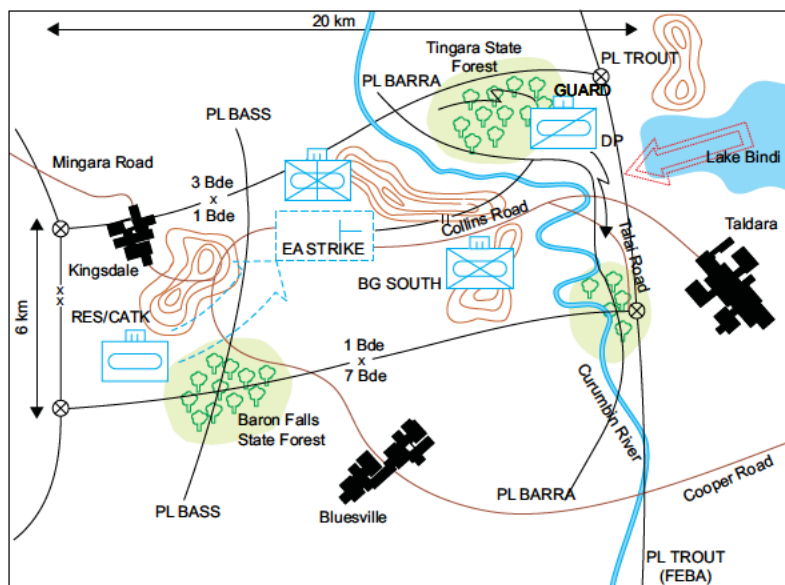


Figure 5-5: Example Course of Action Overlay

CHAPTER 6

STEP 4 – COURSE OF ACTION ANALYSIS

SECTION 6-1. OVERVIEW

- 6.1** COA analysis is the process of testing COA to ensure their robustness and determine their relative strengths and weaknesses. The primary method for the conduct of a COA analysis is wargaming.
- 6.2** Wargaming allows the commander and staff to visualise and fight the battle on the map. It involves the testing of each fully developed friendly COA against multiple enemy COA. The wargames may be limited to the enemy MLCOA and MDCOA; however, thorough testing of friendly COA against the spectrum of viable enemy COA is preferred.
- 6.3** The rigorous testing of friendly COA should result in enhancements to the plan as well as identifying any branches and sequels requiring further development. It will also aid the commander in determining criteria for the commitment of a reserve.
- 6.4 Inputs.** The following products are required in order to commence a COA analysis:
- a. IPB products:
 - (1) fully developed enemy COA,
 - (2) synchronisation matrices to support each COA, and
 - (3) an enemy ISR plan; and
 - b. COA development products:
 - (1) fully developed friendly COA,
 - (2) synchronisation matrices to support each COA,
 - (3) a friendly ISR plan, and

(4) an HVT matrix.

- 6.5 Course of Action Comparison Criteria.** At the conclusion of the COA development the commander should provide COA comparison criteria for the wargame. Comparison criteria may include issues such as how well a particular COA achieves the DE, how well it deals with the enemy's MDCOA, and whether it achieves surprise or simultaneity.
- 6.6** The COA analysis activities are listed in [Figure 6–1](#). A COA analysis aide-memoire is provided in [Annex A](#), and the COA analysis briefing format is shown in [Annex B](#).

STEP 4 – COURSE OF ACTION ANALYSIS

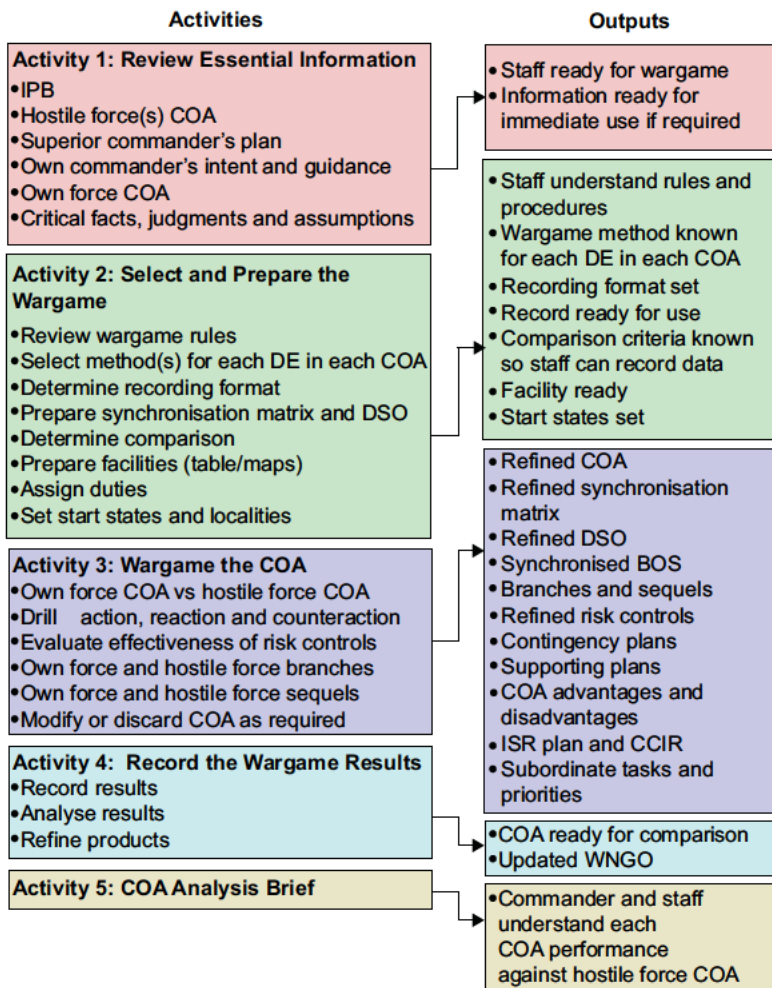


Figure 6–1: Course of Action Analysis Activities

SECTION 6-2. COURSE OF ACTION ANALYSIS ACTIVITIES

Step 4 Activity 1 – Review Essential Information

- 6.7** Prior to starting the wargame, staff should review the battlespace environment and all essential information. The results and outputs from IPB, MA and COA development should also be reviewed so that staff can act, react and counteract without the delays imposed by the requirement to confirm or verify information. It may be useful for the COS to conduct a briefing to ensure that all staff are conversant with the COA and how the wargame is to be conducted. The staff review and briefing should, as a minimum, cover the following elements:
- a. *Intelligence Preparation of the Battlespace.* The IPB review should update staff on the battlespace/environmental characteristics and the battlespace effects, including physical terrain (MCOO), weather, stakeholder groups (ASCOPE), time frames and any other aspects of the battlespace relevant to the mission. The list of current assumptions, outstanding CCIR and any recent ISR data should also be covered.
 - b. *Hostile Force Courses of Action.* The staff should then be briefed on the full range of hostile force COA, including ORBAT, capabilities, COG, CV, TCV, HVT, doctrine, tactics and any other aspects relevant to the wargame. Possible actions and reactions of other stakeholders should also be covered.
 - c. *Superior Commander's Plan.* Once the hostile force and other stakeholder COA are understood, the staff should be updated on the superior commander's plan and intent, and the campaign plan, so that they have a current understanding of their part in those plans.
 - d. *Own Commander's Intent and Guidance.* The commander's intent and guidance should then be reviewed to ensure that all staff have a current

understanding of what the commander is trying to achieve and their role in the superior commander's plan.

- e. *Own Force Courses of Action.* Once the superior commander's plan has been reviewed, the staff are updated on own force COA. The briefing should include the commander's intent and COA-specific risk tolerance; COA statements and overlays; SOM, DE, CDP and branches and sequels; risk control measures; and all supporting BOS, CS and CSS concepts and capabilities. Friendly force COA, including other LOO, should also be reviewed in the context of possible effects on friendly force or own force LOO.
- f. *Critical Facts, Judgments and Assumptions.* The staff is updated on all critical facts, judgments and assumptions, and their associated risks, needed for the start of the wargame, drawing them from IPB and MA. This identifies those assumptions that have not yet been confirmed as a result of information received through ISR efforts. These assumptions are critical to decision-making during the wargame.

Step 4 Activity 2 – Select and Prepare the Wargame

6.8 Wargame Recording. Recording the wargame allows the staff to capture any modifications to the COA (such as new branches or sequels) and record them on the DSO. It also facilitates the synchronisation of BOS activities, the refinement of hostile force templates and the comparison of COA (during orders and execution) based on the significant factors determined in accordance with [paragraph 6.7](#). The subsequent orders and overlays, once the commander decides upon the final plan, are drafted using the wargame records.

6.9 Determine Recording Format and Prepare Matrix. The most effective record is the wargame matrix, supported by the event overlay, detailed in [Annex C](#). It is organised to record hostile force action and own force actions, reactions or effects for each DE or CDP within an established time interval. The synchronisation matrix and the DSO are used in the

development of the orders for the final plan and in monitoring the battlespace activities during the mission. An example DSO is shown in [Annex D](#) and an example synchronisation matrix is shown in [Appendix 1](#) to [Annex D](#).

6.10 Physical Set-up. Wargaming can be conducted on a map or sand table, or via electronic means if available. The COS should coordinate the set-up of the wargame, including allocating a seating plan. Before a wargame is commenced, the following tools must be immediately available:

- a. an operations overlay;
- b. an event overlay;
- c. a DSO;
- d. a synchronisation matrix (managed by the wargame recorder);
- e. a means of representing both friendly and enemy FE two down from the level of command represented in the wargame;
- f. a casualty calculator (either a table or an electronic calculator); and
- g. a force ratio calculator.

Step 4 Activity 3 – Wargame the Courses of Action

6.11 The Process. The wargame is conducted by working through each friendly COA against each enemy COA or those previously directed by the commander or COS. An action/reaction/counteraction drill is followed for each DE or critical event in turn within the COA. This process quickly identifies strengths and weaknesses for each event within each COA. COA are modified progressively as weaknesses are found. This ensures that groupings, missions and tasks for subordinate units, and BOS actions and effects are appropriate and realistic. To save time, normally only workable COA are completely analysed through to their end state. The COS will provide an initial brief, which will include the wargame's rules, the set-up of the room and the wargaming method to be used.

-
- 6.12 Wargaming Method.** The commonly used wargaming methods are belt, avenue-in-depth and box. These methods are described in [Annex E](#). Multiple methods may be applied to a single wargame; however, a single method should be applied to each specific event within the wargame.
- 6.13** Wargaming relies heavily on tactical judgment and experience. It is important that each staff member brings to the analysis a thorough understanding of the capabilities and limitations of their respective BOS, which are crucial to a realistic appreciation of each COA. BOS representatives who are also wargaming their BOS for the enemy must be aware of the enemy's capabilities and doctrinal procedures. In wargaming security and peace operations, it may be useful to also record the likely actions of those organisations that cannot be grouped as either enemy or friendly, for example, UN or non-government aid organisations.
- 6.14 Wargaming Drill.** The wargame is conducted using an action/reaction/counteraction drill. It can be conducted either on a map or electronically with appropriate icon representation for units two down from the HQ. To avoid wasted time and staff effort, the COS controls and adjudicates this process. The conduct of the initial action is determined by whoever has the initiative, but this can be either the enemy commander (S2) or friendly commander (S3). The wargame is continued for each DE or critical event until a decisive outcome is achieved. The requirements for each drill are addressed according to the following headings:
- a. *Action.* The G/S3 or the G/S2 deploys the respective FE onto their start locations (at the time of expected first contact) or describes the BOS effects. The representative states the action the forces will take at this point, identifying the purpose, method and end state. This is done by visualising, as accurately as possible, the events that those units will be conducting in accordance with the synchronisation matrix. Where available, each BOS planner may provide their specific actions in

support of the manoeuvre plan. Key actions may be noted on the event overlay.

- b. *Reaction.* The opponent then deploys their forces onto the map in their dispositions, as expected, at first contact or describes the effect they will have in the battlespace in response. All possible reactions should be stated. This includes templated forces outside the AO which could influence the battle. All the assets required to carry out the reaction must be identified and their position in the battlespace explained. Actions and assets are recorded on the wargame matrix.
- c. *Counteraction.* This is the final stage, which details the response to the action/reaction sequence of events:
 - (1) Where friendly forces have the initiative, the aim of this stage is to identify the friendly response to enemy reaction and determine the assets the friendly commander will require to carry out the counteraction. The enemy reaction, friendly counteraction and asset requirements are recorded on the synchronisation matrix.
 - (2) Alternatively, should the enemy have the initiative, the aim is to identify possible enemy responses to friendly reactions. Once again, all possible reactions should be stated. This includes templated forces outside the AO which could influence the battle. All assets required to carry out the counteraction must be identified and their position in the battlespace explained. Actions and assets are recorded on the wargame matrix.
 - (3) During the drills, the COS and the staff identify the assets that each action and counteraction will require. Where the demand for assets exceeds the available forces, the COS must establish priorities for their use and re-examine the forces allocated to that activity. Conversely, it may be determined that the force allocation is more than

ample and excess forces should be moved to support another DE. Experience with these drills will result in individual staff perfecting their own methods of refining the process.

- 6.15 Casualty Calculations.** The COS is responsible for awarding casualties to both enemy and friendly forces during wargaming. These calculations are based on the tabulated data provided in *LWD 5-1-2, Staff Officers' Aide-Memoire*.
- 6.16 Branches and Sequels.** Inherent within the wargaming process is the identification and analysis of a range of branches and sequels which should be cross-referenced through the wargame matrix to the DP on the COA to which they refer. A branch relates to the options available to a commander to achieve the same objective through different COA. Branches will therefore be reflected in the different COA being wargamed. However, there may also be opportunities to achieve the objective with minor variations to a single COA. These branches should be identified as DP and analysed to ensure that all variations within each friendly and enemy COA are considered in the wargame.
- 6.17** Sequels are options that a commander has in conducting follow-on operations after achieving the objective. Sequels represent significant shifts in focus and will normally follow a different LOO and DE from that originally planned or envisaged. In planning for sequels, the staff attempts to identify the critical information requirements that indicate such a shift, and this will lead to friendly forces contingency planning to defeat the enemy reorientation.
- 6.18 Wargame Responsibilities.** Wargaming in its simplest form involves one staff member (J/G/S3) acting as the friendly force, one playing the enemy force (J/G/S2) and one recorder capturing the results on the wargame matrix. Other staff provide accurate input based on a detailed understanding of their respective BOS (fire support, AD, mobility and survivability, and CSS at a minimum). Normally the COS arbitrates to ensure an unbiased approach. The commander maintains contact with the COS to ensure that the staff

maintains the commander's direction. Specifically, they must ensure that there is one voice in the room. This assists the recorder in capturing all key information by avoiding sidebar discussions. Staff responsibilities during wargaming are detailed in [Annex F](#).

6.19 Quick Wargaming. Quick wargaming involves an individual (as detailed in [Chapter 9](#)) or a few key staff officers considering only the DE of the COA (box method) and conducting the wargame as a quick mental exercise while viewing a map. These ad hoc wargames can be of benefit if the officers take note of the following:

- a. Have the necessary judgment to make realistic assessments and visualise actual activities in the battlespace.
- b. Adhere to the rules (in particular, avoid bias).
- c. Mentally follow wargaming steps in a disciplined manner.
- d. Use good judgment in assessing results.
- e. Draw in the rest of the staff or BOS advisers, as required, for expert advice.

