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**THE U.S. ARMY NATIONAL GUARD AND URBAN WARFARE:  
BUILDING A NEEDED CAPABILITY**

**BY**

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USAWC STRATEGY RESEARCH PROJECT

**The U.S. Army National Guard And Urban Warfare:  
Building A Needed Capability**

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## ABSTRACT

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The U.S. Army National Guard provides more than 50% of the Army's combat maneuver brigades. Less than half of those brigades are assigned measurable warfighting roles in major regional contingency planning. The relevancy and warfighting readiness of the remaining maneuver brigades are consistently questioned. This paper will argue that while these brigades may be considered excess to the requirements for two major regional contingencies, they could fill a valuable role in enhancing the readiness of the U.S. Army for large-scale urban warfare. Additionally, these brigades should be expected to play an important role in support of local, state, and federal authorities for domestic contingencies. To be effective in both urban operations and domestic missions, however, National Guard brigades must be reorganized and retrained for the specific demands of the urban environment. Redirected towards these unique demands, the Army National Guard will be far more capable as both a warfighting force and as a responder to domestic contingencies.



**TABLE OF CONTENTS**

**ABSTRACT.....iii**

**LIST OF ILLUSTRATIONS.....vii**

**THE U.S. ARMY NATIONAL GUARD AND URBAN WARFARE.....1**

**THE URBAN DILEMMA.....5**

**ORGANIZING NATIONAL GUARD BRIGADES FOR URBAN OPERATIONS.....10**

**TRAINING FOR WAR.....20**

**CONCLUSIONS.....23**

**ENDNOTES.....25**

**BIBLIOGRAPHY.....29**



## LIST OF ILLUSTRATIONS

FIGURE 1: INTERIM BRIGADE COMBAT TEAM ORGANIZATIONAL CHART.....	11
FIGURE 2: MOUT INFANTRY RIFLE COMPANY ORGANIZATIONAL CHART .....	12
FIGURE 3: MOUT INFANTRY BATTALION ORGANIZATIONAL CHART .....	14
FIGURE 4: MOUT BRIGADE COMBAT TEAM ORGANIZATIONALCHART.....	15
FIGURE 5: RSTA SQUADRON ORGANIZATIONAL CHART .....	16
FIGURE 6: ARTILLERY BATTALION ORGANIZATIONAL CHART.....	17



## THE U.S. ARMY NATIONAL GUARD AND URBAN WARFARE

The U.S. Army National Guard currently provides over 50% of the Army's combat maneuver brigades. Organized in a mix of Enhanced Separate Brigades (ESBs), lower priority divisional brigades, and non-enhanced separate brigades, the National Guard provides a potentially significant source of combat power. This combat power is maintained at a bargain cost; a typical National Guard unit is less than one-third the cost of a comparable active component unit.<sup>1</sup> The relevancy and warfighting readiness of these units, however, are consistently questioned. While there is general acceptance for the role of National Guard combat support and service support units there is mixed support for combat units.

Currently, only the ESBs are assigned a measurable role in U.S. military contingency planning. Of the National Guard's forty-two maneuver brigades, six of the fifteen ESBs are currently apportioned to regional war plans.<sup>2</sup> Unapportioned units are classified as America's strategic reserve. As such, they provide the capability to respond to unforeseen military threats, execute state missions, and serve as a basis for unit rotations in a protracted campaign.<sup>3</sup> The recent deployment of the 49th Armored Division (Texas Army National Guard) as a multi-national headquarters in Bosnia is an example of the missions suitable for strategic reserve units.

Various studies have targeted this strategic reserve of almost thirty brigades as excessive. Both the 1994 Commission on Roles and Missions (CORM) and the 1997 National Defense Panel (NDP) called for significant reductions in the combat structure of the National Guard.<sup>4 5</sup> The Army National Guard Division Redesign Study (ADRS), which was to begin implementation in 2000, will convert at least twelve combat brigades to fill critical combat support and service support roles. When conversion is completed, the National Guard will retain a total of thirty maneuver brigades.<sup>6</sup> Roughly, two-thirds of those brigades will be armored or mechanized units and at least half will remain unapportioned to regional war plans. Despite being smaller, the same question will be raised; how relevant are National Guard maneuver brigades to the national military strategy of the United States?

This question is debated extensively and little consensus seems to emerge. Reserve proponents contend the National Guard can and should provide the bulk of combat maneuver units, with the active component providing only the units required for rapid deployment contingencies. The lack of a major peer competitor is taken to mean there is little risk in an increased reliance on reserve combat units, which are far less expensive than comparable active forces.<sup>7</sup> Critics of such reserve-centric proposals point to the 90-180 days currently

estimated to ready National Guard units for deployment and argue the increasingly complex nature of warfare will only exacerbate training concerns.<sup>8</sup> They also highlight the increasing importance of rapid strategic deployment, with a stated goal of deploying five U.S. Army divisions anywhere in the world in less than thirty days.<sup>9</sup> In a recently published report, the Hart-Rudman Commission on National Security Strategy took yet another approach to the role of the National Guard. Citing the rising threat from weapons of mass destruction, the commission called for the National Guard to abandon its emphasis on conventional combat duties and restructure itself solely for the challenges of homeland defense.<sup>10</sup>

As the Army undergoes a dramatic transformation for the 21st Century, fundamental decisions must be made concerning the National Guard's combat brigades. Should the Army continue to sustain a large number of heavy and light combat organizations, which are likely to play only a limited role in major regional contingencies? Or, as the recent Hart-Rudman Commission recommended, should the National Guard be restructured solely for the demands of homeland security? Finally, is there an alternative path the Army should consider for the National Guard? A path that may lead to enhanced readiness and greater operational relevance for both combat and domestic support missions? This paper will argue for a major change in the organization and operational employment of the Army National Guard's combat maneuver brigades. A significant percentage of the National Guard's combat structure should be directed towards the most complex and demanding conflict the Army will face in the 21st Century, large-scale urban warfare.

## **URBAN WARFARE AND THE NATIONAL GUARD**

If US strategic and operational leaders come to the conclusion that urban warfare is too costly and destructive, the results at the tactical level will be devastating. Unfortunately, some in the defense intellectual community have already drawn that conclusion. Their prophecies of doom and gloom are invariably based on the historical precedent that highlights the carnage of Mogadishu or Grozny. What these analysts overlook is the timeless strategic importance of those ticks on the map...The strategic significance of such places will not go away simply because many in the defense establishment have determined that the urban environment is ill-suited to the emerging American way of war. If anything, it will increase as future enemies justifiably perceive the urban battlefield as a critical US vulnerability.

