1.0 Background

The importance and relevance of cities to future military operations in which the United States may commit its forces has been the subject of considerable debate. Some argue that combat in cities must be avoided at all costs while others suggest that we will be unable to avoid urban deployments short of war and even full-scale city combat.

While it is impossible to predict with any degree of accuracy the type or location of future 21st century conflicts, it must be recognized that our military history is punctuated with the names of cities - Aachen, Manila, Seoul, Saigon, Hue City, Panama City, Kuwait City, Mogadishu, Port-au-Prince, Sarajevo, Baghdad, Nasiriyah, Fallujah, Mosul and Raqqa. Images of dead and wounded U.S. military personnel in urban areas have appeared on television screens in marked contrast to the almost sterile videos of precision-guided munitions finding their mark against tanks arrayed in open deserts or entering the windows of enemy buildings.

Unfortunately, if demographers and political strategists are correct, the reality is that many, if not most, of the military operations of this century will be conducted in and around large urban areas. In 1950 30% of the world’s population lived in urban areas, today that number is 55%, with the UN projecting 68% by 2050. Moreover, it is already a fact that urban sprawl impedes many militarily important operational lines, as evidenced by Korea's western corridor, the German Ruhr, the Shanghai-Beijing corridor, the Ganges valley and the Boston-Washington corridor. In addition, many cities are now too large to permit evacuation and offer no sanctuary for displaced residents, as is apparent in Singapore, Hong Kong, Calcutta, Tokyo, Seoul, Lagos, Mexico City, and Los Angeles.

Future joint urban operations\(^1\) will be planned and conducted across the entire range of military operations from the tactical to the strategic levels. Joint urban operations may

\(^1\) It is understood that when using the term “joint urban operations” that in most future cases the operation will be a “combined urban operation” in which allies play a pivotal role.
be part of a campaign or compose the entire campaign itself, and will require the synchronization of all instruments of national power (diplomatic, economic, military, and informational) to achieve strategic, operational, and tactical objectives. These varied forms of joint operations will be focused on a topographical complex and its adjacent natural terrain where manmade construction and the density of noncombatants are the dominant features.

Such an urban environment poses significant and unique challenges to future military operations. Combat operations associated with this environment will be multi-dimensional in character. Combat may encompass operations at street level, in and from the airspace or beyond it, on roofs and in the upper stories of buildings, and below street level in sewer systems, subways, and other underground structures, and in cyberspace. In addition urban operations may well entail combat operations in the maritime and space environments. These broad-ranging features of the urban environment significantly impact the organization and employment of joint and coalition forces; challenge our command, control, and communications capabilities; put a premium on accurate and timely intelligence, surveillance, and reconnaissance; impact our weapons employment options; degrade our ability to maneuver; and affect our overall approach to achieving strategic and tactical objectives in the presence of large numbers of civilians in the battle area. Hence, our ability to assess and analyze the nature of joint operations is essential if we are to assist decision-makers in preparing for and conducting joint urban operations.

MORS conducted its last special meeting on urban operations in 2001, and much has happened since then. U.S. forces were involved in several urban operations early in OPERATION IRAQI FREEDOM (Nasiriyah, Baghdad), as well as later (Fallujah, Baghdad). U.S. forces have also worked extensively with various partners in other urban operations, such as Ramadi, Fallujah (again), Mosul, and Raqqa. Urban operations have played important roles in the conflicts in Libya, Ukraine, Syria, and Iraq. The U.S. Army updated its doctrine, starting with FM 3-06 Urban Operations in 2006, and JP 3-06 Joint Urban Operations followed in 2009. Furthermore, since 2001 there have been many technological advances that must now be considered. Given these events, it is time for the analytical community to take another look at urban operations.

2.0 Goals, Objectives, Scope

2.1 Goals

The Workshop has several goals. First, the Workshop will provide a comprehensive and improved understanding of the challenges posed by joint operations in the urban environment. Secondly, the Workshop will assess the needs and challenges faced by decision-makers regarding joint urban operations. Finally, the Workshop will assess the military operations research community’s current and projected capabilities to support
these needs in view of current and projected warfighting concepts, operations, and systems.