Step 4 Activity 4 – Record the Wargame Results

6.20 During wargaming, the commander and staff consciously visualise the flow of battle and identify potential events and requirements. These may result in modifications to workable COA and reveal unworkable COA. The commander and staff must be cautious when assessing wargame results. The process is a visualisation of the types of activities that could happen, not a prediction of what will happen. In all likelihood, the enemy and friendly subordinate units will not react exactly as the wargame predicts. However, thinking through the battle reduces the chances of being caught by surprise by the enemy and assists in synchronising the effects of friendly BOS.

6.21 The wargame process may become complex and laborious; however, the more time and detail put into it, the more useful

are the results. This must be balanced with the reality that, during the conduct of operations, there will not normally be enough time to conduct in-depth wargames for more than one to three friendly COA against one or two enemy COA. This is where the commander's guidance is crucial in focusing the staff on which friendly and enemy COA or key aspects are to be wargamed.

6.22 Results should be recorded immediately they become obvious through the wargaming process. Wargaming results in identifying or refining the following:

- a. modified and workable COA;
- b. COA advantages and disadvantages;
- c. the timing and locations of COA DE;
- d. the best use of key or decisive terrain;
- e. the range of possible enemy COA;
- f. the risks associated with each COA;
- g. possible branches and sequels, as well as requirements for deception and surprise;
- h. subordinate tasks and priorities;
- i. BOS tasks and priorities;
- j. synchronisation of BOS;
- k. C2 measures;
- l. refined wargame matrix and event overlays, including known and additional critical events, NAI, TAI and CDP;
- m. the CCIR and the intelligence collection plan;
- n. the time lines for COA;
- o. enemy and friendly force casualty projections;
- p. estimates of the location of forward line own troops and the relative positions of friendly and enemy manoeuvring forces; and

-
- q. a refined DSO and refined synchronisation matrix.

6.23 Course of Action Comparison. Once wargaming has concluded and all relevant deductions and modifications are captured, the friendly COA should be compared in order to allow a recommendation to be made to the commander on the preferred COA. This information would be then provided as part of the COA analysis brief.

6.24 Outputs. The outputs from the COA analysis are as follows:

- a. refined enemy and friendly COA;
- b. a refined ISR plan;
- c. a refined synchronisation matrix;
- d. a DSO;
- e. planning guidance for G/S5 for sequel actions; and
- f. a COA analysis brief that allows a commander to select a COA for execution.

Step 4 Activity 5 – Course of Action Analysis Brief

6.25 COA analysis finishes with a brief by the staff to the commander, which details the modified COA and their advantages and disadvantages. The staff recommend a COA and the commander confirms which COA are to progress to the next step (decision and execution) (see [Chapter 7](#)). If the commander has been involved in the conduct of the wargame, this brief can be informal (if it is required at all) or combined with the orders and execution brief. A briefing format example is shown in [Annex B](#).

Annexes:

- A. [Course of Action Analysis Aide-Memoire](#)
- B. [Course of Action Analysis Briefing Format](#)
- C. [Wargaming Records – Example Wargame Matrix and Event Overlay](#)
- D. [Example Decision Support Overlay](#)

6-13

- E. [Wargaming Methods](#)
- F. [Staff Responsibilities During Wargaming](#)

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6A-1

ANNEX A TO CHAPTER 6

COURSE OF ACTION ANALYSIS

AIDE-MEMOIRE

1. An aide-memoire for COA analysis is shown in [Table 6–1](#).

6A-2

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Table 6–1: Course of Action Analysis Aide-Memoire

Inputs	Activities	Outputs
<i>Prepare the Wargame</i>		
IPB update. Viable own COA overlays. Enemy MLCOA/MDCOA overlays. Event overlay.	1. Review essential information and outputs from MAP and IPB thus far: a. IPB updates – MCOO and situation overlays; b. friendly force COA; c. BOS concepts; d. event overlays; e. start states and localities; f. critical assumptions; and g. significant factors. 2. Select method: a. box, b. belt, c. avenue-in-depth, and d. combination. 3. Prepare record: a. wargame matrix, and b. overlays. 4. Prepare wargame venue: a. wargaming table, b. recorder, and c. overlays in sequence.	COA ready to be wargamed.
<i>Conduct the Wargame</i>		
5. Staff: J/G/S3 as friendly commander; J/G/S2 as enemy commander; and COS arbitrates; wargame recorder.	6. Conduct wargame drill until a decisive outcome is reached for each DE: a. friendly action (conducts initial action); b. enemy reaction (enemy responds to friendly action); and	Workable and modified COA with: c. clear advantages and disadvantages, d. risk assessment, e. contingency plans, f. supporting plans, and g. COA analysis brief.

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6A-3

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Contents

Contents

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6A-4

<i>Inputs</i>	<i>Activities</i>	<i>Outputs</i>
7. BOS advisers: a. ISR, b. manoeuvre, c. fire support, d. MS, e. AD, f. CSS, g. C2, and h. IO.	i. friendly counteraction (responds to enemy action). 8. Wargame from COA start until end state is reached. 9. Modify COA as needed. 10. Discard unworkable COA if they cannot be modified.	
11. Other special advisers (eg, SF, CIMIC).	12. Ensure wargame record notes or confirms: a. the range of enemy actions; b. any modifications to the COA; c. changes to subordinate grouping, missions or tasks; d. DE location and timing; e. CCIR, NAI, DP, TAI; f. key and decisive terrain; g. BOS supporting actions; h. branches and sequels (contingency plans); and i. potential risks and mitigating actions. 13. Note impact of other factors such as movement of and action for: a. displaced persons/refugees; b. own force stragglers; and c. POW.	

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Contents

Contents

6B-1

ANNEX B TO CHAPTER 6

COURSE OF ACTION ANALYSIS BRIEFING FORMAT

1. A suggested format for the COA analysis briefing is shown in [Table 6–2](#).

Table 6–2: Course of Action Analysis Briefing Format

<i>Briefer</i>	<i>Subject</i>
COS/J/G/S3	<ol style="list-style-type: none"> 1. Intent of own (draft) and higher commander. 2. Mission.
J/G/S2	<ol style="list-style-type: none"> 3. Updated intelligence estimate: <ol style="list-style-type: none"> a. effects of terrain on operations, b. effects of weather on operations, and c. brief enemy COA.
J/G/S3	<ol style="list-style-type: none"> 4. Briefs on each COA analysed: <ol style="list-style-type: none"> a. assumptions; b. wargame technique used; and c. COA friendly force actions: <ol style="list-style-type: none"> (1) DE achieved, (2) actions one level down at each DE, (3) CS required to achieve DE, and (4) CSS required to achieve DE.
J/G/S2	<ol style="list-style-type: none"> 5. Possible enemy actions/reactions considered during the wargame.

6B-2

<i>Briefer</i>	<i>Subject</i>
J/G/S3	<p>6. Results of the wargame for each COA:</p> <ul style="list-style-type: none">a. wargame event matrix;b. modifications;c. proposed TASKORG;d. event overlay;e. priority for BOS;f. estimated duration of operation;g. estimated enemy losses (equipment and personnel);h. estimated friendly losses (equipment and personnel);i. advantages of COA;j. disadvantages of COA;k. degree of risk associated with COA; andl. impacts from movement of:<ul style="list-style-type: none">(1) displaced persons, and(2) POW.
COS/J/G/S3	<p>7. Verifies that each COA directed for analysis by the commander has been appropriately analysed and is ready for comparative presentation to the commander.</p>
Commander	<p>8. Directs:</p> <ul style="list-style-type: none">a. COA to be compared in Step 4 (see Section 5-2); andb. COA comparison criteria.

6B-3

<i>Briefer</i>	<i>Subject</i>
<p>Note:</p> <p>This brief may be informal or even combined with the decision and execution brief if the commander has been involved in the conduct of the wargame. It ensures that all wargaming modifications are accurately represented in COA sketches and statements, and that the wargame record used is a true reflection of the wargame.</p>	

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6B-4

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6C-1

ANNEX C TO CHAPTER 6

WARGAMING RECORDS – EXAMPLE WARGAME MATRIX AND EVENT OVERLAY

1. An example wargaming matrix is shown in [Figure 6–2](#), and an example supporting event overlay is shown in [Figure 6–3](#).

6C-2


TIME/EVENT			Hh	H + 1.5
R S I	Event sit/course of action Friendly decision points Phase lines TAI/NAI Engagement areas Objectives			 En penetrates PL BARRA CATK into EA STRIKE
	Assets LP/OP Patrols Scouts Requests to Division	Observer	Covering force - along PL TROUT	ME focus on PL BARRA
		Comd's PIR	Is en ME along Collins Road?	Where are tanks?
		EW effort	When will ATK commence?	
M A N O E U V R E	Deep		s33(a)(ii)	s33(a)(ii)
	Security			
	Close		s33(a)(ii)	s33(a)(ii)
	Rear		s33(a)(ii)	s33(a)(ii)
	Reserve		s33(a)(ii)	s33(a)(ii)
F S	FA (DS) Priority of fire Target groups Engagement areas FASCAM CAS		Covering force	ME (EA STRIKE)
	Priority of defence		Bde reserve	
M O B / S U R V	Priority of effort/support		Engineer effort to ME	Engineer effort supports mobility of CATK forces
	TAC		PL JACK	
C 2	Main CP		PL BESS	
	Rear CP			
C S S	Con measures			
	Alloc MSR			
I O	Priorities: Maint Med Sup Pers		- FA - Eng - ME - CATK	- ME - ME - CATK
	Psyops EW Destruction OPSEC Deception			

Figure 6–2: Example Wargame Matrix

6C-3

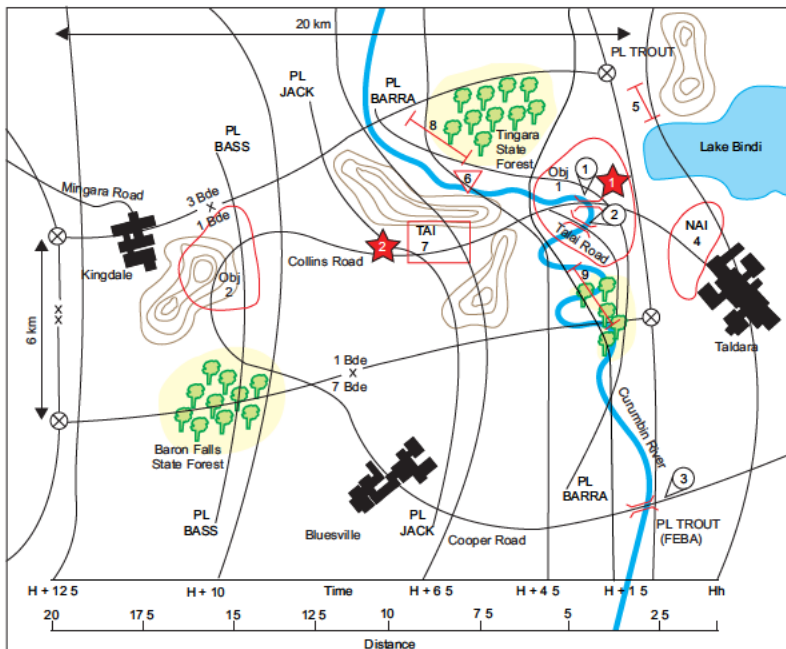


Figure 6-3: Example Event Overlay

6C-4

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6D-1

ANNEX D TO CHAPTER 6

EXAMPLE DECISION SUPPORT OVERLAY

1. An example DSO is shown in [Figure 6–4](#).

Appendix:

1. [Example Synchronisation Matrix](#)

6D-2

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6D-3

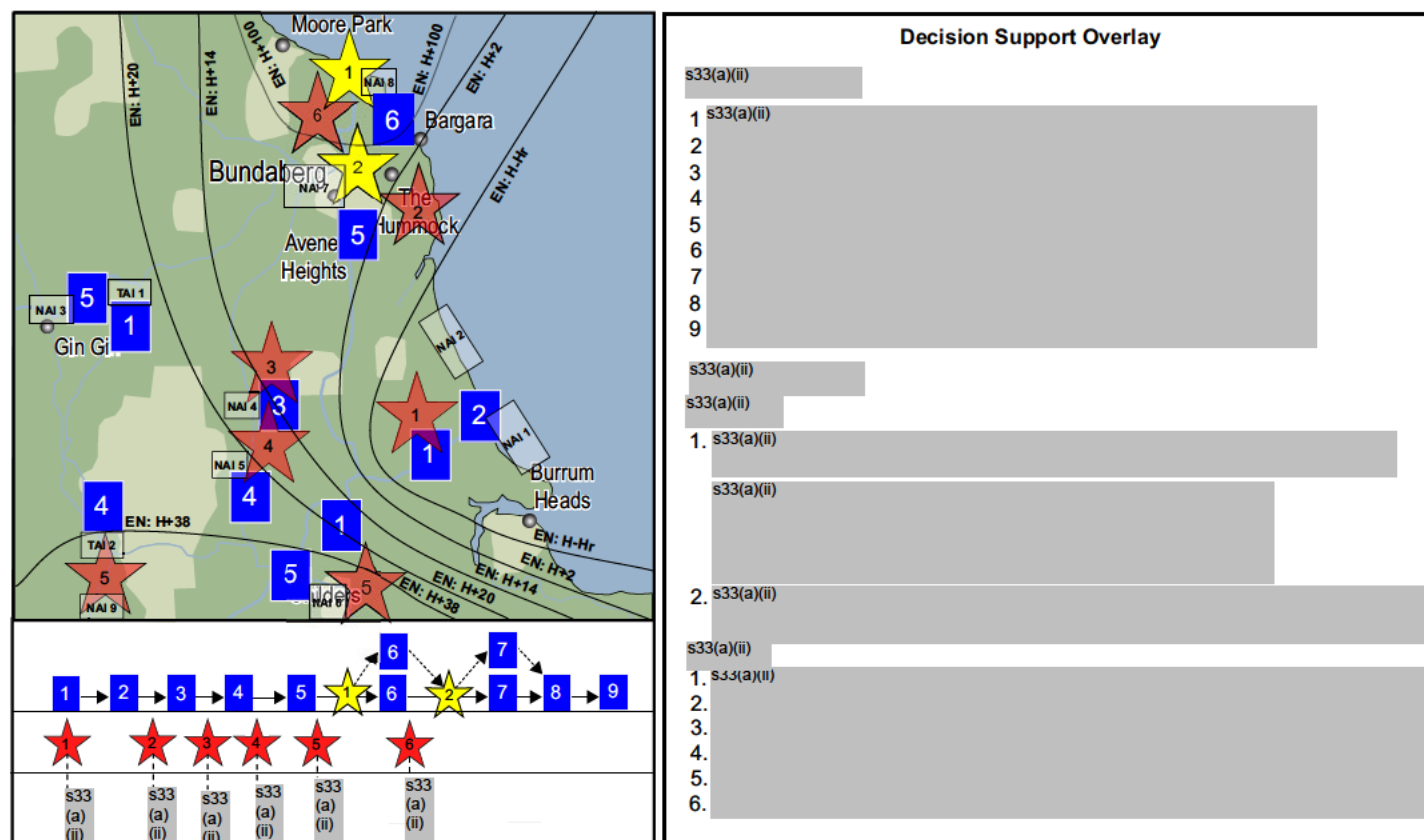


Figure 6-4: Example Decision Support Overlay

6D-4

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6D1-1

APPENDIX 1 TO ANNEX D TO CHAPTER 6

EXAMPLE SYNCHRONISATION MATRIX

1. An example synchronisation matrix is shown in [Figure 6–5](#) to [Figure 6–9](#).

6D1-2

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PRELIM		
ACTUAL TIME	17 Nov 04:00	18 Nov 23:00
MISSION TIME	H to 0 H	
	-48.0	-3.0
EN DPs	s33(a)(ii)	
EN START STATE	s33(a)(ii)	
FR ACTION EVENT, COA, DPT, TAI, NAI	s33(a)(ii)	
EN Reaction	s33(a)(ii)	
Fr Counteraction	s33(a)(ii)	
DE and Commander's Criteria	s33(a)(ii)	
C2	C2 EFFECT	
	HQ 3 Bde	
MANOEUVRE	MVRE EFFECT	
	1 ARMD BG	s33(a)(ii)
	2 RAR BG	s33(a)(ii)
	5 RAR BG	s33(a)(ii)
	B Sqn / 2 CAV	s33(a)(ii)
	3/4 Cav Regt	s33(a)(ii)
	Avn	s33(a)(ii)
ISR	ISR EFFECT	
	STRAT ISR	s33(a)(ii)
	BDE ISR	s33(a)(ii)
	ISTAR Tp	
IO	IO EFFECT	
	CIMIC	
JFE	JFE	
	4 Fd Regt CAS CCA NGS	s33(a)(ii)
MS	MS EFFECT	
	3 CER	s33(a)(ii)
GBAD	GBAD EFFECT	
	Tp, 16 AD Regt	s33(a)(ii)
CSS	CSS EFFECT	
	3 CSSB	s33(a)(ii)
Notes:		