—Colonel Vincent J. Goulding, USMC

The possibility of the United States engaging in large-scale urban warfare is hotly debated within the defense community. As this paper will subsequently demonstrate, urban warfare is a

subject fraught with both complexity and risks. While many differing views on the future of urban conflict exist, most would agree with an American strategy that seeks to avoid urban struggles. While avoiding urban struggles is desirable, many observers believe it is inevitable that the United States will be drawn into such a struggle.<sup>11</sup> In a world increasingly urbanized, marked with ethnic strife, and where no conventional adversary will willingly confront the U.S. military in open terrain the likelihood of urban conflict increases with each and every year. While it is beyond the scope of this paper to examine the full breadth of the urban warfare debate, it is safely assumed that in the future the United States will conduct some form of military operations on urbanized terrain. While the scale of those future operations is difficult to predict, it is likely that only large-scale urban warfare stands to demand an overwhelming commitment of U.S. ground forces. Whether the current force structure of the U.S. military is up to this task is uncertain.

While the National Guard is a large combat force, it is large for many of the wrong reasons. Its current force structure is overwhelmingly weighted towards a Cold War confrontation that no longer exists. When examined against the present threats of Iraq or Iran in the Middle East and Korea in the Far East, the U.S. Army possesses a significant excess of maneuver brigades. The commonly accepted two major theater war force sizing analysis, however, fails to address the potential for large-scale urban warfare. No Army or DoD force structure modeling system adequately incorporates the complex demands of urban warfare. If urban factors for Seoul, Korea were to be added to such an analysis, it is likely the U.S. Army would possess a smaller excess of combat force structure. Only an in depth study could determine the true size of this excess, but it is almost certain to be less than the 12-15 brigades currently discussed in General Accounting Office and Congressional Budget Office studies.<sup>12</sup>

Often overlooked in examinations of the organization of the National Guard are the requirements related directly to state missions, including a recent emphasis on responding to such asymmetric threats as weapons of mass destruction (WMD). Studies of state missions indicate the National Guard is much larger than historical demands justify.<sup>13</sup> This may be true in the aggregate sense, but the great strength and utility of the National Guard is the stationing of units across the Nation in local communities. This immediate, "forward deployed" capability is required for the prompt execution of state and domestic missions and therefore requires a relatively large force structure.

While the Army possesses adequate numbers of combat forces, what it lacks are forces properly organized, equipped, and trained for urban warfare. Urban warfare is a unique operational environment and demands a very different approach to military operations. In the

case of the National Guard, this same observation extends to the demands of homeland defense. Beyond the readily apparent need for chemical and biological response units and increasing demands for computer defense specialists, it is hard to determine the exact military capabilities required for homeland security. While the Hart-Rudman Commission called for the National Guard to reorganize for homeland security there was little specificity as to how that reorganization should occur.<sup>14</sup> Clearly, heavy mechanized and armored forces contribute little to homeland defense except for their organic personnel, command and control, and logistics assets. What is needed in the National Guard is a force that can easily augment local police, fire, and medical services. In addition, since the greatest threats to the homeland will be in urban areas the National Guard must be a force that is adept at operating within cities.

The U.S. Army therefore is faced with a three-fold challenge. First, it must build and sustain a force capable of executing the tasks laid out in the current national military strategy. Second, it must adequately prepare for the potential occurrence of a large-scale urban conflict. Lastly, it must possess the unique capabilities necessary to provide timely and effective domestic support to local, state, and federal authorities. All the while, the Army must continue to develop new warfighting capabilities necessary to ensure sustained dominance over future adversaries. It is also a near certainty that these tasks must be accomplished within an ever more constrained fiscal environment.

The Army National Guard will continue to play an important role in accomplishing each task described above. The primary focus of the National Guard, however, should be directed at the challenges of urban warfare and homeland defense. It is in these two vital areas that the U.S. Army is least prepared and the National Guard most able to contribute. Urban operations, either in foreign cities or within the continental borders, require resources the Army National Guard is uniquely equipped to provide. Foremost, the National Guard can provide urban warfare forces in the quantities needed to ensure success and at a cost the Army can afford. While active component combat units will always be required to sustain a high degree of proficiency in military operations on urban terrain (MOUT), they are simply too expensive to retain in the numbers sufficient for large-scale urban warfare. Specialization of the National Guard in urban operations will serve as a valuable augmentation to active component capabilities. In addition, an inherent quality of National Guard units is their reflection of the wide range of civilian skills found within the urban workplace. Guardsmen are not only soldiers, but also firemen, policemen, utility workers, city planners, and construction workers. These skills provide unique capabilities not only for urban combat, but represent an immediate capability for civil authorities to call upon in the event of a domestic emergency.

The final rationale for specializing the National Guard in urban warfare operations is to improve the training and readiness of its units for combat. Today, the Army expects National Guard combat units to train for three basic missions: deliberate attack, area defense, and conduct movement to contact.<sup>15</sup> While this may seem like a well-defined set of missions, they are in fact quite broad. This is particularly true when the effects of terrain are added to the equation. As an example, each of the above missions could be conducted in either an urban area, in open terrain, or in forested hill country. While the fundamental principles of combat would apply to each type of terrain, significant differences would exist in the employment of forces.

With very limited training opportunities, it is unrealistic to expect National Guard maneuver units to master more than the basic fundamentals, applied to a narrow range of terrain. The 1995 Commission on Roles and Missions highlighted the need for "terrain specialization" within the reserve components.<sup>16</sup> Specializing in urban warfare will allow the National Guard to focus training efforts to a narrower range of missions and terrain. As noted earlier, this focus will also tap into the unique urban skills inherent to Guard units. This does not imply National Guard units will easily become masters of urban warfare. Fighting in cities is a complex endeavor and within the constraints of only thirty-nine annual training days, National Guard units will always be challenged to achieve acceptable standards of combat readiness. To overcome these limitations the Army must adopt not only new types of combat organizations, but must also commit the intellectual and physical resources needed to find new ways to train these units. To appreciate the challenges of urban military operations it is important to take a brief moment and examine what makes cities so unique as operational environments. It is also worthwhile to look at recent Russian military operations in the city of Grozny for insights in the nature of modern urban combat.