The primary focus of the Workshop is to support the military analytical community’s ability to assess the conduct of urban operations by U.S. joint forces in support of senior decision-makers. However, participation by analysts from other U.S. federal agencies and by U.S. Allies is encouraged and will provide expanded opportunities for the mutual exchange of analytical approaches, data, and tools in support of the analyses of urban operations.

2.2 Objectives

In order to achieve a better understanding of the operational and analytical challenges of urban operations across the spectrum of conflict, the Workshop will pursue the following objectives:

- Provide an understanding of the characteristics and challenges of current and anticipated urban operations
- Identify the availability of and assess the state of pertinent, recent urban operations’ data, information, and analyses
- Determine the future role of analysis in identifying and supporting urban operations’ decision-makers’ needs and requirements and the evolution of urban operations tactics, techniques, procedures, technology, and doctrine
- Assess and identify needs for improved interaction, communications, and coordination across government and non-government organizations
- Provide a list of candidate actions to acquire relevant data and information, improve metrics, develop improved analytical tools and methodologies, and perform needed analyses of urban operations

2.3 Scope

The scope is confined to operations research capabilities and shortfalls for joint urban combat operations, spanning the spectrum of conflict from major theater warfare to small-scale combat. The discussions will focus upon analytic support for the following six broad topic areas and sub-issues:

- C4/ISR/Cyber
  - Urban electromagnetic environment
  - Dispersed small unit operations
  - Coordination with neutral personnel and Non-Government Organizations (NGOs)
  - Infrastructure and interdependencies
  - Detecting/tracking/understanding opposition forces
  - Physical geography of the urban environment
• Mobility and Counter Mobility
  – Movement in, under, and above the city
  – Insertion into the urban environment
  – Countering opposition force mobility
  – Enabling/restricting civilian mobility

• Fires and Force Protection
  – Direct and indirect fires
  – Collateral damage and civilian casualties
  – Roles of aviation and naval fires
  – Non-kinetic effects
  – Less than lethal weapons use
  – Effects/use of abundant cover and concealment
  – Close engagement ranges
  – IEDs
  – Hiding in the urban noise, e.g., sound and movement patterns
  – Hazards of the urban environment, e.g., rubble, unstable structures, toxic chemicals, disease
  – Mounted/dismounted operations

• Logistics/Sustainment/Support
  – Changing consumption patterns
  – Dispersed small unit operations
  – Multi-level (under, surface, above) support challenges
  – Support to the civilian population
  – Living off the urban landscape, e.g., role of urban infrastructure
  – Identify analysis needed to overcome support challenges

• Operational/Strategic Dimensions and Civil Interaction/Social media
  – Importance of urban operations
  – Role of urban operations in campaigns
  – Post urban operation needs
  – Cultural and language proficiency
  – Cultural mapping, e.g., religion, ethnicity, ideology, demographics, history
  – Medical support
  – Sorting/interrogation of opposing forces and civilians
  – Behaviors to be encouraged/discouraged

• Analytical Tools
  – Current and projected models of the urban environment
  – Current and projected wargaming tools and approaches
  – Current and projected experimentation initiatives
3.0 Approach

3.1 Overview

The four day Special Meeting will consist of a one day mini-symposium and a three day workshop. The meeting will be conducted to identify the critical issues in joint urban combat operations and to assess the military operations research community's capabilities and requirements to address these critical issues. On the first day, participants will convene in a mini-symposium for a broad discussion of the challenges inherent in urban warfare and an historical overview of combat operations in an urban environment. A keynote speaker of national military prominence and with urban combat experience is tentatively planned to open the meeting and will be asked to define critical issues in urban combat operations and challenge the audience to actively address these issues from an analytical perspective. Subsequent speakers and panel members, representing both U.S. and Allied experiences in urban warfare, will address urban combat operations from both an historical perspective as well as from a warfighter's view. Additionally, recent urban warfare analytical initiatives and findings may be presented. Collectively, these speakers will identify and provide a basic understanding of the key issues involved in urban warfare in sufficient detail to support detailed, focused discussions during the remainder of the workshop.