Figure 6–5: Example Synchronisation Matrix – Preliminary Phase

PHASE 1									
ACTUAL TIME	19 Nov 01:00	19 Nov 06:00	19 Nov 06:00	19 Nov 11:00	19 Nov 11:00	19 Nov 17:00	19 Nov 17:00	19 Nov 23:00	
MISSION TIME	H to >	H to >	H to >	H to >	H to >	H to >	H to >	H to >	H
	-3.0	2.0	2.0	7.0	7.0	13.0	13.0	19.0	
EN DPs	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
EN START STATE	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
FR ACTION EVENT, COA, DPT, TAI, NA	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
EN Reaction	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
Fr Counteraction	s33(a)(ii)	NI Counteraction Required	NI Counteraction Required	NI Counteraction Required	NI Counteraction Required	NI Counteraction Required	NI Counteraction Required	NI Counteraction Required	
DE and Commander's Criteria	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
C2	C2 EFFECT	Insertion from 0100H			BDE HQ TAC Landing				
MANOEUVRE	M VRE EFFECT								
	1 ARMD BG	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	2 RAR BG	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	5 RAR BG	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	B Sqn / 2 CAV	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	3/4 Cav Regt	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	NC
	Avn	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
ISR	ISR EFFECT								
	STRAT ISR	NC	NC	NC	NC	NC	NC	NC	
	BDE ISR	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	ISTAR Tp								
IO	IO EFFECT								
	CIMC								
JFE	JFE								
	4 Fd Regt CAS CCA NGS	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
MS	MS EFFECT								
	3 CER	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
GBAD	GBAD EFFECT								
	Tp, 16 AD Regt	NC	NC	NC	NC	NC	NC	NC	
CSS	CSS EFFECT								
	3 CSSB	NC	NC	NC	NC	NC	NC	NC	
Notes:									

Figure 6–6: Example Synchronisation Matrix – Phase 1

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6D1-4

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Contents

Contents

		PHASE 2					
ACTUAL TIME		19 Nov 23:00	20 Nov 05:00	20 Nov 05:00	20 Nov 11:00	20 Nov 11:00	20 Nov 17:00
MISSION TIME		H 19.0 to o 25.0	H 25.0 to o 31.0	H 31.0 to o 37.0			
EN DPs		s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
EN START STATE		s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
FR ACTION EVENT, COA, DPT, TAL, NAI		s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
EN Reaction		s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
Fr Counteraction		s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
DE and Commander's Criteria		s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
C2	C2 EFFECT						
	HQ 3 Bde						
MANOEUVRE	MOVRE EFFECT						
	1 ARMD BG	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
	2 RAR BG	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
	5 RAR BG	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
	B Sqn / 2 CAV	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
	3/4 Cav Regt	NC	s33(a)(ii)	s33(a)(ii)			
	Avn	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
	ISR EFFECT						
ISR	STRAT ISR	NC	NC	NC			
	BDE ISR	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
	ISTAR Tp						
IO	IO EFFECT						
	CIMC						
JFE	JFE	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)			
	4 Fd Regt CAS CCA NGS	s33(a)(ii)	NC	NC			
MS	MS EFFECT						
	3 CER	s33(a)(ii)	NC	s33(a)(ii)			
GBAD	GBAD EFFECT						
	Tp 16 AD Regt	s33(a)(ii)	NC	NC			
CSS	CSS EFFECT						
	3 CSSB	NC	NC	s33(a)(ii)	s33(a)(ii)		
Notes:							

Figure 6-7: Example Synchronisation Matrix – Phase 2

PHASE 3									
ACTUAL TIME	20 Nov 17:00	20 Nov 23:00	20 Nov 23:00	21 Nov 05:00	21 Nov 05:00	21 Nov 11:00	21 Nov 11:00	21 Nov 17:00	
MISSION TIME	H to	H to	H to	H to	H to	H to	H to	H to	H
	37.0	43.0	43.0	49.0	49.0	67.0	67.0	79.0	
EN DPs	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
EN START STATE	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
FR ACTION EVENT, COA, DPT, TAI, NAI	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
EN Reaction	s33(a)(ii)	NC	NC	NC	NC	NC	NC	NC	
Fr Counteraction	s33(a)(ii)	NC	NC	NC	NC	NC	NC	NC	
DE and Commander's Criteria									
C2	C2 EFFECT								
	HQ 3 Bde		s33(a)(ii)						
	MVRE EFFECT								
MANOEUVRE	1 ARMD BG	NC	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	2 RAR BG	NC	NC	NC	NC	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	5 RAR BG	NC	s33(a)(ii)	NC	NC	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	B Sqn / 2 CAV	NC	NC	NC	NC	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
	3/4 Cav Regt	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	NC	NC	NC	
	Avn	s33(a)(ii)	NC	NC	NC	NC	NC	NC	
	ISR EFFECT								
ISR	STRAT ISR	NC	NC	NC	NC	NC	NC	NC	
	BDE ISR	NC	NC	NC	NC	NC	NC	NC	
	ISTARTp								
	IO EFFECT								
IO	CIMIC				s33(a)(ii)				
JFE	JFE								
	4 Fd Regt CAS CCA NGS	NC	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
MS	MS EFFECT								
	3 CER	NC	s33(a)(ii)	NC	NC	NC	NC	NC	
GBAD	GBAD EFFECT								
	Tp, 16 AD Regt	NC	NC	NC	NC	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
CSS	CSS EFFECT								
	3 CSSB	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	s33(a)(ii)	
Notes:									

Figure 6–8: Example Synchronisation Matrix – Phase 3 (Start)

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6D1-6

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Contents

Contents

		PHASE 3					
ACTUAL TIME		21 Nov 17:00	21 Nov 23:00	21 Nov 23:00	22 Nov 05:00	22 Nov 05:00	22 Nov 11:00
MISSION TIME		H to b	H to b	H to b	H to b	H to b	H to b
		79.0	85.0	85.0	91.0	91.0	97.0
EN DP's		s33(a)(ii)		s33(a)(ii)			NC
EN START STATE							
FR ACTION EVENT, COA, DPT, TAI, NAI		s33(a)(ii)		s33(a)(ii)		s33(a)(ii)	
EN Reaction		NC		NC		NC	
Fr Counteraction		NC		NC		NC	
DE and Commander's Criteria				s33(a)(ii)		s33(a)(ii)	
C2	C2 EFFECT						
	HQ 3 Bde						
MANOEUVRE	MOVRE EFFECT						
	1 ARMD BG	NC		NC		NC	
	2 RAR BG	NC		NC		NC	
	5 RAR BG	NC		NC		NC	
	B Sqn / 2 CAV	NC		NC		NC	
	3/4 Cav Regt	NC		NC		NC	
	Avn	NC		NC		NC	
ISR	ISR EFFECT						
	STRAT ISR	s33(a)(ii)		NC		NC	
	BDE ISR	s33(a)(ii)		NC		NC	
	ISTAR Tp						
IO	IO EFFECT						
	CMIC						
JFE	JFE						
	4 Fd Regt CAS CCA NGS	NC		NC		NC	
MS	MS EFFECT						
	3 CER	NC		s33(a)(ii)		NC	
GBAD	GBAD EFFECT						
	Tp, 16 AD Regt	NC		NC		NC	
CSS	CSS EFFECT						
	3 CSSB	NC		NC		NC	
Notes:							

Figure 6–9: Example Synchronisation Matrix – Phase 3 (End)

6D1-8

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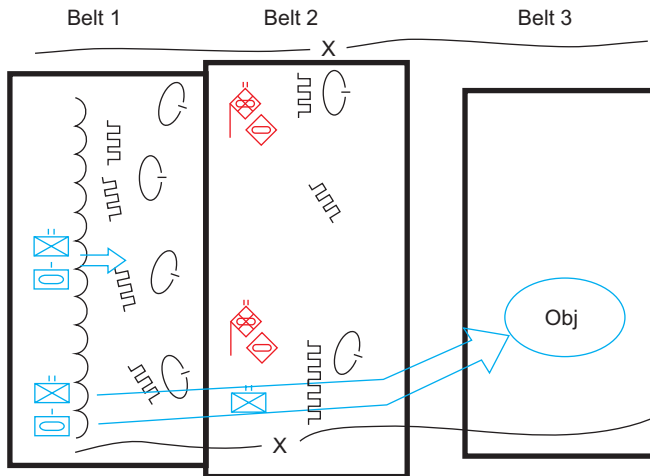
ANNEX E TO CHAPTER 6

WARGAMING METHODS

Belt Method

1. The belt method (see [Figure 6–10](#)) is most effective when the terrain is divided into well-defined cross-compartments. It is also effective during phased operations (including amphibious assaults, river crossings, air assault and airborne operations) or when the enemy is deployed in clearly defined belts or echelons. The commanders can then draw belts adjacent to or even overlapping each other for complete battle visualisation and synchronise actions across avenues-in-depth.
2. When time is short, the commander can use a modified belt method. The modified method divides the battlefield into no more than three sequential belts that run the width of the sector. These belts may not necessarily be adjacent or overlapping but would focus on actions throughout the depth of the AO.

6E-2



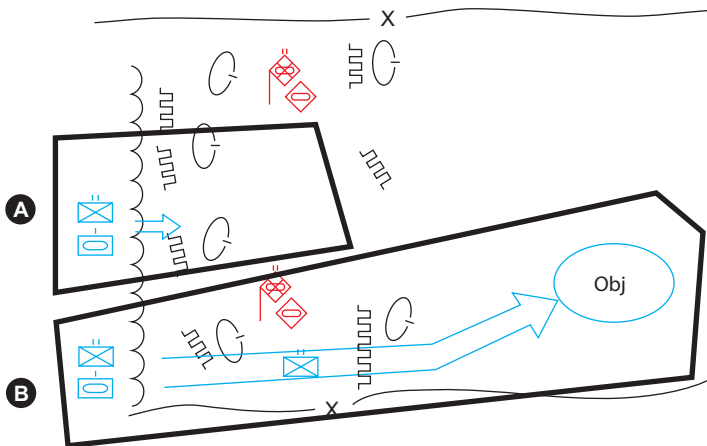
Note: The areas enclosed in the heavy black lines represent belts.

Figure 6–10: Belt Method

Avenue-in-depth Method

3. The avenue-in-depth method (see [Figure 6–11](#)) focuses on one AA at a time, beginning with the ME. This method is effective for offensive COA or in the defence when there is canalising terrain inhibiting mutual support.

6E-3



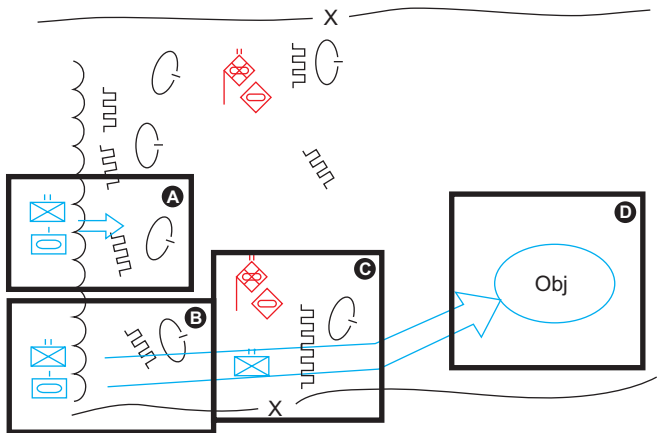
Note: The areas enclosed in the heavy black lines represent avenues in depth.

Figure 6–11: Avenue-in-depth Method

Box Method

4. The box method (see [Figure 6–12](#)) is a microanalysis of a critical area such as the EA, a river crossing site or a flank AA into the sector. When using this method, the commander isolates the area and focuses the battle there. The commander can also make the initial assumption that friendly units can handle most of the situations on the battlefield, enabling them to focus their attention on more essential tasks.
5. This method is most useful when the task is apparent, as it is when attacking or counterattacking a major enemy unit. It is also a good method to use when time is extremely limited or to wargame the detail of DE.

6E-4



Note: The areas enclosed in the heavy black lines represent boxes.

Figure 6–12: Box Method

6F-1

ANNEX F TO CHAPTER 6

STAFF RESPONSIBILITIES DURING WARGAMING

1. The key staff responsibilities during wargaming are detailed in this annex.
2. **Chief of Staff.** The COS coordinates all staff responsibilities and leads the wargame effort. The COS is responsible for the following:
 - a. providing the wargaming brief, including establishing the rules and conduct;
 - b. assessing who has the initiative and therefore who will commit the first action (enemy or friendly);
 - c. appointing a wargaming recorder and ensuring that all relevant actions and modifications are captured; and
 - d. calculating and awarding casualties.
3. **J/G/S1.** The J/G/S1 is responsible for the following:
 - a. analysing the COA being wargamed to determine whether it will cause more casualties than other COA;
 - b. conducting a risk analysis for each COA, determining what can be done to reduce or modify the risk; and
 - c. noting the impact of movement of:
 - (1) displaced persons,
 - (2) own force stragglers, and
 - (3) POW.
4. **J/G/S2.** The J/G/S2 is responsible for the following:
 - a. role-playing the enemy commander;
 - b. developing the enemy DSO and synchronisation matrix for each friendly COA;

-
- c. identifying information requirements to support the CDP;
 - d. identifying the NAI that support the TAI and DP;
 - e. refining the situation overlays;
 - f. assisting the J/G/S3; and
 - g. identifying reactions, projecting enemy losses and verifying NAI, TAI and HVT determined by the IPB.
- 5. J/G/S3.** The J/G/S3 is responsible for the following:
- a. role-playing the friendly force commander;
 - b. manoeuvring the friendly forces allocated for the COA in accordance with the SOM until the purpose of the COA is achieved, or until friendly forces become ineffective;
 - c. developing the wargame matrix for the COA being wargamed;
 - d. identifying information requirements to support the CDP; and
 - e. identifying the NAI that will support the TAI and the CDP.
- 6. J/G/S4.** The J/G/S4 is responsible for the following:
- a. analysing each COA during the wargame to determine potential problems and deficiencies; and
 - b. identifying reactions, projecting enemy losses and verifying NAI, TAI and HVT determined by the IPB.
- 7. J/G/S 6.** The J/G/S 6 is responsible for the following:
- a. confirming that the communications plan and SOP remain robust throughout each event in the wargame;
 - b. demonstrating how communications redundancy is achieved within each event; and
 - c. analysing the effectiveness of control measures and recommending modifications.
-

6F-3

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- 8. Battlespace Operating System Advisers.** BOS advisers are responsible for the following:
- a. providing specialist advice to the J/G/S2, J/G/S3 and COS with regard to their specific BOS action;
 - b. highlighting opportunities, imposing limitations and recommending modifications to the SOM; and
 - c. BOS concepts during the wargame.