## **THE URBAN DILEMMA**

Throughout history, accepted military wisdom has been to avoid fighting within the confines of an urban environment. While cities have always held great political and economic significance, enormous costs have been associated with their capture. As early as the 4th

Century B.C., Sun Tzu, the noted Chinese military philosopher, made the following observation on the difficulty of urban combat:

Thus, what is of supreme importance in war is to attack the enemy's strategy.... Next best is to disrupt his alliances.... Next best is to attack his army.... The worst policy is to attack cities. Attack cities only when there is no alternative.<sup>17</sup>

For over two centuries the American military followed this wisdom and sought to avoid pitched battles within cities. In almost every major conflict, however, the Army fought to control urban terrain. From Mexico City in 1847, to Manila in 1945, Saigon in 1968, and most recently, Mogadishu in 1993, the Army has a legacy of urban combat. Despite an aversion to street fighting the U.S. Army has enjoyed relative success. Events in Mogadishu, however, demonstrated to America's political and military leaders the risks associated with modern urban conflict. Despite the deaths of 18 soldiers and the subsequent collapse of U.S. involvement in Somalia, Mogadishu represents only a small urban firefight. America has yet to endure a sustained, high-intensity struggle for control of a city on the scale of the Battle for Stalingrad in 1942, or in a more recent example, the Russian struggle in the latter half of the 1990s to seize Grozny, capital of the small Republic of Chechnya.

The Russian experience in Grozny offers valuable insights on the modern conduct of MOUT. While many Western observers might shake their heads at the ineptitude of both Russia's political and military leadership, the lessons of the conflict should not be readily dismissed. Indeed, it is questionable whether the U.S. military would have fared any better against such a committed enemy on similarly difficult terrain. With the far more restrictive rules of engagement likely to be imposed on U.S. forces, the struggle may have lasted far longer and with significantly greater friendly casualties. To those who might question whether America would ever be foolish enough to engage in such an urban struggle, they have only to look in our own backyard for modern interventions in the Dominican Republic, Panama, and Haiti. America was fortunate in each case to face an opposing force that lacked either political will or battlefield savvy.

In contrast, opposing the Russian military was a tough, shrewd, and committed force of some 15,000 fighters.<sup>18</sup> While the Russian military possessed potentially decisive advantages in mass, firepower, and technological superiority; the Chechens countered with swarm tactics, use of "niche" technologies, and effective information and psychological operations campaigns. Russia eventually achieved very limited military objectives, but only after significant casualties and the virtual destruction of Grozny. Her military forces were exposed as woefully ill prepared for the hardships of urban warfare. The Chechens demonstrated how an aggressive and

adaptable enemy could effectively neutralize the advantages of a modern military power. The Chechens were perfectly willing to see their capital destroyed if it served to achieve their political objectives.<sup>19</sup>

While it is always difficult to envision what shape our future enemies will take, it is safe to assume we will fight them on an urban battlefield. By 2025, as much as 70% of the world's population will be found in cities. More than five hundred cities will have populations in excess of one million and over thirty cities will have populations in excess of eight million. Much of this growth will take place in the world's poorest regions. Cities already hard pressed to provide the most basic of human services will face ever-greater challenges in the future.<sup>20</sup> Crowded cities have long been considered as incubators for civil unrest. Not only will cities contain larger populations their physical size will also increase dramatically. Greater Shanghai, China already encompasses an area of more than 2,000 square miles and contains a population of over 125 million people.<sup>21</sup> Consider the east coast of the United States, where cities from Boston to Norfolk now form an almost continuous urban belt. The evidence is clear; worldwide demographic forces will restrict, or even eliminate America's ability to avoid urban conflict.

A city, even a relatively modest one, is the most demanding operational environment in which any organized military will ever fight. Despite advances in technology, cities reduce warfare to its most fundamental nature. In open terrain, military forces can acquire and engage targets at a range of many miles. In an urban environment, engagement ranges of mere meters or even feet are not uncommon. National intelligence systems, which spied so well on Iraqi forces in Desert Storm, cannot yet peer into buildings or into the bowels of a city's sewer system. Armored vehicles, while important to a successful fight in cities, are vulnerable to simple, hand-held anti-tank weapons in the constricted, three-dimensional urban battlefield. In the early stages of the battle for Grozny, the Russian military suffered tank and armored personnel carrier losses of over 80%.<sup>22</sup> Short-range air defense systems and ground fire limit the employment of both helicopter and fixed wing close air support. The relatively flat trajectory of conventional artillery limits the effectiveness of long-range indirect fires, as does the requirement to minimize collateral damage. Communications are significantly degraded, including global positioning systems so essential to information dominance and precision engagement. Logistics operations must successfully meet not only the dangerous demands of resupplying combat forces, but must also provide for large numbers of refugees.

The most critical and expensive military resource in an urban conflict is people; particularly the highly trained and cohesive combat teams found at the infantry squad and platoon levels. Casualty rates in these small units can be significant and a single high-rise

building may require several hundred soldiers to clear and secure. Generally accepted force ratios are three to five times greater for urban operations than those required in more open terrain, or roughly a correlation of 9 to 1.<sup>23</sup> In Grozny, the doctrinally desired number of Russian combat soldiers would have exceeded 100,000. The reader must consider that this number refers only to the actual combat soldiers needed to conduct the street-to-street fight. A U.S. Army light infantry division of 10,000 soldiers contains less than 4,000 soldiers actually trained and organized for fighting in the streets. In an American heavy division, the number of available street fighters is even less.<sup>24</sup> Lacking sufficient numbers of trained soldiers, the Russian military was forced to employ massive firepower as an equalizer. Even when technological advances in urban warfare systems are optimistically considered and less infantry intensive maneuver concepts are posited, requirements will still exist for sizeable forces to perform security, population control, and provide for the relief of rapidly exhausted fighters. Intense psychological stress and rapid physical breakdown of soldiers occurs in an urban environment and as the Russians found out, can devastate units.<sup>25</sup>

The tactical and operational challenges of city fighting have never been easy. The standard solution to these challenges, even as recently as Vietnam and Grozny, has been to employ overwhelming force against the defender. Under the best of circumstances, the civilian populace flees before fighting begins in earnest. Aerial bombing and artillery are employed to reduce the city to rubble. Infantry, supported by tanks and self-propelled artillery then moves into complete the destruction of enemy forces. Concern for civilian casualties has often been secondary to that of reducing friendly casualties. While most often effective, this firepower intensive approach is no longer considered a viable option for the U.S. military.<sup>26</sup>

What should we take away from this examination of urban warfare? First, while the urban environment may be considered a type of terrain, it is a form of terrain so complex it requires specialized efforts to master. Units organized and trained for operations in more open terrain are often ill suited for fighting in narrow city streets, in sewer systems, and high rise buildings. Observers that see urban complexes as simply another type of terrain, to which units must rapidly adjust to are ill informed. Additionally, a city's populace will define the urban environment even more than do streets, sewers, and buildings. How the military interacts with this populace will complicate, even dominate planning for urban operations.