The second and third day will be conducted as a Workshop. The Workshop phase is intended to address the analytical challenges of urban combat operations across the spectrum of conflict, ranging from major theater warfare to small-scale contingencies. During this phase, participants will be divided into working groups to address the objectives listed in paragraph 2.2. Working groups will be formed to address the analytical tools, methodologies, and data required for analysis of the topic areas identified in paragraph 2.3. In addition, a Synthesis Group will be formed to capture the major findings and issues that emerge from each of the seven topical working groups and on the final day identify and present overall Special Meeting themes and findings.

On the morning of day four, participants will gather in plenary session to receive reports and recommendations from each of the working groups.

3.2 Working Groups

Upon registration attendees will be asked to list their top three preferred working groups in order to ensure equitable distribution of attendees in each of the working groups. Each of the seven working groups will address analytical capabilities and requirements within each of the focused topic areas. Appropriate training needs will also be identified within each working group. Joint urban combat operations across the spectrum of conflict, ranging from major theater warfare to small scale contingencies, will be addressed by each working group. In addition, each group is requested to also address analytic issues and implications related to any cooperation and/or interoperability required between military and civilian components in the conduct of these operations.
Each group will have two co-chairs. One co-chair will provide subject matter expertise and analytical experience within the topic area while the other co-chair will possess MORS familiarity and experience. Working group co-chairs are encouraged to develop Terms of Reference for their individual working groups. As required and at the discretion of working group co-chairs, smaller sub-working groups may be formed to address more specific issues within the topic area of the working group. Working group co-chairs are expected to maximize opportunities for discussion of focused topics and to minimize the number and length of formal presentations within individual working groups. To facilitate the development of working group reports, working group co-chairs are also expected to designate one or more working group participants as recorders of the working group proceedings.

The seventh working group, the Synthesis Group, will be composed of a small group of individuals, selected by the Synthesis Group Chairman. The synthesis working group will be charged to operate independently to provide the Program Chair and other seven working group co-chairs with an independent and impartial assessment of the working groups’ discussion, progress, findings, and recommendations.

4.0 Products

4.1 Reports and Briefings

- Executive Summary and After-Action Briefing to MORS Sponsors (S:TBD)
- Final Report to MORS Office (S:TBD)
- 87th MORSS Brief (S:TBD)

4.2 New Articles

- PHALANX article announcing the Urban Warfare Workshop (sent to MORS, 11/09/2018)
- PHALANX article summarizing the Urban Warfare Workshop (S: TBD)

5.0 Administration

5.1 Dates: 2-5 April 2019

5.2 Location: Marine Corps Combat Development Command, Quantico, VA

5.3 Classification: The Day One Mini-Symposium Session will be Unclassified. Specific working groups (C4ISR/Cyber) may be conducted at the SECRET level

5.4 Host: US Marine Corps MORS Sponsor
5.5 Chairs

Technical Program Co-Chairs:

- Ted Smyth, MORS Fellow and MORS Past President
- Dr. Alec Wahlman, Institute for Defense Analyses

Working Group Chairs:

C4/ISR/Cyber: Dr. Cy Staniec, FS
LtCol Dan Bartos, USMC

The C4ISR/Cyber Working Group (WG) will develop its work products by directly addressing each of the five key objectives listed in this TOR, adapted to the operational requirements of the C4ISR/Cyber arena. In the process the WG will make a “best assessment” comparison to the outputs listed from the 2001 MORS Urban Warfare meeting to develop an educated opinion of how the OR aspects of C4ISR/Cyber challenges have progressed in the Urban Warfare domain. The WG expects to use a limited number of briefings to set context and promote discussion, and then rely on a brainstorming approach to develop the responses to the primary Objectives of the meeting. Based on its insights, the WG will develop recommended actions to help make progress in the C4ISR/Cyber arena for Urban Warfare.

Mobility and Counter-Mobility: Niki Goerger, FS
Maria Stevens

The Mobility and Counter-mobility working group will examine the current and projected challenges that the complex urban environment poses to military forces at the tactical, operational, and strategic levels. Challenges to the rapid and effective movement of friendly combat units, weapons systems, supporting forces, and civilian non-combatants in, under, and above the urban area will be discussed. Similarly, the challenges and needs involved in countering, delaying, disrupting, and destroying threat forces and materiel will be identified. Once identified, the working group will assess and recommend actions and appropriate analytical methods/models/tools required to better meet the mobility and counter-mobility needs of urban operations’ decision-makers.
Fires and Force Protection: Trena Lilly, FS
Alex Ihde