6F-4

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CHAPTER 7

STEP 5 – DECISION AND EXECUTION

SECTION 7-1. OVERVIEW

- 7.1** Decision and execution is the process of comparing the results of COA analysis to enable the commander to decide on the preferred COA. The comparison may use advantages and disadvantages or a variety of other methods. Once the comparison is completed, the commander decides on the preferred COA and the plans/orders are finalised and issued. The commander then monitors the implementation of the plan and the progress of the activity.

SECTION 7-2. CONDUCT

Step 5 Activity 1 – Refine Plan/Issue Orders and Conduct Rehearsals

- 7.2** This step involves developing the COA selected at the completion of the COA analysis into an operation plan (OPLAN) or OPORD and then implementing its execution and monitoring its progress. The execution outputs are as follows:
- a. *Warning Order.* Once the DSO and synchronisation matrix are complete, the staff should issue a confirmatory WNGO with essential information, including the confirmed commander's intent and preliminary actions, so that subordinate HQ can refine their plans. The WNGO will also keep the higher HQ informed of the intentions of their subordinate commands.
 - b. *Decision Support Overlay.* Based on the commander's decision and final guidance issued at the completion of the COA analysis, the staff refines the plan and develops the DSO. The DSO is a graphic overlay that displays the collective NAI and TAI and the CDP as refined in the wargame. When overlaid on the OPORD overlay, it

-
- provides the indicators of hostile force action on a backdrop of the planned SOM. An example DSO is shown in [Annex D to Chapter 6](#).
- c. *Synchronisation Matrix*. The synchronisation matrix displays the information required to make decisions and coordinate friendly actions in accordance with the plan. An example synchronisation matrix is shown in [Appendix 1 to Annex D to Chapter 6](#).
 - d. *Orders*. Once the plan is complete, orders are issued. Orders may be issued in written form and/or verbally. Back-briefs from subordinate commanders are conducted shortly after orders are issued. These provide an opportunity for any additional superior commander's guidance to be communicated, and for subordinate commanders to clarify final issues. There are various forms of orders, including full OPORD and OPLAN with a complete suite of associated annexes; single-page OPORD summaries; and verbal orders which conform to the situation, mission, execution, administration and logistics, command and signals (SMEAC) format. The form selected will vary depending upon the level of command, time and staff available; the level of training and interoperability of the force; and the complexity of the operation.
 - e. *Rehearsals*. Rehearsals are a key aspect of the execution phase. The rehearsal of techniques provides options for their employment, depending on how much time is available and whether or not the commander can be involved completely in the rehearsal. They may include but are not limited to:
 - (1) *Confirmation Brief*. The confirmation brief is normally performed by a subordinate commander immediately following the receipt of orders. Subordinate commanders confirm their understanding of the commander's intent, their specific tasks and purpose, their unit's part in the

forces plan, and the relationship between their unit and the other units in the force.

- (2) *Back-brief.* Back-briefs are normally conducted by a subordinate commander once they have had time to develop their own plan. A back-brief confirms how a subordinate unit will complete its part in its commander's plan. It also allows subordinate commanders to highlight force or time deficiencies that threaten mission success.
- (3) *Combined Arms Rehearsal.* A manoeuvre unit normally conducts the combined arms rehearsal (CAR) once subordinate units have completed their planning and issued orders to their forces. The CAR allows all elements of a force to understand how a mission will be accomplished and confirms the synchronisation of the plan. Six different rehearsal techniques are available for the conduct of the CAR.
- (4) *Support Rehearsal.* The support rehearsal is normally a separate BOS-specific rehearsal that allows coordinating HQ to ensure that BOS effects can be delivered in accordance with the plan. This is an adjunct to the CAR and normally confirms technical BOS-specific procedures prior to commencement of the mission.
- (5) *Battle Drill or Standard Operating Procedures Rehearsal.* At the lowest tactical levels (platoons and sections) the battle drills or SOP likely to be employed during the conduct of a mission will be rehearsed prior to commencement of the mission.
- (6) *Rehearsal of Concept Drill.* A rehearsal of concept (ROC) drill is similar to a wargame and can best be described as a dry walk-through of a plan between a commander and their subordinates ensuring a shared understanding of the plan. It allows a final confirmation of particularly

complicated portions of the plan and may result in minor amendments to control measures. It will generally involve the commander, all HQ principal staff officers, immediate subordinate commanders and BOS specialists. An ROC drill is generally run by time brackets and is conducted around a map or mud model in a similar fashion to an abridged wargame. At brigade and battalion level the G3/S3 will generally lead the event. Its sequence may include a summary by the G2/S2 of the most likely enemy actions in a given time window, followed by each of the subordinate commanders and BOS leaders summarising their SOM for that particular time band. The ROC drill can provide the commander with an opportunity to discuss potential friendly force reactions to specific contingencies that they wish to discuss with their subordinate commanders. For example, they may wish to have particular elements of the enemy's MDCOA considered, or the impact of loss in air support at a given time. At combat team level and below this drill may be an informal walk-through of the operation with subordinate commanders. The level of detail in an ROC drill will be dependent on the level of command, time and staff available; the level of training and interoperability of the force; and the complexity of the operation.

- (7) *Fire Support Rehearsal.* Fire support rehearsals provide the opportunity for all fires and effects to be synchronised and coordinated.
- (8) *Boxed Rehearsals.* Specific boxed rehearsals can be conducted utilising a variety of methods from map exercises to full-scale rehearsals (eg, entry, urban assaults and activities with complex coordination requirements).

-
- (9) *Full Dress Rehearsal.* This is the most deliberate and resource-intensive rehearsal. It involves every soldier and system required by the mission to undertake the task the plan calls for. Ideally it will occur in the same weather and terrain as the planned mission. As a result of its resource demand the conduct of full dress rehearsals is rare.
- (10) *Reduced-force Rehearsal.* This involves the key leaders of the force (ideally two down) moving through the terrain or like terrain detailing the task, purpose, time, location and trigger for their force to undertake specific actions as part of the higher plan. This type of rehearsal is also very time-intensive but does not require the resources of a full dress rehearsal and allows for ongoing battle preparation within the force.
- (11) *Terrain Model Rehearsal.* In this type of rehearsal key leaders from the force (ideally two down) move on a large-scale terrain model (or move representative icons on a small-scale terrain model) detailing the task, purpose, time, location and trigger for their force to undertake specific actions as part of the higher plan. Ideally the terrain model should overlook the terrain over which the mission will be undertaken, but this is seldom possible. This is the most common type of CAR as it maintains a high degree of detailed synchronisation but requires little time and few resources while allowing for ongoing battle preparation.
- (12) *Sketch Map Rehearsal.* The procedures for this task are similar to the terrain model rehearsal. Instead of using a terrain model, they employ large-scale sketch maps of specific terrain areas to rehearse specific events in the conduct of a mission. Sketch map rehearsals often only
-

-
- employ key leaders one down. They use very little time and very few resources and are the most common low-level (platoon and below) type of CAR.
- (13) *Map Rehearsal*. This rehearsal is conducted in the same way as the sketch map rehearsal; however, it uses the terrain map and the operations overlay rather than larger scale sketches.
- (14) *Radio or Data Network Rehearsal*. This rehearsal technique involves the subordinate commanders talking through their specific actions in sequence to achieve the force plan. This technique is employed when there is very little time or when forces will not be able to meet physically prior to the execution of the mission.
- f. *Measures of Performance*. Measures of performance (MOP) provide the means to determine whether an aspect of an operation is achieving its desired effect and should be linked to the achievement of DE. MOP should be expressed as conditions to be reported against for CDP. Examples of MOP are the status of the kill board, the achievement of PIR, and particular signs of enemy movement that are linked to a deception objective. MOP also inform the requirement for the implementation of branches and sequels.

Step 5 Activity 2 – Execute, Monitor and Adjust the Plan

7.3 Once orders have been issued and rehearsals completed, the staff focuses on executing, monitoring and forecasting the requirement to adjust the plan. The IPB is continually updated to reflect ongoing changes in the understanding of the situation and the DSO, the synchronisation matrix and MOP are used as a means of monitoring execution. The requirement for branch and sequel planning should also be planned and implemented at this stage. The outcome of branch and sequel planning will form the requirement for FRAGO and/or subsequent orders.

7.4 The decision and execution stage is summarised in [Figure 7–1](#).

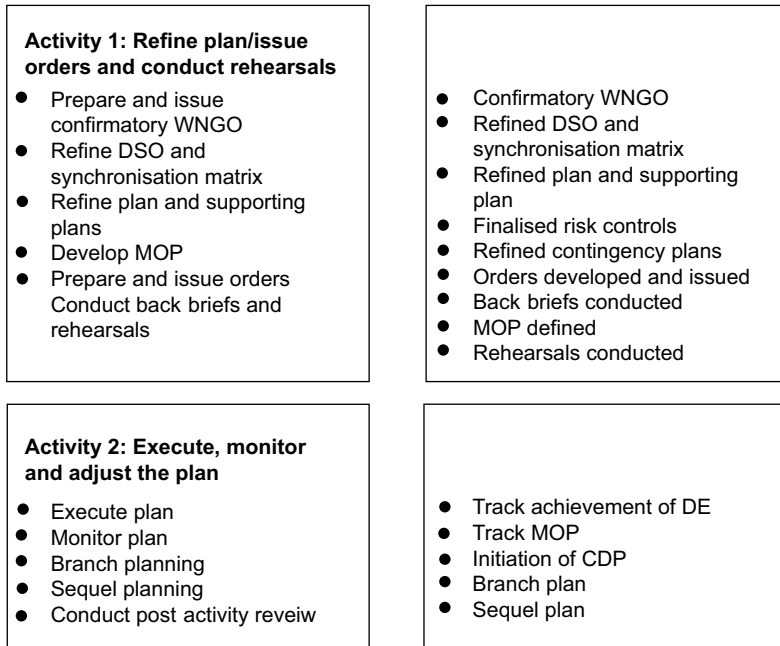


Figure 7–1: Decision and Execution Stage Summary

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CHAPTER 8

BATTLESPACE OPERATING SYSTEM PLANNING

SECTION 8-1. OVERVIEW

- 8.1** The MAP provides a conduit for commanders and staff to attain the 'combined arms effect' through the integration of the eight BOS identified by the Australian Army. These are as follows:
- a. manoeuvre,
 - b. fire support,
 - c. information operations,
 - d. ISR,
 - e. mobility and survivability,
 - f. AD,
 - g. C2, and
 - h. CSS.
- 8.2** As with any process, each step of the MAP has respective inputs, actions and outputs that both influence the process and provide products oriented to the attainment of the combined arms effect.
- 8.3** This chapter details the generic BOS planning considerations applicable to each staff branch or BOS specialist during the MAP. BOS planning is not a separate planning process but is synchronised with the SMAP. Within an SMAP, BOS considerations occur in concert with the core planning process. BOS planning considers the significant facts, events and conclusions based on the analysis of data particular to each branch or BOS. These considerations are the basis for forming viable COA, and should be comprehensive and continuous without becoming overly time-consuming.

- 8.4** The BOS advisers deliver the following outputs:
- a. enhanced understanding of the enemy through the reverse BOS process,
 - b. developed BOS plans to optimise capability employment to specified COA,
 - c. confirmed BOS synchronisation to specified COA, and
 - d. individual BOS products to support the execution of COA.

SECTION 8-2. BATTLESPACE OPERATING SYSTEM PLANNING IN PRELIMINARY ANALYSIS AND INTELLIGENCE PREPARATION OF THE BATTLESPACE

- 8.5** The following occurs in the preliminary analysis step (see [Chapter 2](#)) and in support of IPB:
- a. reverse BOS planning, which contributes to enemy COA development in IPB;
 - b. confirmation of the forces available; and
 - c. support in writing of initial WNGO (the tasking of ISR assets and other preliminary moves).

SECTION 8-3. BATTLESPACE OPERATING SYSTEM PLANNING IN MISSION ANALYSIS

Inputs

- 8.6** A higher HQ will specify tasks given to subordinate units. These may be found in the concept for BOS within the OPORD or within the higher BOS annex to an OPORD issued to a higher HQ. It is critical that the BOS planner fully understands the higher commander's intent.

Actions

- 8.7** The BOS planner must then gather 'facts' from a variety of sources. These facts, which represent the capabilities of the BOS, are as follows:
- a. equipment status,
 - b. numbers,
 - c. types,
 - d. locations,
 - e. communication links,
 - f. maintenance status, and
 - g. the characteristics of BOS assets.
- 8.8** Ideally, this information can be extracted from unit status charts within the respective BOS HQ. Where critical facts are not available, the BOS planner must make assumptions.
- 8.9** The BOS planner then obtains IPB products from the S2 cell, and contributes to the S2 cell development of threat COA by conducting reverse BOS analysis with the S2 staff. At all levels the intelligence, operations and BOS cells must interact before the MA brief. This interaction can take the form of a formal meeting or an informal staff coordination session. Regardless of the format, it is vital that the staff gain a common vision of the effects of the environment, the enemy COA and friendly force capabilities before briefing the commander.
- 8.10** The next step is to translate the status of BOS assets (eg, raw data) into capabilities or effects that are able to be achieved. This translation is achieved through the application of planning factors, the formulation of assumptions and the conduct of analysis. The capabilities or effects are then considered in the context of the terrain, weather and enemy analysis provided by the IPB. For example, the effects of temperature and other weather conditions on such things as technical equipment, or the weather and terrain effects on logistic resupply, could well be significant. Battlefield geometry is another possible IPB

effect, where the ranges of deployment for the BOS are such that there will be a requirement for redeployment. This information may be critical for the commander to factor into their guidance. Similarly, analysis of the terrain and enemy will reveal likely threats to the BOS assets that may translate into requirements for physical protection or the need for survivability and mobility measures. The key is to translate capabilities into practical effects that can be included in briefings to the commander.

- 8.11** Finally, the BOS planner should develop draft tasks based on the analysis thus far. Task, purpose, method and effects required represent a useful sequence for articulating the desired outcome for the BOS. Their utility in planning lies in their provision of links between the objective (task) and the manoeuvre plan (purpose), the means by which this is to be achieved (method) and what quantifies accomplishment of the task (effects). However, this process is not the only means of achieving this outcome.

Outputs for Mission Analysis Brief

- 8.12** When the S3 conducts a briefing on the higher CONOPS and SOM, the BOS planner should also provide a brief on the higher BOS plan. Nevertheless, the BOS planner must be prepared to inform the commander of the tasks and resultant implications of the higher plan.
- 8.13** The BOS planner must also be prepared to include in any brief the facts and resultant analysis of threat capabilities and products from the IPB. This information can be briefed orally or in graphical format; however, it should cover the following:
- a. the status of the BOS;
 - b. the capabilities/limitations of the BOS and effects that can be achieved;
 - c. the BOS IPB analysis; and
 - d. the BOS time line (if not incorporated into the manoeuvre time line).