We should also maintain a healthy skepticism when we consider the potential role of technology. While technology may aid America's military in the conduct of urban operations, it will not be the deciding factor, at least in the immediate future. Chechen rebels amply demonstrated the effectiveness of today's relatively low-tech weaponry. They also

demonstrated how an adaptable enemy can both counter an opponent's technological advantages, as well as employ selected high-tech systems for their own benefit.<sup>27</sup> While it is certainly desirable to pursue a broad range of technological enhancements, well into the future our fight for cities will be decided the old fashioned way, with soldiers going in harms way, seizing and holding terrain.

The last and potentially most significant point to consider is the recognition of how resource intensive urban warfare can be. Fighting in cities demands significant numbers of well-trained soldiers. High casualty rates must be expected and leaders at all levels must be physically and mentally prepared for a protracted conflict. America may be able to conduct peacekeeping operations with relatively small forces, but should never expect to conduct high-intensity urban combat with anything less than decisive combat power. While the emerging U.S. military vision of information dominance, decisive maneuver, and precision strike may significantly reduce the likelihood of attritional warfare; there may be times when only mass and street-to-street fighting skills will suffice.<sup>28</sup> Indeed, the American desire to avoid civilian casualties and collateral damage, may require large numbers of skilled soldiers in the streets to make up for a reduced reliance on firepower.

Providing combat forces of the necessary quality and quantity to augment the active component is a role the National Guard must be able to perform. While the size and training of combat forces represents only a single aspect of the military's total urban warfare capability, it is arguably the area which is the most difficult to create. While DoD must continue a broad range of programs to enhance the capability to fight in cities, special emphasis must be paid to the fundamental element of trained and ready soldiers. The creation of specialized urban warfare units in the National Guard will help address this pressing need.

Building effective urban warfare units in the National Guard will require the creation of maneuver brigades with unique organizational structures and training strategies. These organizations, while optimized for urban warfare, must also be effective in the execution of state and domestic missions, to include responding to WMD incidents. Once established, MOUT Brigade Combat Teams (MBCTs) must be supported by an innovative and effective training system. This training system should be designed to enhance the warfighting skills of National Guard units, but as this paper will point out, an effective training system will benefit all Army components, sister services, and a wide range of federal, state, and local agencies. This point is important, for the cost of transforming the National Guard will not be insubstantial. Only when the costs are considered from a total benefit standpoint do they appear feasible and acceptable.

## **ORGANIZING NATIONAL GUARD BRIGADES FOR URBAN OPERATIONS**

MBCTs should be organized around the fundamental characteristics of combined arms integration at the lowest levels and with a high number of dismounted infantrymen. Ideally, to support both warfighting and domestic support missions, units should be easily deployable, modular in design, and self-sustaining for at least 72 hours. Weapons, information, and logistics systems within the MBCT should be optimized for urban warfare, to include a range of non-lethal weapon systems. The organizational design of the Army's new Interim Brigade Combat Team (IBCT) provides an excellent starting point for the creation of urban units. The IBCT combines desired qualities of combined arms integration; a high number of infantry soldiers, and greatly reduced sustainment requirements compared to existing heavy brigades. The IBCT, however, is designed to perform a wide range of missions. The MBCT, with a much narrower operational focus, should be organized and equipped accordingly.

Unlike the Army's current heavy brigades, the combat power of the IBCT is found not in the number of tanks, but rather in its dismounted infantrymen (FIGURE 1). Compared to existing heavy brigades an IBCT contains almost twice the number of infantrymen. While IBCTs are slightly larger than light infantry brigades in terms of infantry strength, they possess far more firepower. Cognizant of urban challenges, the Army is building combined arms teams starting at the company level, integrating infantry, direct fire gun systems, and mortars. This combined arms emphasis is continued at the battalion and brigade levels.<sup>29</sup>

## Interim Brigade Combat Team

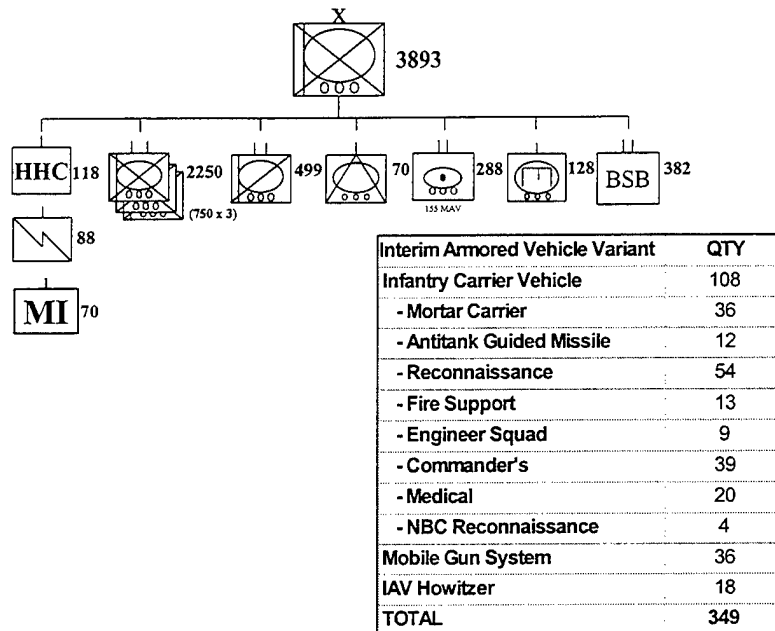


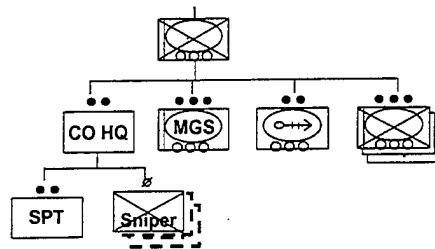
FIGURE 1: INTERIM BRIGADE COMBAT TEAM ORGANIZATIONAL CHART<sup>30</sup>

Combined arms integration at the company level is a critical step forward in terms of urban warfare capability. For many years, the Army has combined light and heavy forces for training rotations to the Joint Readiness Training Center (JRTC) and the National Training Center (NTC). These units seldom train together before, and just as importantly after, the training center rotation. Results from JRTC and NTC rotations consistently highlight the poor integration of heavy and light forces.<sup>31</sup> If there is one constant lesson from city fighting, it is the essential requirement for closely integrated armor and infantry teams. Because IBCT company teams will live and train together it is reasonable to expect a far higher degree of cohesion and integration.