The Fires and Force Protection working group will focus on the use of direct and indirect fires to delay, disrupt, degrade, or destroy enemy capabilities, forces, or facilities as well as affect the enemy’s will to fight in an urban environment. We will also discuss methods to safeguard critical vulnerabilities to ensure maximum effectiveness to accomplish the mission. We expect to discuss the roles of aviation and naval fires, the use of cover and concealment, as well as non-kinetic effects that will increase mission success. This working group will address the unique measures of effectiveness (MOEs), intelligence sources, current tactics, techniques and procedures (TTPs), technology and CONOPS, target acquisition and survivability in urban operations. Other topics include: collateral damage; type and mix of indirect fire systems; mix of munitions; and positioning. We anticipate discussion on future technological advances and seek to identify capability gaps and recommendations for improvements for fires and force protection in joint urban operations.

Logistics/Sustainment/Support: Norm Reitter, MORS Past President

The Logistics Sustainment and Support Working Group will examine supportability planning and feasibility of providing logistics support operations within an urban environment. Focus areas will include tactical and operational level considerations for consumption patterns, support to small units, multi-level support challenges, support to the civilian population, and living off the urban landscape. These focus areas, along with identifying analysis needs, will be included in the working group’s final presentation and contribution to the special meeting final report. This working group will use several case studies of historical battles in an urban environment and planning factor guides as participant “read-aheads” prior to attending the meeting. This will provide context and momentum for working group activities during the special meeting. During the meeting, the working group will start by reviewing the case study's situation, mission, the concept of operations, and demand factors. The working group will review current planning factors used by the military services. After this introductory period, the working group will develop a feasibility analysis to support the case study. As part of this analysis, the working group will consider, discuss and determine supportability factors related to each of the focus areas using the following logistics functional areas to provide recommendations: supply, maintenance, transportation/distribution, general engineering, and health/medical services.

Operational/Strategic Dimensions and Civil Interaction/Social Media: Talia Beech, Canadian SOF
Mike Bailey

This working group will consider a variety of topics, starting with a discussion of the importance, necessity, and implications of urban operations within the context of an overall campaign. Specific consideration will include: what constitutes the physical and non-physical boundaries of a modern
urban operation, given the potential connectedness of the urban operation to a myriad of internal and external actors; current policies and constraints within which urban operations are conducted; the projected role of military forces in post urban operations; and an assessment of current methods and tools used to analyze urban operations with recommendations for improvement.

Current policies and legal constraints relevant to social media and their potential impact on both friendly and adversarial forces will also be examined. Various subject matter experts across the fields of military operations, humanitarian support, social media, and civil interactions will discuss how analyses of these subjects can be used to plan, assess, and mitigate risks in an urban environment while operating under the constraints of existing policies and laws. Discussions on data sources, data repositories, temporary caches and predictive analytics are anticipated. The needs and capabilities of all operational participants will be addressed to better understand and promote requirements to successfully coordinate with and interact with military forces, allies, NGOs, and the urban civilian populace. Discussions will also address needs to rapidly access and assess relevant and significant information and data from a variety of sources, perform necessary analysis, and provide the means to quickly disseminate results to appropriate recipients. Recommendations and candidate actions will be identified to improve the analytical capabilities to better analyze the potential impact and influence of social media and civil interactions within an urban operation.

**Analytical Tools:** Michael Garrambone, FS

Paul W. Works, Jr., TRADOC Analysis Center

This working group will be eclectic in nature to capture the phenomenology of urban operations through the use of historical examples and the application of all forms of simulation from mission rehearsals to field/air/space training exercises. We include past formal and on-going studies, military wargaming, other human-in-the-loop simulations, and the equation-based analytical models used to make warfighting estimates and to anticipate system effects. We expect to employ all medium Intelligence Preparations of the Battlespace (IPB) planning in our thinking (Ground, Air, Surface, Subsurface, Space, Cyber, etc.) that apply to and support future urban operations. We anticipate discussion on applicable technologies, conceptual systems current tactics, techniques and procedures, and especially advances in C4ISR. We will discuss sources of information, data repositories, and address measures of merit at all levels of urban operations. Prominent in urban operations are human issues of occupation, transportation, allegiance, news media, and adversary support. We plan for discussion on current analytical tools and seek to identify anticipated shortfalls and criteria for future improved designs.