-
- 8.14** Based on the analysis of the known tasks and discussions with the S2 and S3, the BOS planner should recommend the draft tasks determined for the operation. Depending on the level of the planning HQ, BOS planners may simply provide a brief on the task, purpose, method and effects from the higher BOS plan (ie, if they are in sufficient detail and address the requirements of the subordinate commander).
- 8.15** As the BOS expert, the BOS planner provides the commander with recommendations. The commander can accept, modify or reject any recommendations, and create new tasks and purposes in their guidance. Where a commander wants to reject or change tasks specified in the higher BOS plan, permission must be obtained from the higher commander.
- 8.16** It is important that, before the BOS planner begins to develop their support plan, the planner and the commander have a common understanding of how the BOS will support the operation. The staff may further refine the initial tasks as the MAP progresses (with the commander's approval), but the more clearly the commander defines them initially, the more focused and effective BOS planning will be.
- 8.17** The BOS planner's brief should also include details of other BOS planning influences. This may include restrictions, force protection considerations and ROE constraints. At the conclusion of this briefing the commander should provide their guidance for the BOS as required. This guidance should include:
- a. detail as to how, when and where the BOS should be employed in the development of COA;
 - b. priorities for limited BOS assets; and
 - c. the focus of effort for the BOS if it differs from the commander's ME.
- 8.18** After confirming the commander's guidance with a back-brief, the BOS planner should provide input to the WNGO or issue BOS-specific WNGO where appropriate. As a minimum, the
-

WNGO issued after MA must contain the approved tasks and the BOS time line.

SECTION 8-4. BATTLESPACE OPERATING SYSTEM PLANNING IN COURSE OF ACTION DEVELOPMENT

- 8.19** Using the outputs from MA, the BOS planner can plan the method by which the tasks will be accomplished. Given that this is time dependent and based on the developing COA, the BOS planner may develop one or more ways to accomplish the purpose of each agreed task. Assets are allocated to accomplish each task.

Inputs

- 8.20** The inputs for COA development should come directly from the commander's guidance and be articulated as a task and purpose.

Actions

- 8.21 Determine Method.** The next step involves the BOS planner's determination of the method by which the BOS task will be accomplished. This is achieved by quantifying the effects required for each task and using the information to determine the feasibility of the task. The BOS planner must focus on what must be accomplished to achieve the task, rather than on what can be accomplished. Where it is determined that the required effects cannot be achieved with the assets allocated, either the method must be reworked or additional assets must be requested.
- 8.22 Assign Battlespace Operating System Assets.** The BOS planner then determines which BOS assets should be used to achieve the desired effects and end state in order to develop a plan for their use. As the staff discusses and builds the options, timing and other coordination issues are resolved.
- 8.23 Identify Triggers.** Having determined a plan as to which assets will be used to achieve the desired effects, the BOS planner must integrate BOS events or actions with manoeuvre

planning. These inputs inform BOS-specific actions to be included in the synchronisation matrix. As a minimum, the BOS planner must develop initial triggers that can be refined during COA analysis.

- 8.24 Other Factors.** At each stage, the BOS planner must apply doctrinal or validated planning factors to ensure that the plan is feasible. Real-time limitations such as training levels and equipment serviceability need to be updated and included in planning.

Outputs

- 8.25** The desired output of COA development is a draft BOS plan for each COA, branch, plan or sequel. In some cases the BOS plan may not change to support different COA. A developed COA should include:
- a. *Concept of Battlespace Operating System.* The concept of BOS is the logical sequence of tasks which, integrated with the SOM, will accomplish the mission and achieve the commander's intent. The concept allocates, in broad terms, the assets to achieve the tasks. The concept of the BOS is the basis of the BOS paragraph in the OPORD.
 - b. *Draft Concept of Employment for the Battlespace Operating System.* The draft concept of employment for the BOS may be presented in a number of ways. The information may be graphically depicted on an overlay or provided in written form. The more complete the BOS plan for each COA, the more efficient the wargame will be. The BOS COA is represented on the synchronisation matrix.

SECTION 8-5. BATTLESPACE OPERATING SYSTEM PLANNING IN COURSE OF ACTION ANALYSIS

- 8.26** The analysis conducted in COA analysis is critical to the BOS planner's attempts to integrate the BOS into the manoeuvre

plan. The wargame provides final detail and refinement, validates capabilities and synchronises the BOS plan.

Inputs

8.27 The inputs for the COA analysis are the outputs from the COA development and include:

- a. the concept of the BOS,
- b. the BOS COA represented on the synchronisation matrix, and
- c. reverse BOS planning.

Actions

8.28 The conduct of the wargame in COA analysis brings the staff together to gain a common understanding of both the COA and how the BOS will interact within it. Based on the conduct of the wargame, the BOS planner can modify the BOS plan and the products that support it.

8.29 Fight the Plan and Record Results. BOS planners are responsible for fighting the BOS plan as part of the analysis for each COA. The conduct of the wargame provides the opportunity to test and refine the BOS plan. Flexibility should be inherent in the plan through the identification of branches, sequels and their associated DP. A key element is the recording of the results of the analysis. The synchronisation matrix is used for recording information and can be used later for the construction of decision support tools.

8.30 Develop the Plan and Associated Products. The BOS plan and associated products for the OPORD should be developed concurrently with the conduct of the wargame in the COA analysis.

Outputs

8.31 The outputs from the COA analysis are the revised products from the COA development and include drafts of the BOS concepts and annexes.

SECTION 8-6. BATTLESPACE OPERATING SYSTEM PLANNING IN EXECUTION

- 8.32** The primary role of BOS planners in the execution step is to provide a brief of the plan and produce the BOS inputs to the OPORD.
- 8.33** The inputs for this step of the MAP are the outputs from the COA analysis. The output takes the form of a completed order with appropriate supporting documentation.

SECTION 8-7. CONCLUSION

- 8.34** BOS inputs represent a critical ingredient in the development of the OPLAN. Each BOS will be required to develop respective planning processes, with the commander dictating the level of input into the total process.
- 8.35** Further detailed information pertaining to BOS planning and outputs is contained in the BOS doctrine series.
- 8.36** A detailed example of an ISR BOS planning aide-memoire is provided in [Annex A](#).

Annex:

- A. [Intelligence, Surveillance and Reconnaissance Battlespace
Operating System Planning Aide-Memoire](#)

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8-10

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ANNEX A TO CHAPTER 8

INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE BATTLESPACE OPERATING SYSTEM PLANNING AIDE-MEMOIRE

1. The aide-memoire shown in [Table 8-1](#) is a guide for staff undertaking planning for the ISR BOS, to ensure that intelligence (analysis), surveillance (broad longer term) and reconnaissance (specific/point) effects are delivered. The aide-memoire is not definitive, nor is it meant to be restrictive.

Table 8–1: Intelligence, Surveillance and Reconnaissance Planning Aide-Memoire

Inputs	Actions	Outputs
<i>Preliminary Analysis</i>		
Intelligence and ISR staff	<ol style="list-style-type: none">1. Review higher HQ products.2. Prepare to commence IPB.3. Await commander's guidance.	Situation update.
<i>Mission Analysis</i>		
Higher HQ OPORD/plan Intelligence and ISR staff	<ol style="list-style-type: none">4. Communicate IR to ISR staff.5. Sort, prioritise and manage IR to determine which can be met from information sourced from organic ISR assets.6. Identify appropriate collection assets.	<p>IR confirmed.</p> <p>Prioritised hostile force COA for development.</p> <p>PIR for inclusion within intelligence collection plan.</p> <p>IR confirmed.</p>

8A-3

<i>Inputs</i>	<i>Actions</i>	<i>Outputs</i>
	<p>7. Define friendly force collection/acquisition capabilities.</p> <p>8. Determine and assess hostile force collection system to define own FOA.</p>	<p>Prioritised hostile force COA for development.</p> <p>PIR for inclusion within intelligence collection plan.</p> <p>Input to orders for planning and execution of collection/acquisition as necessary within broader operational framework.</p> <p>Information gaps fed back into collection planning process.</p>

8A-4

<i>Inputs</i>	<i>Actions</i>	<i>Outputs</i>
	<p>9. Provide input to:</p> <ul style="list-style-type: none"> a. situation review (including assessed threat mission, disposition and intent); b. environmental and weather characteristics; c. hostile force capability and intent; d. HVT; and e. other stakeholder analysis such as religious groups, political, population, ethnic. <p>10. Provide early answers to IR.</p>	Develop CI plan.

LWD 5-1-4, The Military Appreciation Process, 2015

Inputs	Actions	Outputs
Course of Action Development		
Intelligence and ISR staff	<div>11. Continue to use IPB to develop and refine each COA under development.</div> <div>12. Conduct reverse BOS analysis.</div> <div>13. Ensure ISR FE component is integrated into each COA to maximise situational understanding.</div> <div>14. Seek advice from surveillance/reconnaissance collection asset.</div>	

8A-6

Inputs	Actions	Outputs
<i>Course of Action Analysis</i>		
Intelligence and ISR staff	15. Assume role of hostile force commander. 16. Assume role of enemy ISR Comd to fight the C-ISR battle during wargaming. 17. Perform the role of friendly ISR FE commanders.	Data for production of: a. DSO, and b. ISR plan. Update elements of the collection plan for each own force/friendly force COA: c. confirmed IR linked with relevant NAI/TAI; and d. confirm refined HVT matrix is cross-reference with TAI.
Intelligence and ISR FE commanders	18. Assume role of, and advise on hostile force specialised collection assets.	Appropriate surveillance/reconnaissance collection asset executes ISR component of the collection plan.

LWD 5-1-4, The Military Appreciation Process, 2015

8A-7

Inputs	Actions	Outputs
<i>Execution</i>		
Intelligence and ISR staff	19. Monitor changes to threat. 20. Update IPB after wargaming. 21. Prepare surveillance/reconnaissance component of staff work in support of OPORD/plan.	Commander's guidance: a. Include IR/PIR in OPORD/plan. b. Intelligence and ISR staff contribution to ISR planning groups. c. ISR plan ratified. d. Plan included as annex to OPORD.
Ops staff	22. Link ISR collection/acquisition tasks into broader OPORD/manoeuvre plan.	

8A-8

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CHAPTER 9

INDIVIDUAL MILITARY APPRECIATION PROCESS

SECTION 9-1. OVERVIEW

- 9.1** The MAP can be conducted by commanders without the aid of a staff. This normally occurs in the following two settings:
- when commanders of echelons without staff (sub-unit and below) plan military tasks; and
 - when commanders of echelons with staff conduct individual planning in order to lead the efforts of their staff.
- 9.2** The MAP retains its cyclical and iterative nature and adheres to the same steps regardless of whether it is applied by an individual or a staff. An MAP conducted by an individual (see [Figure 9-1](#)) consists of the following five steps:
- Step 1 – Preliminary Analysis (see [Chapter 2](#));
 - Step 2 – MA (see [Chapter 4](#));
 - Step 3 – COA Development (see [Chapter 5](#));
 - Step 4 – COA Analysis (see [Chapter 6](#)); and
 - Step 5 – Decision and Execution (see [Chapter 7](#)).
- 9.3** The degree of depth of analysis during an individual appreciation will vary depending on the time available to the commander. To that end the MAP, when applied by an individual, generally targets the production of a single fully developed COA rather than the multiple COA produced by a staff. Additionally, an individual must make trade-offs between analysis, planning and the products used to communicate the order/plan.

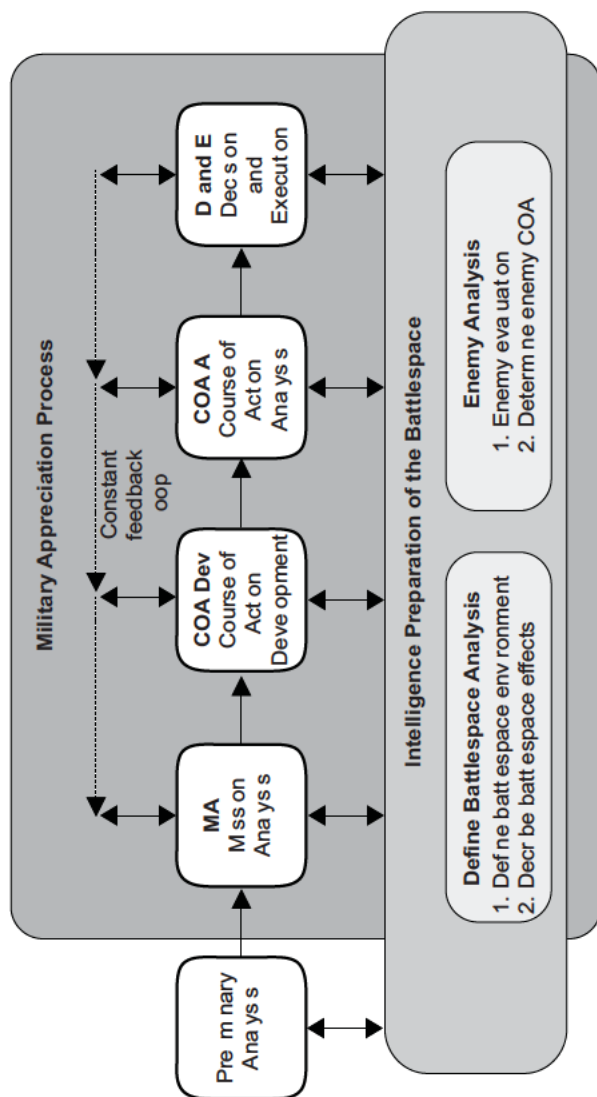


Figure 9-1: The Military Appreciation Process

SECTION 9-2. STEP 1 – PRELIMINARY ANALYSIS

- 9.4** Preliminary analysis is used to focus the commander on an impending operation. This is triggered by receipt of higher orders or a change in situation. The commander must then conduct an initial analysis of the situation – this is known as the preliminary analysis.
- 9.5** Preliminary analysis defines the purpose, the time available for planning, and the desired end state, without pre-empting full MA or IPB. Preliminary analysis comprises the following:
- a. *Situation Overview.* The commander needs to conducted a broad overview of the situation before commencing subsequent steps. This will include initial scoping of the enemy and the operating environment. Other stakeholders may also need to be considered in parallel with the enemy in this and all subsequent steps.
 - b. *Define Purpose and End State.* The mission, purpose and desired end state need to be identified from higher orders.
 - c. *Establish Operational Time Line.* An operational time line appreciation is conducted by determining a critical time line and planning in reverse order. Imposed key timings are given by the superior commander and may include:
 - (1) the time the superior commander's end state is to be achieved;
 - (2) H-hour; and
 - (3) known phase time lines (an appreciation of the enemy time line also needs to be conducted).
 - d. *Establish Planning Time Line.* The commander must weigh up the desired degree of depth in planning as opposed to the need to act before the enemy does, in order to seize and retain the initiative. The one-third, two-thirds rule should be applied when developing a planning time line; that is, the commander should

allocate one-third of the available time before an operation commences to produce and disseminate the plan. The other two-thirds are required for subordinate battle procedure. Of the one-third of time available, a recommended percentage allocation to each of the steps in the process is:

- (1) preliminary analysis – 10 per cent;
 - (2) IPB – 20 per cent;
 - (3) MA – 20 per cent;
 - (4) COA development – 20 per cent;
 - (5) COA analysis – 10 per cent; and
 - (6) orders and execution – 20 per cent.
- e. *Initial Information Requirements and Reconnaissance Effort.* At this stage initial information requirements and reconnaissance effort may be identified to provide more fidelity to subsequent steps of the planning process.
- f. *Issue Warning Order.* A WNGO is issued at the end of the preliminary analysis. A subsequent WNGO can be issued at any time during the process.