MBCT companies should be organized around the same mix of infantry, mobile direct fire gun systems, and mortars for indirect fire support (FIGURE 2). Sniper teams, as they are in the IBCT, should be organic to the company headquarters. While equipped with much of the same equipment as an IBCT company, MBCT companies should also possess unique weapon systems for breaching walls and destroying fortified positions. The Multi-Purpose Individual Munition (MPIM), currently under development, will fill this role, although at a fairly substantial cost. Lightweight recoilless rifles, matched with a wide range of specialized munitions, to include “soft launch” rounds for firing within rooms, might be more effective and much less

expensive than the MPIM or the current AT-4, Dragon, and Javelin anti-tank weapons. Sniper teams, which are highly effective in the urban setting, may need to increase from the IBCT standard of one per rifle company. Non-lethal weaponry should also be an area of special consideration. Rapid advances in this technology would provide the MBCT with a unique capability for not only conventional urban warfare, but also for domestic support and peacekeeping type missions.

### Urban Warfare Infantry Company



Interim Armored Vehicle Variants	QTY
Infantry Carrier Vehicle	4
- Mortar Carrier	2
- Fire Support	1
- Engineer	0
- Commander's	1
- Medical	1
Mobile Gun System	4
<b>TOTAL</b>	<b>13</b>
Armored Scout HMMWV	0
MTV Trucks	8
M998 Trucks	2
<b>Total Vehicles</b>	<b>23</b>

FIGURE 2: PROPOSED URBAN WARFARE INFANTRY COMPANY ORGANIZATION

The most significant difference between the MBCT and IBCT rifle companies would be the number of organic armored vehicles. An IBCT company is equipped with four mobile gun systems and 16 infantry personnel carriers. While this high degree of armored mobility is needed for the multi-mission IBCT, it is not required or desirable for the MBCT. Within the city, dismounted infantry conducts the fight, closely supported by direct fire gun systems or tanks. As the events in Grozny demonstrated, tanks and other armored vehicles moving in contested areas of the city without the protection and security of dismounted infantry are highly vulnerable.<sup>32</sup> Until a breakthrough emerges in vehicle protection systems, the number of armored vehicles in an MBCT should be kept small. Detailed studies would of course be

needed to determine the best mix of armored and wheeled vehicles. One possible mix of armored vehicles would include four mobile gun systems, four infantry carriers, and two mortar carriers. The infantry carriers would provide transport for one rifle platoon and would also be used for resupply and casualty evacuation. Cargo trucks, possibly modified to provide limited protection against small arms fire and fragmentation effects, would provide mobility for the remainder of company personnel. These same trucks would serve another important role, providing the cargo carrying capabilities needed in domestic support missions. A reduction in the number of armored vehicles would enhance deployability and sustainability with little reduction in combat effectiveness. In addition, the costs to convert conventional brigades to MBCTs would be reduced, as well as the annual costs to operate and maintain vehicle fleets.

MBCT infantry battalions must be organized differently than IBCT infantry battalions. This results not only from the demands of urban warfare, but also from the widely dispersed nature of National Guard units during times of peace. It is easy to imagine the training challenges presented when supporting units and habitual combat attachments, such as engineers, are located hundreds of miles distant from maneuver battalions. The goal should be to create battalions that can easily train together and can be easily deployed without significant augmentation.

Each MBCT infantry battalion would consist of three rifle companies, a Combat Support Company (CSC), and a Headquarters Company (HHC) (FIGURE 3). The combat support company would be responsible for the training and support of the battalion's mortar, scout, and engineer platoons. Both the company and its organic engineer platoon are unique to the MBCT. Without this company headquarters, the span of effective command and control within the headquarters company would grow to an unmanageable level. The organic engineer platoon is added due to the high demand for engineering capabilities in both urban conflicts and domestic support missions. Within the IBCT, engineers are found only at the brigade level.

## Urban Warfare Infantry Battalion

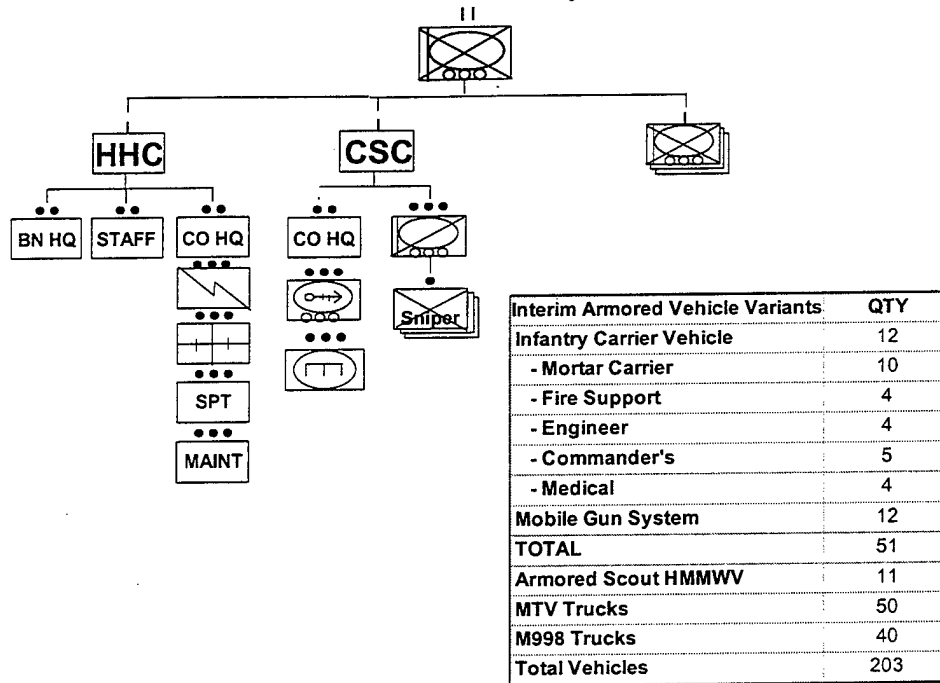


FIGURE 3: PROPOSED URBAN WARFARE INFANTRY BATTALION ORGANIZATION

HHC would consist of the battalion command and control element and the necessary logistical and administrative elements. Unlike IBCT battalions, which contain very little organic logistics capability, MBCT battalions should contain a robust support structure. This unique organizational structure is needed for two reasons. First, with organic sustainment the battalion is better able to deploy independently of the brigade. This concept of modular deployment in smaller units has long been advocated for National Guard combat units.<sup>33</sup> Easily deployed MBCT battalions could augment units already in theater, or provide a valuable capability to existing heavy or light brigades. Just as importantly, the organic sustainment found within the MBCT battalion better supports the unit during peacetime training and in the accomplishment of domestic support missions.