**Synthesis:** Greg Keethler, FS

The Synthesis Group will facilitate accomplishing the workshop objectives by promoting cross-feed of information between working groups; identifying gaps, linkages, and interdependencies between working groups; synthesizing the themes,
common issues, overarching issues, and other concepts that transcend the deliberations of the individual working groups, the plenary sessions, other presentations, and the mini-symposium; and documenting those findings in oral and written final reports. A Synthesis Group member will be assigned to each of the working groups and will fully participate in all working group sessions. Additional members of the Synthesis Group will roam from working group to working group to share information, glean cross-cutting issues, and help identify the transcendent concepts. The Synthesis Group will meet before and after each day’s meetings, as well as during breaks and lunch sessions, to compare notes and discuss observations. The Synthesis Group will prepare an oral report for presentation at the end of the Working Group reports on the last day of the workshop and will provide a written Synthesis Report to the meeting chairs after the fact.

5.6 Registration Fees:

Note that registration prior to 12 March 2019 will provide a 40% discount on the fees listed below.

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<th>Organizational Affiliation</th>
<th>Individual Affiliation</th>
<th>Cost</th>
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5.7 Tentative Agenda

**DAY 1: Mini-Symposium Session**  (Exact Times TBD)

- 0700 Registration
- 0830 Call to Order/Welcome
  - Technical Program Co-Chairs (Ted Smyth/Alec Wahlman)
  - MORS Welcome, President (Sheilah A. Simberg)
  - Host Welcome: U.S. Marine Corps MORS Sponsor (Dr. George Akst)
  - Workshop Agenda Overview
- 0845 **Keynote Presentation:** BGen Calvert Worth, USMC; CG, Training Cmd
• 0915-1015 **Urban Growth and Needed Urban Operation’s Capabilities**
  - Dr. Russ Glenn, U.S. Army TRADOC
  - Robert Hesse, U.S. Army RDECOM

• 1015 **Break**

• 1045-1145 **Historical Perspectives on Urban Warfare**
  - Dr. Alec Wahlman, Institute for Defense Analyses
  - Dr. David Johnson, RAND Corporation
  - Kevin Felix

• 1145-1315 **Lunch in Quantico Town**

• 1315-1430 **U.S. Military Service Perspectives on Urban Warfare**
  - Army: John Spencer, Modern Warfare Institute, West Point
  - Navy: CAPT David Markle, USN, OPNAV N951
  - Air Force: LtCol Jeff Mack, USAF, SecAF-CSAF Exec Action Group
  - USMC: SgtMaj David Wilson, USMC, USMC Training Command

• 1430 **Break**

• 1445-1545 **Allied and Partner Perspectives on Urban Warfare**
  - The Netherlands: Mr. Henk Oerlemans
  - NATO: Ms. Sue Collins, Allied Command Transformation Office
  - Israel: Major Philip Zlatsin, Israeli Air Force

• 1545-1630 **Urban Warfare Perspectives of NGOs**
  - Amnesty International: Daphne Eviatar
  - International Committee of the Red Cross: Paul L. Baker

• 1630 **Adjournment to Working Groups**

• 1700 **Conclude Working Group Administrative Session**

**DAY 2: Workshop Working Group Sessions**

• 0700 Registration

• 0800 Morning Working Group Sessions

• 1200-1300 Lunch

• 1300 Afternoon Working Group Sessions

• 1600 Program Chair/Organizational Committee

• 1800 Social Hour, Quantico Club

**DAY 3: Workshop Working Group Sessions**

• 0700 Registration

• 0800 Morning Working Group Sessions

• 1000-1100 **Featured Speaker**, Gen John Allen, USMC (Ret), Brookings Institution

• 1100-1200 Morning Working Group Sessions

• 1200-1300 Lunch

• 1300 Afternoon Working Group Sessions

• 1600 Program Chair/Organizational Committee
DAY 4: Workshop Working Group/Plenary Sessions

- 0800  Working Groups Finalize Brief Outs
- 0900  Plenary Session – Working Group Brief Outs
- 1200  End of Workshop