SECTION 9-3. INTELLIGENCE PREPARATION OF THE BATTLESPACE

- 9.6** The IPB involves the analysis of the environment, the enemy and other stakeholders within the battlespace. This informs the development of the friendly force COA and ISR plans.

Intelligence Preparation of the Battlespace Activity 1 – Define the Battlespace Environment

- 9.7** Key environmental factors of the battlespace that will influence enemy or friendly COA need to be identified. These include:
- a. geography, terrain and weather;
 - b. population considerations;

-
- c. political or socioeconomic factors;
 - d. infrastructure; and
 - e. ROE and legal restrictions.

9.8 Identify the Area of Operations and Areas of Interest.

During this sub-step the commander revises, confirms or amends the boundaries issued to them, or recommends boundaries in the event that none are given. These boundaries form the AO. The commander then reviews the areas external to their boundaries that may influence the completion of their mission, and these constitute the AI. An AI may be contiguous or made up of numerous non-contiguous external areas.

9.9 Determine Information Requirements and Make Assumptions.

Once the battlespace has been defined, some unknown elements of information necessary to plan the mission will become apparent. The commander should make assumptions about these information gaps in order to allow planning to proceed. Information requirements must be created to source the required information.

Intelligence Preparation of the Battlespace Activity 2 – Describe the Battlespace Effects

9.10 Analyse Battlespace Effects. The commander analyses the physical terrain within their AO and AI to understand the effect the terrain will have upon the conduct of their mission. Physical terrain analysis could constitute anything from a map reconnaissance to a fully developed MCOO. Further information pertaining to the construction of the MCOO is detailed in [Chapter 3](#). Regardless of the method selected, the analysis is conducted using the following sequence:

- a. *Observation and Fields of Fire.* Observation is the ability to see hostile forces visually or through the use of surveillance devices. Fields of fire are the areas that a weapon system covers effectively from a given point. During the conduct of this analysis a point of observation

is normally linked to the fields of fire it will provide. This activity aids in identifying:

- (1) potential EA,
 - (2) defensible terrain and specific weapon system positions,
 - (3) vulnerable areas for the movement of forces, and
 - (4) surveillance positions.
- b. *Cover and Concealment.* Areas offering good cover and concealment in relation to the previously identified points of good observation offer the commander, the enemy and other stakeholders secure mobility corridors. This analysis is used to identify:
- (1) defensible terrain and potential battle positions; and
 - (2) potential assembly, deployment, dispersal and hide areas.
- c. *Obstacles.* Obstacles are any natural or man-made terrain features that may impede or channel movement. The commander should categorise areas of terrain as offering unrestricted, restricted or very restricted movement to tactical formations. These categorisations are based on a combined evaluation of the gradient, vegetation and watercourses and man-made terrain features in an area.
- d. *Key and Decisive Terrain.* Key terrain is any locality or area the seizure or retention of which affords a marked advantage to either combatant. Decisive terrain is key terrain that may have an extraordinary impact on the outcome of the operation. The designation of decisive terrain implies that the success of the operation depends on the seizure or retention of the terrain.
- e. *Avenues of Approach.* An AA is an air or ground route for an attacking force of a given size leading to its objective or to key terrain in its path. All COA involving manoeuvre

depend on available AA. AA are identified by combining MC. MC are identified by examining the terrain and determining the size and type of force that could move through any given part of the AO without being restricted by terrain. Corridors that offer the same mobility to like-sized forces are grouped into AA.

- 9.11 Weather Analysis.** Weather analysis is conducted through the identification of weather effects, including visibility, wind, precipitation, cloud cover, and temperature and humidity. This analysis can be represented by a weather effects matrix (see [Figure 3–8](#)).
- 9.12 Analyse other Battlespace Characteristics.** The effects of other battlespace characteristics on friendly and hostile force COA can be determined through the mnemonics ASCOPE and PMESII (see [paragraph 3.40](#)).
- 9.13 Combine the Battlespace Effects.** At the conclusion of this step the commander should have a consolidated understanding of how terrain and weather will effect their and the enemy's operation. This may be supported by the following:
- the identification of AO and AI;
 - the MCOO;
 - ASCOPE overlays (or narrative);
 - weather effects (can be expressed as a matrix); and
 - the IR and assumptions.
- 9.14** Integration and evaluation of the effects of terrain and weather and other characteristics should lead to deductions on enemy and friendly capabilities. These deductions inform other threats and opportunities that are presented by the battlespace.

Intelligence Preparation of the Battlespace Activity 3 – Evaluate the Enemy

- 9.15** Evaluating the enemy involves identifying the enemy's level of command, ORBAT and capabilities, relevant doctrine and tactics, all of which will influence the possible enemy COA.

Additionally, it enables analysis of enemy CV in order to inform DE planning. As previously identified, other stakeholders may also need to be considered in parallel with the enemy. Evaluating the enemy involves the following analysis:

- a. *Identify the Level of Enemy Command.* Identifying the level of command and the intent of hostile, adversarial and neutral stakeholder groups is key to evaluating and understanding their impact on the mission. The level of command of a stakeholder group is normally expressed in terms of the organising HQ. For a military stakeholder this is simple (eg, mechanised brigade); for other stakeholder groups it can be more difficult (eg, district administrator). A stakeholder's intent is best expressed as their objective and its relevant time line.
- b. *Doctrinal Overlays.* Doctrinal overlays illustrate the hostile force's normal deployment pattern and disposition. Depending on the situation, some doctrinal overlays consider the hostile force as a whole, while others consider individual FE or BOS. When operating against a force with no established doctrine or an adaptable opponent, it may not be possible to develop doctrinal overlays.
- c. *Describe the Preferred Tactics.* A description of the preferred tactics, combined with the doctrinal overlay, can be aligned with the current situation and battlespace analysis to assess what the hostile force is likely to do under the given circumstances. The description of preferred tactics should cover:
 - (1) doctrinal SOM for the hostile force and other stakeholder groups that pose potential threats;
 - (2) the doctrinal activities of hostile force BOS supporting the SOM;
 - (3) a time event chart that describes the hostile force's doctrinal planning timings that support the SOM;

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- (4) historical data on attack timings, methods and locations;
 - (5) political activities, if considered relevant;
 - (6) information and media activities; and
 - (7) other support activities considered relevant.
 - d. *Order of Battle File.* When used, stakeholder model data is maintained in an ORBAT file. At the lower tactical levels, the ORBAT file may describe the standard groupings and weapons of an enemy infantry platoon. At battlegroup level, it is likely to be considerably more complicated. The following information is normally contained in ORBAT files:
 - (1) composition, disposition, strength, training status and effectiveness;
 - (2) tactics or *modus operandi* (including habitual operating areas or patterns for unconventional forces, insurgents, gangs, tribes or clans);
 - (3) recent activities;
 - (4) logistic and support capabilities;
 - (5) electronic technical data;
 - (6) leadership, personalities and pseudonyms; and
 - (7) associations and relationships.
 - e. *Initial High-value Target List.* Assets that are critical to the hostile force's success are identified as potential HVT and ranked in order of their relative worth to the hostile force. The commander notes which capabilities are considered HVT in a list grouped by BOS, and updates the list as required throughout the planning process.
 - f. *Identify Enemy Capabilities.* The commander reviews each enemy and stakeholder model and identifies the range of activities that each element has the capacity to
-

undertake and sustain. This is achieved through reviewing doctrinal overlays and preferred tactics, with modifications made in light of the current situation (terrain and weather, assessed enemy readiness and morale, assessed level of combat effectiveness and logistic support). These estimated enemy capabilities inform possible COA and supporting operations which the enemy can use.

Intelligence Preparation of the Battlespace Activity 4 – Determine Enemy Courses of Action

9.16 During this activity commanders use the analysis from the previous three activities (see [paragraph 9.7](#) to [paragraph 9.15](#)) to estimate how the enemy will employ its forces to achieve its objectives and end state. These estimates differ from the doctrinal models as they are developed with an understanding of what the battlespace makes possible.

9.17 Identify Likely Enemy Objectives and End State. A commander identifies the enemy end state either from their higher commander's appreciation or by making their own estimate. Based upon that end state a commander uses battlespace analysis to identify likely objectives. These objectives may be adversary or terrain focused. The commander then uses the previous analysis of enemy capabilities to determine how they may achieve these objectives. These enemy methods can then be combined to establish COA.

9.18 Develop Enemy Course of Action Description and Options. The commander makes an estimate of how the methods identified in accordance with [paragraph 9.17](#) might be combined by an enemy force to create a coherent plan or COA that would achieve its objectives and end state. By convention hostile force COA are considered in terms of likelihood and potential impact. This will identify the MLCOA and MDCOA, although the hostile force may adopt any combination or variation thereof. Each of the enemy's COA should be represented graphically. In the event that a commander conducting an appreciation as an individual has time to develop

these graphical representations further, they can be turned into situation or event overlays (see [paragraph 9.21](#)).

- 9.19 Estimate the Enemy Centre of Gravity and Critical Factors for Each Course of Action.** Once a commander has made estimates as to how the enemy will employ its forces to achieve its objectives and end state, they are able to develop the COG construct for each of these estimated COA. While it is not necessary that each COA has a different COG, it is possible that the differing methods employed will result in slightly different CV. These CV are employed later in developing the friendly force plan.
- 9.20 Confirm the Enemy High-value Target List.** Once each COA has been developed and the COG estimate is completed, the commander can revisit their initial HVTL. By examining how the enemy is expected to achieve its objectives and end state, the commander may identify elements of the initial HVTL that are unlikely to be important to the enemy plan. These elements can then be removed from the list. Elements can be added to the initial HVTL if the alternative is true. The elements present in the HVTL should correspond to some of the critical requirements and may correspond with complete CC from the developed COG constructs. The HVTL is employed during the COA development when compiling the high pay-off target list (note that the two are linked but not synonymous).
- 9.21 Situation and Event Overlays.** Where time permits, each COA should be represented graphically through the use of overlays. These COA can be fully developed through a detailed estimate of the enemy SOM and subsequent BOS integration. The result of this full development is a situation or event overlay. These overlays should include the likely locations of enemy NAI, TAI and EA. HVT should be identified and prioritised. Further detail on conducting these processes can be found in [Chapter 3](#). These COA are used to support the development of friendly force plans during the COA development and COA analysis steps.

SECTION 9-4. STEP 2 – MISSION ANALYSIS

Step 2 Activity 1 – Analyse the Superior Commander's Intent and Identify Own Mission

9.22 Analyse the Superior Commander's Intent. The superior commander's intent (one up and two up) guides the commander's planning. It includes the reason for the mission (purpose), broad concept of achieving the mission (method) and desired result of the mission (end state). These elements are detailed further in [Chapter 4](#). Under mission command, a subordinate commander has considerable freedom of action in deciding how to achieve the mission, but they must remain nested within the guidance of the intent statement.

9.23 Identify Own Mission. Once the superior commander's intent is understood, the commander should identify the mission they have been issued. Where they have not been issued a mission, they should be capable of developing at least the purpose statement of a draft mission, given their understanding of the superior commander's intent and their part in the overall plan (based on the preliminary analysis). The issued or stated mission is reviewed towards the end of the MA once the task and the available forces are understood.

Step 2 Activity 2 – Analyse Tasks

9.24 Identify Tasks. The tasks required to complete the mission are normally included in the superior commander's orders under groupings, missions and tasks. However, the list cannot be considered comprehensive and commanders must interpret their specified tasks and determine implied tasks and ET. The tasks to be identified are categorised as follows:

- a. *Specified.* These tasks are listed in the superior commander's orders and must be completed.
- b. *Implied.* These tasks are not specified in orders but generally need to be completed to achieve the mission. Implied tasks can also be drawn from own COG construct and IPB analysis.

-
- c. *Essential.* These tasks must be completed for a mission to be successful, and may be specified or implied.

Step 2 Activity 3 – Determine Freedom of Action

- 9.25 Freedom of Action.** Determining freedom of action involves identifying the broad range of actions that can be conducted to achieve the superior commander's intent. In order to ascertain what freedom the commander has, it is often necessary to identify what the commander cannot do. This involves the consideration of factors that limit possible actions and an analysis of the situation to identify potential opportunities for action. The limitations determine the commander's freedom of action.
- 9.26 Limitations.** The limitations on an activity include restrictions and constraints. Restrictions are actions that a superior commander prohibits subordinate commanders from conducting (eg, not crossing a boundary) and are generally specified in orders. Constraints affect the way a subordinate commander can conduct the operation (eg, having to maintain a reserve). Constraints are imposed actions that must be undertaken, while restrictions are prohibited actions.
- 9.27** When assessing limitations, commanders and staff must accept that friendly force and neutral stakeholder activities within the battlespace environment may place some limitations on their mission. Although they may not be specified by the superior commander, activities that inhibit or impact upon other stakeholders may detract from friendly force efforts on other LOO.
- 9.28 Opportunities.** It is important that the commander does not overlook potential opportunities. Opportunities can be described as the possible methods (ways and means) available to a commander outside the parameters identified by limitations. Opportunities should be viewed from the perspective of the battlespace environment, timings and each friendly BOS. Additionally, other stakeholder activities may provide an opportunity for mutual cooperation, cover or deception.

9.29 Risk Tolerance Thresholds. During this activity the commander determines how much risk their superior commander is willing to accept during the conduct of the mission. The superior commander may formulate their decision in terms of how much of their force they are willing to lose (as casualties) during the conduct of a mission. Alternatively, they may express how much of the force must remain available to conduct subsequent operations once the mission is successful. Risk tolerance thresholds may result in limitations that restrict or constrain the commander's options during the conduct of the mission; however, commanders should not overlook opportunities.

Step 2 Activity 4 – Identify Critical Facts and Assumptions

9.30 Facts. Facts are statements of information that are known to be true. Facts include friendly force dispositions, available troops, unit strengths, stockholdings and materiel readiness. Facts have usually been verified by testing. A bridge, for instance, can be constructed, tested and proven to have a particular load-bearing capacity. A convoy can factually have a rate of movement along known routes, with known rates of equipment failure but without hostile force interference. By using facts, a commander can increase the degree of certainty in a plan.

9.31 Assumptions. Assumptions are statements for which no proof is currently available. Assumptions are made to enable planning to continue without the delay of waiting for verification. A bridge, for instance, can be assumed to exist from the markings on a map. Once the bridge is observed, it is then known to exist but, if the type of construction and the condition cannot be seen clearly, it must be assumed to have a particular load-bearing capacity. A convoy can have an assumed rate of movement along unknown routes with known rates of equipment failure. Each assumption must be allocated a corresponding IR.

Step 2 Activity 5 – Confirm the Mission

9.32 The mission statement must be confirmed or altered to ensure that it meets the superior commander's intent and is in

accordance with the current situation. The exact wording of the mission must clearly detail the primary task and the purpose of the mission. Changing an assigned mission should not be undertaken lightly. Mission statements can only be changed with the consent of the higher commander. This may occur as a result of a commander assessing that they have insufficient combat power to complete a mission (resulting from a force comparison between Step 2 [see [Section 9-4](#)] and Step 3) or that the mission task verb does not support the purpose of the operation. Where the superior commander accepts the restated mission, a WNGO should be issued to subordinates.

Step 2 Activity 6 – Analyse Own Troops

- 9.33 Analysis.** The location, status and readiness levels of own troops (combat, CS and CSS) and friendly forces should be reviewed and noted. This is normally achieved by establishing which BOS FE are available within the commander's scope of authority. The effects that these forces can generate, as well as their sustainment demands, should be examined.
- 9.34 Initial Centre of Gravity Construct.** Based upon their understanding of the force's part in the overall plan and the FE available for the mission, the commander is now able to complete an initial COG construct for their own force. This analysis will identify the aspect of the force (CV and possibly the time and location of the employment of complete CC) that must be protected in order to prevent disruption of own mission. These own force CV must be kept in mind when developing own force COA.