Three infantry battalions would comprise the principal combat elements of the MBCT. Much along the lines of the IBCT, other major elements of the MBCT would include: a Reconnaissance, Surveillance, and Target Acquisition (RSTA) Squadron, a Direct Support Artillery Battalion, a Brigade Support Battalion, and various brigade troops (FIGURE 4).

## Proposed Urban Warfare Brigade Combat Team

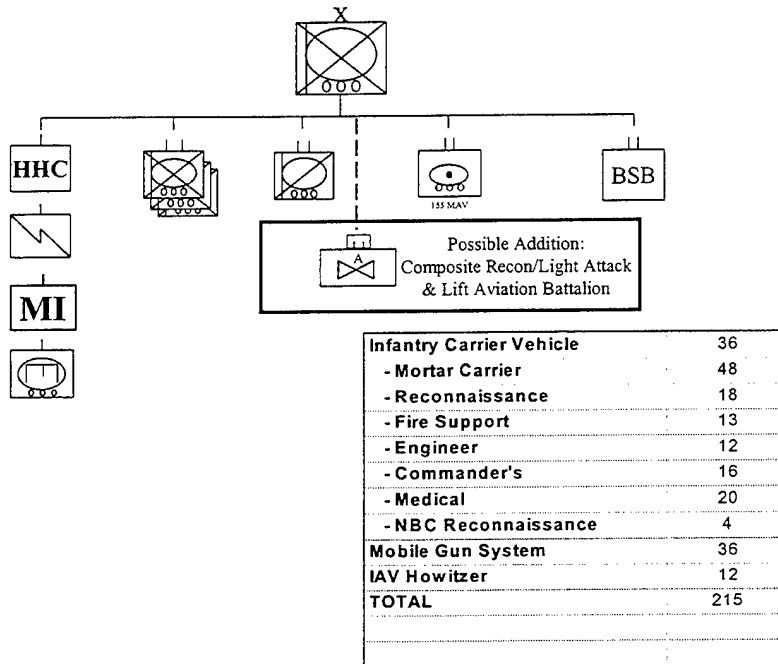


FIGURE 4: PROPOSED URBAN WARFARE BRIGADE COMBAT TEAM ORGANIZATION

The RSTA Squadron represents a new fusion of traditional ground reconnaissance and information age technologies. Organized with three ground troops, surveillance troop, and headquarters troop, the RSTA Squadron is designed to provide the brigade with a detailed intelligence picture of the battlefield (FIGURE 5). Ground troops provide a long-term reconnaissance and target acquisition capability. The surveillance troop employs a mix of unmanned aerial vehicles (UAVs), chemical reconnaissance, and advanced sensors to peer into the dead space where scouts cannot observe.

## Reconnaissance, Surveillance, and Target Acquisition (RSTA) Squadron

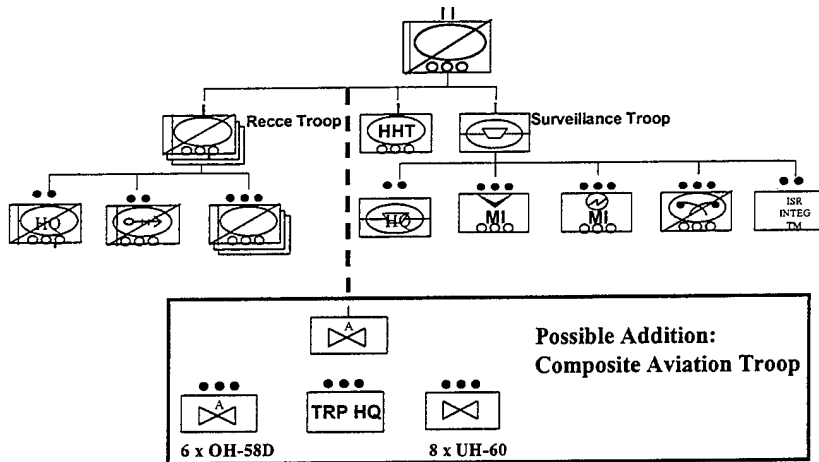


FIGURE 5: PROPOSED URBAN WARFARE RSTA SQUADRON ORGANIZATION

To optimize the RSTA Squadron for urban operations several modifications should be examined. The number of armored vehicles in each ground troop should be examined. Should the ground troops be fully equipped with armored vehicles, as is the case in the IBCT, or should they rely more on stealth and dismounted movement? The enhancement of stealth and a further reduction of armored vehicles are desirable. A strong case can be made, however, for the utility of reconnaissance vehicles in isolating approaches into the city. A compromise design might include a mix of mounted and dismounted troops, or a reduced number of reconnaissance vehicles per troop.

Consideration should be given to the addition of a composite air troop to the squadron structure, possibly in substitution for one of the ground troops. While the RSTA squadron would contain UAVs, there are distinct advantages of light attack helicopters in an urban setting. The addition of lift aircraft would provide the means to move soldiers and equipment, to serve as a communications relay, and to evacuate casualties. While an air troop comprised of both observation and lift helicopters would impose an added logistical burden, there would be great value in the addition of aviation units specifically trained for urban operations. Organic aviation assets would also enhance the brigade's ability to conduct domestic support missions. As an alternative, it may be advantageous to create a small, multi-function aviation battalion within the MBCT.

Providing long-range indirect fires for the MBCT would be the mission of the Direct Support Artillery Battalion. To enhance the effectiveness of fires within an urban environment, the artillery battalion would be organized with both conventional cannon systems and heavy mortars (FIGURE 6). Cannon systems and a counter-fire radar platoon would focus on the destruction of the enemy's indirect fire systems. Mortars, which due to their high angle of fire are more effective in urban environments, would be used to support the close fight. Presently in development are new types of mortar rounds including precision-guided munitions with ranges of 12-15 kilometers. When fielded, these rounds will increase the effectiveness of an already proven weapon system.

### Composite Direct Support Artillery Battalion

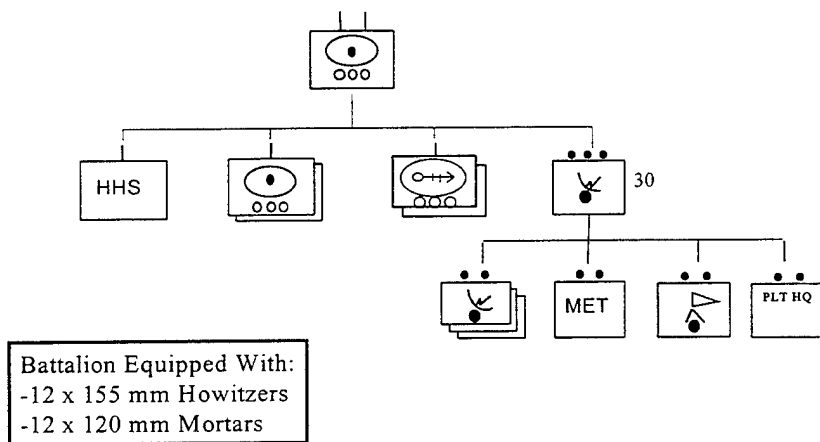


FIGURE 6: PROPOSED URBAN WARFARE COMPOSITE DIRECT SUPPORT ARTILLERY BATTALION ORGANIZATION

The final battalion level organization of the MBCT is the Brigade Support Battalion (BSB). The BSB would be responsible not only for the sustainment of the MBCT, but should also include a minimal capability for handling the demands of civilian refugees. This capability may comprise nothing more than a planning cell responsible for coordinating the support of non-governmental organizations (NGOs). Ideally, however, there would be increased transportation, logistics, and medical assets to help meet these inevitable demands. Equipped to deal with WMD effects, particularly the treatment of chemically contaminated casualties, this same capability would be of great value in domestic support missions.

The MBCT would also contain a number of company-sized units within the organizational structure (FIGURE 4). These elements would include: a brigade headquarters company, an engineer support company, military intelligence company, and signal company. While mirroring the capabilities of the companies found within the IBCT, each would be organized and equipped for the demands of urban operations. As an example, the signal company may require additional retransmission teams and the engineer company may require equipment that could rapidly seal off portions of a sewer system. Given the small chance of a significant armored threat in an urban environment, the Anti-Armor Company organic to the IBCT would not be found in the MBCT. If an armored threat did emerge, mobile gun systems would be better suited to deal with the threat than would units equipped only with long-range anti-tank missiles.

This organizational discussion is of necessity rather superficial and detailed studies would be needed to properly design effective urban warfare units. The overall goal, however, should be the creation of lethal, survivable, and easily sustainable combat units. Deployability of the force should also be an important consideration. Combined arms integration at the lowest levels is essential for success, both in training and on the battlefield. The proper degree of logistical and administrative support should be built into units to create modular, self-sufficient battalions and brigades.

The important question yet to be answered is that of dollars. Specifically, how much will it cost to create these specialized brigades? There are three principal options the Army could pursue, each with a different price tag and distinct considerations in terms of deployability, sustainability, and facilitation of the conversion process. The estimated costs for each option are admittedly rough approximations. There are simply too many variables in both the design of the MBCT and the actual projected cost of an IBCT to provide detailed cost estimates.

The least cost option would be to equip the MBCTs with combat vehicle systems readily available within the National Guard. Either the M1 tank or the M2 Bradley Infantry Fighting Vehicle could serve in the mobile gun system role. Older M1s, equipped with the same 105mm cannon as the new mobile gun system, may actually be better suited for this mission than newer models. New tank rounds, specifically suited for the urban fight, are being developed for the 105mm, while no such rounds will exist for the newer 120mm equipped tanks. The ubiquitous M113 family of armored personnel carriers could serve as infantry and mortar carriers. An added advantage of this option is that conversion could be completed very quickly. The disadvantage is that both the M1 and M2 are more difficult to deploy and both lack maneuverability in urbanized terrain. They also require a high degree of logistical support, though only 36 heavy vehicles would be present within a MBCT. The most costly and time-

consuming element of this option would be the large-scale redistribution of vehicles and the necessary retraining for selected personnel.

The middle cost option would be to purchase the same mobile gun systems and infantry carriers currently being developed for the IBCT. This option would achieve a degree of equipment standardization within the Army and would allow the National Guard to retire many of the Army's oldest M1s and M2s. Light armored vehicles, or LAVs, are more maneuverable in urban terrain, are easily deployed aboard C-130 aircraft, and require less logistical support. Depending on the number of armored vehicles within the MBCT the cost of conversion would be approximately \$450 to \$600 million per brigade.<sup>34</sup> This cost could be reduced further if only selected vehicles, notably the mobile gun system and mortar carriers were purchased and M113 series armored personnel carriers were used for all other roles. The disadvantage of either of these options would be the long delay incurred before sufficient LAVs would be available for fielding to the National Guard. Production difficulties have already delayed the fielding of LAVs to the first two IBCTS. Mixing LAVs and M113 series vehicles would also go against the Army's stated desire to operate a single family of vehicles within units.

The most expensive option would be to convert National Guard brigades to the IBCT structure. While this option would theoretically create a more flexible organization and enhance standardization within the Army, there are significant disadvantages. An IBCT structure would be more expensive, somewhere along the lines of \$200-300 million per brigade.<sup>35</sup> An IBCT type brigade would also be less deployable, require greater logistics support, and would be more expensive to operate and maintain than the MBCT design discussed earlier. While presumably more flexible on paper, the brigade might lose the necessary focus on the narrowly defined task of urban warfare and would therefore be less ready for combat. While this approach would likely have many supporters within the National Guard constituency it might very well produce the least desirable results.

The middle cost option is recommended for implementation. The advantages of discarding M1s and M2s are significant in terms of deployability, sustainability, and operating costs. While it would be desirable to field a single family of armored vehicles, the disadvantages of mixing LAVs and M113s within the MBCT would not be considered a war stopper. With this option, the twelve, post-ADRS, National Guard divisional brigades could be converted to MBCTs for less than \$7 billion dollars. From this total should be subtracted the funds already identified as required to modernize, operate, and maintain the National Guard's rapidly aging fleet of combat vehicles.<sup>36</sup> If this price tag is too high, then some variation of the

least cost option should be pursued. The important point is to build the urban capability within the National Guard. Options exist to prevent funding from becoming a major limiting factor.

## **TRAINING FOR WAR**

Building specialized MBCTs is only the first and arguably the easiest step in creating effective urban warfighting units. The far more difficult challenge is training these units to an acceptable level of proficiency. MOUT is a complex training task and with only 39 annual training days there are legitimate concerns whether Guard units would be able to achieve the desired level of proficiency. The same arguments are raised today concerning mounted combined arms warfare, currently the Guard's principal contribution to the Army. Organizing and training specifically for MOUT offers several training advantages compared to existing, more broadly defined missions.