Step 2 Activity 7 – Consolidate Intelligence Preparation of the Battlespace and Mission Analysis

- 9.35** The analysis completed during the IPB and the MA is consolidated to generate design rules for own force COA development. This synthesis creates the DE and CCIR.
- 9.36 Derivation of Decisive Events.** Having determined the tasks and freedoms of action during previous activities, the planner should consolidate all analysis undertaken so far to derive DE. The derivation of DE combines the commander's visions of

how they will defeat the enemy's plan, how they will achieve their ET and how they will fulfil their part in the overall plan.

9.37 Determine Enemy Defeat Mechanisms. The first step in deriving DE is to visualise how the enemy can be defeated (if the defeat of the enemy is not a necessary part of the plan, it may only need to be neutralised). The commander should revisit their estimate of the enemy COG construct. One way to determine how the enemy force or plan can be defeated is to examine how the enemy's employment of their CC can be disrupted or dislocated. By preventing the enemy's employment of one or more of its CC the friendly force is likely to break down the cohesion of the enemy plan. The most common method of determining how to disrupt or dislocate those CC is to identify the CR that can be disrupted or dislocated. This is normally drawn from the CV identified earlier.

9.38 Consider the Achievement of Essential Tasks. The commander should now determine whether or not the achievement of any of the previously identified ET can occur during the same activity as targeting the enemy's defeat mechanisms. This can be a difficult step in the derivation of DE and relies on the experience of the commander.

9.39 Determine the Decisive Events. The next element in the determination of DE lies at the core of the tactical art. The planner must now visualise the range of possible actions that will meet the ET and/or undermine the enemy plan by targeting their defeat mechanisms. The recommended way to do this is to consider the battle chronologically and ask the question: 'What must I achieve to target the enemy's CV and/or achieve my superior commander's intent?' The commander should attempt to answer this question in terms of targets and effects that will achieve decisive outcomes against the enemy and in pursuit of the mission's purpose. This consideration should result in the identification of a number of events that are critical to the success of the operation.

9.40 More than one TCV or essential task may be encompassed in a single DE. The list of DE does not need to be sequenced or

prioritised yet, as this will occur in the first stage of the COA development.

9.41 Confirm Commander's Critical Information Requirements.

At the end of the IPB and MA the commander should be able to establish a consolidated list of CCIR. This list may be added to during the COA development, but it is important to understand the CCIR at this point as they must form a basis for developing COA in the next step (answer PIR and protect essential elements of friendly information), detailed in [Section 9-5](#).

SECTION 9-5. STEP 3 – COURSE OF ACTION DEVELOPMENT

9.42 COA development is one of the steps of the MAP that is significantly abridged when the appreciation is completed by an individual rather than a staff. The nature of the abridgement is that multiple COA are not fully developed. Rather, multiple COA concepts are developed and tested. At the end of the test one concept is selected for full development. This single developed COA is then analysed in the next step of the appreciation. COA development by an individual consists of the following four activities:

- a. create COA concepts,
- b. develop COA concepts,
- c. test COA concepts and select a COA for full development, and
- d. fully develop the COA.

Step 3 Activity 1 – Create Course of Action Concepts

9.43 To create the COA concepts, the commander uses the consolidation of the steps detailed in [Section 9-2](#) to [Section 9-4](#) (specifically the DE and CCIR). The commander should develop a rough concept of how each of the PIR will be answered and how these will inform the achievement of each of the DE. The commander must also develop a rough concept

of how each of the DE will be achieved and exercise tactical judgment to link the DE in chronological order to form COA concepts. The DE may be linked in a variety of ways (simultaneously or sequentially) or undertaken by different FE to create several COA concepts. This allows the commander to consider more than one option for conducting the mission.

- 9.44** COA concepts have been created when a commander can explain when and how the PIR will be answered, how these inform the conduct of the mission, and when and how each DE will be achieved.

Step 3 Activity 2 – Develop Course of Action Concepts

- 9.45** Once the COA concepts have been created, the commander develops them to the point where they can be tested. Prior to being tested the developed concepts should be sketched on an overlay and a CONOPS statement drafted to support the graphic representation. Broad FE should be allocated to achieve the DE and force ratios compared. When time permits, thorough COA concepts can be developed as follows:

- a. *Visualise the Scheme of Manoeuvre.* The commander uses the COA concept created to determine how the force will get from its start state to the end state (identified during the examination of superior commander's intent during the MA). The SOM must include answering PIR and achieving DE as detailed in the COA concept. It should adopt standard groupings for the tactical action being undertaken, but the allocation of troops to tasks should be avoided at this early stage until tasks have been identified.
- b. *Identify and Build a Main Effort.* Identifying and building an ME in a COA ensures that a decisive outcome is achieved through the most efficient use of available resources. Other actions within the COA should support the ME to achieve a unified effort in the key areas required in the COA. The ME must relate to achieving one or more DE, to orientate own force or to shape other stakeholders so that DE can be achieved subsequently.

Building the ME and supporting effort involves identifying the tactical tasks that must be achieved and should include the allocation of the essential, specified and implied tasks identified during the MA.

- c. *Allocate Initial Forces to Tasks.* Once the tasks that achieve the ME and supporting efforts are understood, the commander must allocate the type and size of force that can achieve the task. This allocation relies upon the previous analysis of the environment, the enemy and stakeholders (to ensure that initial force ratios are appropriate).
- d. *Phasing.* The initial allocation of forces to tasks that achieve the ME and supporting efforts will inform the phasing of a mission. The available forces determine whether achieving multiple DE simultaneously is feasible or whether they must be achieved sequentially. Once the implication of the initial allocation of forces is understood, the commander can identify appropriate ways to phase a mission. Phasing is important in achieving regrouping or a change to the ME. Phasing must be balanced with the desire to retain the initiative and deny the hostile force the opportunity to counterattack.
- e. *Develop the Collection Plan.* The commander must establish the indicators of enemy behaviour that will answer their PIR. By using the enemy COA overlays they can then determine when and where to look for these indicators. Using this understanding of what, when and where to look and using the priority listing of PIR, they can allocate forces to seek out these indicators. This information collection is normally controlled through the creation of a collection overlay that depicts the NAI (where to look for indicators) and the collection matrix (what to look for, when to look for it and the primary and alternative sensors).

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- f. *Synchronisation.* A preliminary synchronisation of BOS or FE is developed to ensure that the BOS effects are coordinated to achieve the CONOPS.
 - g. *Force Protection.* The commander must check the initial force allocation to ensure that FE have sufficient fighting power to achieve the DE and that other FE can prevent hostile force disruption of own CV.
 - h. *Implement Basic Considerations/Principles.* The commander must check the allocation of the ME and the initial allocation of forces to ensure that the basic considerations and principles have been adhered to. In the event that the considerations have not been adhered to, it must be the result of a considered trade-off instead of an oversight.
 - i. *Identify Risk Controls Specific to Courses of Action.* When creating COA concepts the commander mitigates risk by attempting to treat it within their own resources or by transferring it to their superior commander. A commander can treat risk by ensuring that the initial allocation of forces adheres to standard force ratio requirements and by ensuring that forces are allocated to protect identified own force CV. In the event that they are not able to mitigate risk within their own means, they should transfer the residual risk to their commander (this would normally involve requesting additional forces, time or space or recommending that the higher commander tolerate the residual risk).
- 9.46** When a commander has limited time the COA concept may simply entail developing an idea of how PIR will be informed, how these will link to their decisions and how each of these will result in achieving DE. This might be indicated by an initial draft of a LOO or by a simple COA sketch that depicts how PIR will be informed and DE achieved.
- 9.47 Finalise Course of Action Concepts.** The commander must then ensure that the COA concept is developed enough to take

to COA analysis. To do so the commander should check that the COA concept includes:

- a. a concept of the operation that details how the mission will be phased, how each PIR will be answered and when each DE will be achieved;
- b. SOM statements and supporting operations overlays by phase (including control measures);
- c. a collection plan that articulates how the PIR will be answered (initial collection overlay and collection matrix);
- d. other applicable BOS concepts by phase;
- e. initial groupings and tasks by phase;
- f. the ME and support efforts (if applicable) by phase; and
- g. identification of the reserve (dedicated or situational) by phase.

Step 3 Activity 3 – Test Course of Action Concepts

9.48 Once the COA concepts are finalised, they are tested to ensure that they are likely to achieve the mission. This testing process prevents time being wasted fully developing a COA that cannot achieve the mission. Where a COA passes the test, it may be fully developed. During the test, the COA concepts are examined to ensure that they meet the commander's intent. The COA is tested using the mnemonic FASSD as detailed in the following paragraphs.

9.49 Feasible. The COA concept is tested for feasibility against the following questions:

- a. *Time.* Is there sufficient time to execute the concept as envisioned?
- b. *Space.* Is there adequate ground and air space to conduct the operations?
- c. *Means.* Do friendly forces have the necessary fighting power to successfully conduct the activity? This is

ascertained by comparing the relative combat ratios at each DE and/or ME action. Resources for critical aspects of the operation, such as bridging assets for a river crossing, are also checked.

- d. *Defeat Enemy Course of Action.* All COA concepts must be tested against the enemy COA to ensure that they defeat the enemy MLCOA and are capable of countering the enemy MDCOA for long enough to enact own or superior actions on. The best means for conducting this check is to analyse how own force COA defeat the enemy COA at the time and location of their objectives. This step should incorporate the superimposition of own force overlays onto the enemy COA overlays.

9.50 Acceptable. The COA is assessed for acceptability by determining whether it exceeds the superior commander's risk guidance (confirmed during MA, if it has not been specified). The commander must make a judgment based on their understanding of the potential gain of the intended mission in terms of its contribution to the overall success of the operation and the likely impact of the mission on the following threat impact categories:

- a. mission accomplishment,
- b. own force,
- c. resources,
- d. reputation, and
- e. environment.

9.51 Suitable. The COA is tested against known considerations, principles and/or tasks (specified/implied/essential) to subjectively assess its suitability for accomplishing the mission in accordance with the superior commander's guidance.

9.52 Sustainable. The COA is tested to ensure that it can be supported by the existing CSS elements available to the force. This test should check that the supply, health support, and repair and recovery elements available to the commander will

provide the necessary combat stores and enable evacuation of the likely casualties (personnel and equipment) in accordance with the initial phasing concept.

9.53 Distinguishable. The COA is assessed for uniqueness in comparison with other COA. Each COA must be a viable alternative and substantially different from other COA. Differences in COA are developed by emphasising distinctions in the following four areas:

- a. the sequence for achieving the DE,
- b. the SOM and other applicable BOS concepts,
- c. the focus or direction of the ME, and
- d. the TASKORG.

9.54 Select a Course of Action Concept for Development. Based on the comparison of FASSD, including the consideration of tenets, principles and basic considerations, the commander determines which COA to fully develop and then execute.

Step 3 Activity 4 – Fully Develop the Selected Course of Action

9.55 Fully Develop the Course of Action. Following the selection of the COA concept during COA analysis, the concept is a broad outline but lacks the detail required for execution. The commander fully develops the selected COA concept as follows:

- a. complete the commander's intent statement;
- b. complete the CONOPS paragraph, operation overlay(s) and the collection plan overlay and matrix;
- c. complete the SOM paragraphs;
- d. develop groupings, missions and tasks and identify an ME;
- e. develop timings and appropriate control measures;
- f. finalise TCV and produce an HVT matrix; and
- g. synchronise BOS and supporting FE.

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- 9.56 Complete the Commander's Intent Statement.** The description of the tactical action is directly influenced by the method element of the commander's intent and is referred to as the COA method statement. It may include a description of the hostile force's COG, the CV to be targeted by the COA and the DE to be achieved. It should also include any changes to subordinate risk tolerance thresholds. When the commander selects the final COA at the end of the IMAP, the chosen COA method statement becomes the method element of the commander's intent. The purpose and end state for all COA are generally similar and reflect the reason the activity is being conducted and the conditions to be established to achieve the outcome. These two elements are drawn from the MA and IPB.
- 9.57 Complete the Concept of Operations Paragraph and the Operation Overlay(s) and Collection Plan Overlay and Matrix.** The overlay(s) must include the necessary TASKORG graphics, task graphics and control measures by phase to clearly articulate the execution graphically. These overlays will be used to complete the dry synchronisation later in the process. The CONOPS paragraph must articulate the number of phases for the mission, the PIR being answered and the DE being achieved by phase.
- 9.58 Complete the Scheme of Manoeuvre Paragraphs.** These paragraphs must articulate the start state for each phase, which groupings are completing which tasks and how these tasks contribute to achieving DE by phase.
- 9.59 Develop Groupings, Missions and Tasks and Identify Main Effort.** The outline groupings, missions and tasks designed in the COA concept are fully developed. FE are grouped according to their tasks and chain of command, and missions and specified tasks are allocated. At this stage the ME is formalised and accorded the appropriate forces. These tasks are confirmed during the BOS synchronisation.
- 9.60 Develop Timings and Control Measures.** The broad timings noted in the COA concepts are compared to the groupings, missions and tasks to ensure that they are achievable by the relevant FE and supporting arms and services. Similarly, the
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broad control measures are refined to ensure that SOP/TTP are adhered to and that the SOM can be appropriately coordinated. These timings and control measures are confirmed or amended during the BOS synchronisation.

- 9.61 Finalise Targetable Critical Vulnerabilities and Produce the High Pay-off Target Matrix.** The TCV list, drafted during enemy and stakeholder analysis and further developed during the MA process (see [Section 4-2](#)) to derive DE, is finalised based on the specific DE for each COA. The preliminary high pay-off target (HPT) list is reviewed with the hostile force TCV (COA specific) and own force DE to determine the HPT for the plan. Once the HPT are determined, an HPT matrix can be produced to support the execution of the plan. Forces can then be allocated to detect, track and deliver effects specific to each HPT in accordance with their priority.
- 9.62 Synchronise Battlespace Operating Systems and Supporting Force Elements.** Once the groupings, missions, tasks, timings, control measures and HPT have been refined to an acceptable level, FE activities in the battlespace must be synchronised. This task is normally undertaken using the BOS construct as it logically groups FE into more manageable groups. One method of ensuring that the plan is fully developed is to produce a synchronisation matrix (see [Chapter 5](#)); however, this is often not possible at the individual level. In the likely event that the commander does not have enough time to do this, they should use the TASKORG matrix and the mission time line and step through each phase using a mud model or map to confirm or amend the groupings, missions, tasks, timings, control measures and HPT. This is a time-consuming activity and requires a disciplined approach, but if conducted well the plan will be effectively synchronised.
- 9.63** The fully developed COA is now tested against the estimated enemy COA to improve its chances of success.

SECTION 9-6. STEP 4 – COURSE OF ACTION ANALYSIS

9.64 COA analysis is another step of the MAP that is significantly abridged when conducted by an individual. An individual does not have the capacity to conduct complete wargames with multiple COA. Instead the commander should conduct a shorter graphical test of their COA against their estimate of the enemy and a series of questions to identify the need for amendments to the COA (including the development of contingencies). During the COA analysis the commander should complete the following activities:

- a. conducted an initial graphical test of the own force ISR plan, and
- b. answer the COA analysis questions.

Step 4 Activity 1 – Test Own Force Intelligence, Surveillance, Reconnaissance Plan

9.65 The commander should check that their ISR plan is capable of determining whether or not the enemy is enacting the estimated COA (MLCOA or MDCOA). This is normally achieved by overlaying the graphical ISR control measures on the enemy COA sketches developed during the IPB. In the event that the ISR plan is incapable of identifying which COA the enemy is enacting, amendments must be made.

9.66 The commander must then check that their ISR plan is capable of identifying the elements of the enemy force or plan that their own COA will target. The ISR plan should generally identify enemy TCV in a timely fashion so that other FE can be triggered to achieve the desired effect against those CV.

9.67 The commander should finish the initial graphical task by ensuring that they have the means of protecting their own force against enemy surprise. There are two elements to this determination. Firstly, the ISR plan must have the necessary flexibility to be rapidly amended in the event that the enemy is not identified as enacting either the estimated MLCOA or

MDCOA. The second element should incorporate early warning of own forces to prevent enemy surprise such as spoiling attack.

Step 4 Activity 2 – Answer the Course of Action Analysis Questions

9.68 The commander should consider the following list of questions concerning the COA:

- a. How does the COA bring about the defeat of the enemy's plan (does it target force, will or cohesion, or a combination of all three)?
- b. Can the COA counter all probable hostile force threats?
- c. Does the COA achieve all DE required for mission success, and is there sufficient time?
- d. Does the COA achieve all specified tasks and ET?
- e. Is the deception plan appropriate?
- f. Are the military control measures effective?
- g. Does the COA target hostile force TCV?
- h. Does the COA protect own force CV?
- i. What elements (in space and time) of the COA are vulnerable to friction?
- j. Have the appropriate control measures been put in place to reduce friction?
- k. Does phasing support the regrouping or re-tasking of the force?
- l. Can the COA achieve the superior commander's intent?
- m. Does the COA position the FE for future missions after this mission is completed?
- n. Does the COA have an effective withdrawal plan?
- o. What is likely to happen if the enemy successfully targets own force CV?

- p. Can it be countered or can own forces recover?
- q. Are contingency plans likely to be effective?

SECTION 9-7. STEP 5 – DECISION AND EXECUTION

9.69 The decision and execution step of the IMAP consists of the following activities:

- a. develop and issue orders,
- b. complete rehearsals, and
- c. execute and monitor the mission.

Step 5 Activity 1 – Develop and Issue Orders

9.70 Develop Orders. Orders are derived from the commander analysis and can be delivered either verbally or in written form.

9.71 Issue Orders. Where resources permit, the commander should issue to their subordinates, as a minimum, hard copies of the TASKORG matrix and operation overlay(s) prior to orders commencing. The orders should also include the requirements for back-briefs by subordinate commanders, the timing for the combined arms rehearsal and the timings for battle preparation inspections.

Step 5 Activity 2 – Complete Rehearsals

9.72 The rehearsal type is selected. In environments where the IMAP is being employed to develop plans, rehearsals should be incorporated into the force's battle preparation at different times.

9.73 More information describing rehearsal techniques is detailed in [Chapter 7](#).

Step 5 Activity 3 – Execute and Monitor the Mission

9.74 Execute the Plan. Once orders have been issued, rehearsals have been conducted and the battle procedure has been completed, the commander focuses on executing the mission.

- 9.75 Monitor and Adapt the Mission.** The execution of the mission is monitored and adapted as required in response to the emerging understanding of the situation versus the planning estimate of the situation.

SECTION 9-8. CONCLUSION

- 9.76** The MAP when applied by an individual is fundamentally the same as when applied by a staff. The two minor deviations are that, at the end of COA development, only one COA is taken to COA analysis; and that wargaming cannot be effectively conducted by an individual. Although all products developed as part of the MAP by a staff may be useful as part of individual planning, the capacity to produce those products is far more limited. To that end, an individual must make trade-offs between analysis, planning and supporting product development in order to ensure that orders are delivered in a timely manner.

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CHAPTER 10

COMBAT MILITARY APPRECIATION PROCESS

Combat is too complex for highly analytical plans and lengthy orders.¹

SECTION 10-1. OVERVIEW

- 10.1** The MAP is a rational decision-making process that supports the generation of detailed analytical plans. It is highly useful during battle procedure at all levels but is too time consuming to enable rapid decision-making in combat. Combat decision-making is not a substitute for the IMAP, which (time and situation permitting) should be used for more rigorous planning. The combat military appreciation process (CMAP) is a combat decision-making tool that is derived from the IMAP and is used post H-hour in response to a contact or incident that requires an immediate response. It draws on the commander's knowledge of the previous SMAP or IMAP, accumulated battlespace knowledge, military judgment and tactical experience.
- 10.2** A commander will normally conduct the CMAP when there is insufficient time to consider all the factors. It is largely based on intuition and situational awareness. The CMAP is a four-step process whereby intuition plays an increased role in decision-making.
- 10.3** The four steps of the CMAP are as follows:
- a. Step 1 – MA;
 - b. Step 2 – Enemy/Threat Analysis;
 - c. Step 3 – Terrain Analysis; and

1. Storr, J 2009, *The Human Face of War*, Continuum International Publishing, London, Chapter 7.

d. Step 4 – Develop and Execute.

- 10.4** Combat decisions are those decisions made in combat or imminent combat for which the current plan, battle drills, TTP and/or SOP do not adequately cater. The decisions are usually made in time-poor situations, usually under intense stressors and often with limited information, and require a commander to make a decision and deliver orders quickly.
- 10.5** The tempo of decisions in combat must be greater than that of the enemy; otherwise defeat will be imminent. A decision of average quality made prior to an enemy decision is far more likely to succeed than a good decision made too late. The importance of time cannot be overemphasised. The quality of decisions will improve with experience.
- 10.6** Soldiers are trained in battle drills, TTP and SOP so that they can perform them in combat without further detailed orders. These battle drills, TTP or SOP do not require an MAP or a combat decision to plan how to conduct them – they simply need a commander to decide to conduct one and enact the trigger for it to commence.
- 10.7 Cognitive Skills in Combat.** Miller's Law (George Miller, 1956)² states that the human cognitive ability is limited to the accurate recall and processing of about seven (plus or minus two) pieces of information simultaneously. Cognitive ability is further limited by combat through stress, fatigue, nutrition and hydration – all present in war. Any information process intended for combat must be limited to fewer than seven elements if the user is to accurately recall and process the information.
- 10.8** Humans inherently behave in rational ways; that is, they will decide to act in a way that achieves their objectives in consideration of the likely outcomes. That action will be modified by the consequences. The MAP supports this rational process, and the CMAP is a useful tool to ensure that hasty
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2. Miller, GA, *The Magical Number Seven, Plus or Minus Two; Some Limits on Our Capacity for Processing Information*, originally published in *The Psychological Review*, Volume 63, 1956.

decisions are not rash decisions. Both the MAP and CMAP are designed to ensure that action is timely and tactically sound.

SECTION 10-2. STEPS OF THE COMBAT MILITARY APPRECIATION PROCESS

- 10.9** The CMAP is a simple tool to prompt the decision-maker through some critical considerations that have most likely changed. It can be used as follows:
- a. to decide on a COA where the situation has changed, or
 - b. to review an existing plan or order.
- 10.10 Depth.** Each point can be explored in greater or less depth depending on the time available. An understanding of the time limitations applicable to the situation is critical to then deciding how much time can be spent exploring each point.
- 10.11** Although the CMAP steps are depicted in a linear format in [Figure 10-1](#), the order in which they are considered is dependent upon the experience and knowledge of the commander. By following the CMAP process, a commander can quickly analyse key factors and their relationship to SMEAC, as depicted in [Figure 10-1](#).

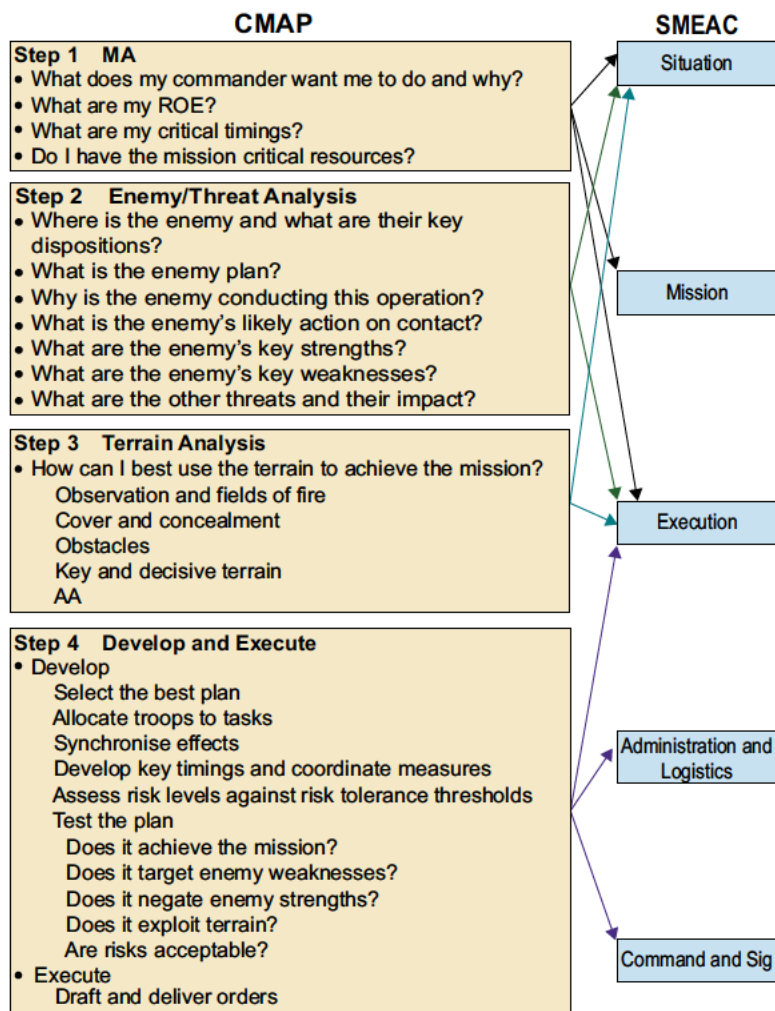


Figure 10–1: Combat Military Appreciation Process

Step 1 – Mission Analysis

10.12 Mission analysis has been distilled into the following four fundamental questions:

- a. What does the commander want me to do and why?
- b. What are the ROE?
- c. What are the critical timings?
- d. Do I have the mission-critical resources?

10.13 The answers to these questions should be reflected within the 'situation, mission and execution' parts of the orders format and will directly influence the tasks to be conducted during the execution of the plan.

Step 2 – Enemy/Threat Analysis

10.14 As the CMAP is conducted post H-hour, the commander is already familiar with the enemy's capability, doctrine and tactics. The threat analysis principles detailed in [Chapter 9](#) for IPB Step 3 Activity 3 – Evaluate the Enemy (see [paragraph 9.15](#)) are applicable in the CMAP; however, key components have been distilled into the following seven fundamental questions:

- a. Where is the enemy and what are its key dispositions?
- b. What is the enemy plan?
- c. Why is the enemy conducting this operation?
- d. What is the enemy's likely action on contact?
- e. What are the enemy's key strengths?
- f. What are the enemy's key weaknesses?
- g. What are the other threats and their impacts?

10.15 The answers to these questions should be reflected within the 'situation' part of the SMEAC orders format. The analysis of the hostile force influences the development of a plan that targets hostile force weaknesses.

Step 3 – Terrain Analysis

- 10.16** During terrain analysis, the commander's analysis should follow the OCOKA methodology detailed in [Chapter 3](#) for IPB Step 2 Activity 1 – Terrain Analysis (see [paragraph 3.26](#) to [paragraph 3.35](#)). The key question during this step is, 'How can I best use the terrain to achieve the mission?'.
- 10.17** The answer to this question is derived through terrain analysis using OCOKA. The answer is reflected in the 'topography' part of the SMEAC orders format, and the analysis of terrain determines how terrain will be used during the execution of the plan.

Step 4 – Develop and Execute

- 10.18** The develop and execute step of the CMAP combines the last three steps of the IMAP (see [Chapter 9](#)), which are as follows:
- COA development, detailed in [Section 9-5](#);
 - COA analysis, detailed in [Section 9-6](#); and
 - decision and execution, detailed in [Section 9-7](#).
- 10.19** Due to time constraints, there will rarely be time to develop more than one COA, which means that commanders must intuitively consider the COA while analysing the hostile force, threats and terrain.
- 10.20** The key questions during this step are as follows:
- What resources and support are available?
 - What are the relevant or required coordination and control measures?
- 10.21** In developing and executing a COA, commanders should consider the associated risks and the risk tolerance threshold allocated by their superior commander.
- 10.22** While all COA carry varying levels of risk to own troops, if a chosen COA requires a higher risk tolerance, the commander should, where practicable, back-brief the superior commander

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before executing the COA. A flow diagram of the planning process is provided in [Figure 10–2](#).

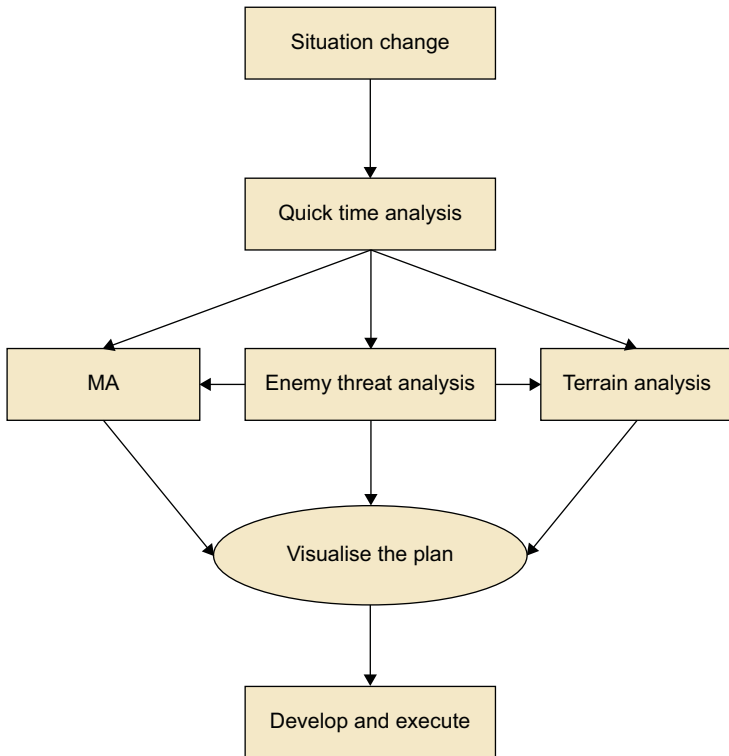


Figure 10–2: Planning Process Flow Diagram

SECTION 10-3. OUTPUTS AND OUTCOMES

10.23 Combat decision-making is a process and requires an output to produce an outcome. This will generally be effected through orders or the triggering of a drill, TTP or SOP.

10.24 Orders. Orders must be clear and unambiguous and delivered in a timely fashion. The key components of situation, mission,

CONOPS, subordinate missions and key coordination measures should be delivered through SMEAC.

- 10.25 Drills.** TTP and SOP provide very effective battle drills and, where applicable, should be used to support tactical action. Battle drills will reduce the detail of orders and assist the commander in maintaining a superior tempo.

SECTION 10-4. CONCLUSION

- 10.26** Tactical action often requires commanders to analyse, decide and act quickly. This requires training and practice, and uses intuition more than logic. It is in high-stress combat situations when commanders are under pressure to act quickly that the CMAP should be used to analyse the key factors and determine the best workable solution.

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