First, MOUT operations are centered on the proficiency of small units. While complex in many ways, fighting within cities is primarily a squad, platoon, and company fight. In contrast, mounted warfare focuses more heavily on the battalion and brigade levels of command and control and demands synchronization of a wider range of battlefield systems. The large-scale reduction of combat vehicles, while enhancing deployability, will also reduce annual operating and maintenance costs. These dollars can be better-spent funding quality training for small units.

Second, MOUT can be done within much smaller maneuver areas as compared to those required for mounted maneuver. Even a minimal investment in the creation of regional and local MOUT training sites would produce positive returns. Indoor marksmanship ranges and basic MOUT training facilities could be constructed at most local armories for small amounts of money. Interactive combat simulators offer the promise for individuals and small units to hone many critical skills without ever leaving the armory. Finally, National Guard units can also take advantage of their own cities as training resources. In some cities, fire and police training facilities provide for excellent multi-story training sites.<sup>37</sup>

While these advantages are significant, there are three critical enhancements the Army must pursue to enhance the training within the National Guard. Each of these enhancements will also benefit the active force as well as federal, state, and local agencies. The top priority must be the expansion and upgrade of urban training facilities. More capable computer simulations, which can adequately replicate urban terrain and complexities, are needed to train leaders and battle staffs. Also critical for creating skilled leaders is an Urban Warfare Center staffed with a professional cadre of highly trained MOUT experts.

The most pressing need is the expansion of MOUT training sites across the United States. Existing MOUT training facilities are located almost exclusively at active military installations and are normally adequate for only small units. A General Accounting Office study, published in 2000, cited the inadequacy of training facilities as a principal reason for poor unit effectiveness in MOUT, particularly at battalion and brigade levels.<sup>38</sup> These facilities are expensive, with construction costs ranging from \$7 million dollars to over \$100 million for the proposed MOUT site at the NTC.<sup>39</sup> Sophisticated instrumentation, an element of the after action review process, is a major portion of the cost. While instrumentation can certainly enhance training, it may be more desirable in the near term to place more emphasis on building adequate facilities and less on high-tech enhancements.

All of the military services, both active and reserve, desperately need large-scale MOUT facilities. The largest Army MOUT sites consist of 30-33 building "villages." As an illustration, one of the Army's largest MOUT training sites is the JRTC Shugart-Gordon complex. This site covers an area considerably less than one square mile and contains only 33 buildings. The battlefield in Grozny covered an area of more than 100 square miles.<sup>40</sup> While adequate for platoon and company training, these sites do not realistically train battalions or brigades. Communications are seldom degraded and only small portions of larger units are actually required to operate within the city. These villages also fail to replicate the challenges of very high multi-story buildings. While it may be cost prohibitive to build very large MOUT sites with more than 100 buildings, the Army should make every effort to create regional sites that at a minimum, double the existing size of current facilities and add buildings in the 10 to 12 story range. This increase will allow for larger unit participation and will more adequately introduce the vertical element. Alternative proposals for the creation of large MOUT facilities have included the use of abandoned industrial areas and excess military bases identified for closure.

While these sites will increase the combat readiness of military units, they would also be valuable in support of other important national training requirements. The sites would support law enforcement training and would be ideal for response training for a WMD incident. They would also support training for the handling of a hazardous substance spills and potentially as regional fire training facilities. This multiple use nature of MOUT training sites would help broaden the support for their construction.

Even with increased funding for MOUT training sites, it is unlikely the U.S. military will ever possess the truly large-scale facilities required for realistic brigade and battalion training. Computer simulation systems are required to overcome this shortfall. The current family of computer simulations is inadequate for urban warfare training. They simply do not replicate the

three-dimensional nature of urban warfare.<sup>41</sup> Additionally, the use of simulations to train leaders and staffs requires inordinate personnel resources to support. Personnel must be trained as operators, often a lengthy process and contractor personnel are needed to keep the systems functioning. The power of current computing technology should allow the Army to field easier to use training simulations. Every battalion should possess the capability to connect to a dial-up simulation server and fight a variety of urban battles. This capability would be a major tool for correcting an area of consistent concern within the Army, leader and staff proficiency at the brigade and battalion levels.<sup>42</sup>

The other training system needed to enhance leader proficiency is an Urban Warfare Center with a highly trained cadre. While the U.S. Army Infantry School is the proponent for MOUT doctrine and training, there is no single training organization responsible for training leaders, or units in essential MOUT skills. The establishment of a permanent organization would rectify this situation and produce expert trainers for both reserve and active units. The Vermont Army National Guard Mountain School is an example of a well-respected facility that trains leaders from both the active and reserve components. One of the great strengths of the Mountain School is the stability of its cadre. Instead of rotating every two to three years as in the active force, Active Guard and Reserve (AGR) personnel provide long-term stability and training expertise.

The Army should create a larger Urban Warfare Center along the Vermont model. Ideally the school would be comprised of instructors from both active and reserve components and would incorporate representatives from all the battlefield operating systems. Also desirable would be the integration of sister service personnel into the school. Active component instructors would rotate through the school and after a tour would return their expertise to the force. Long serving reserve personnel would sustain subject matter expertise and contribute to the development of MOUT doctrine.

Initially the school would focus on providing the entire Army with well-trained MOUT subject matter experts, similar to the Master Gunner programs for Bradley and Abrams weapon systems. When sufficient numbers of trained leaders are in the force the school could expand to the training of units. The school could even use the simulation systems described earlier and video tele-conferencing capabilities to train unit leaders and staff through distance education. The initial startup costs for the MOUT School are unknown, but are unlikely to be exorbitant. There are a variety of active and reserve installations that could serve as a foundation for the school. Cadre should be carefully selected and sent to a variety of sister service, allied nation, and civilian law enforcement programs to master their craft.

Restructured for the unique challenges of urban warfare and resourced to adequately conduct training the National Guard can produce combat ready units. While those units will almost certainly require some degree of post-mobilization training prior to deployment, they should nonetheless achieve a level of readiness that will effectively support the national military strategy. Even in a worse case analysis, if only limited improvements in combat readiness are achieved, National Guard units will be more deployable and better structured for urban warfare. If ill-prepared to carry the fight to the streets, National Guard units would provide valuable combat power to help isolate cities, control civilian evacuees, handle prisoners of war, and perform a wide range of security tasks. This augmentation would enable active combat units to focus on the most essential combat tasks. Urban skills will also be valuable in support of homeland defense and domestic support missions. Urban warfare brigades, battalions, and companies will provide civil authorities what they need most, soldiers attuned to the urban environment and equipped with a high degree of embedded support systems.

## **CONCLUSIONS**

It is inherently difficult to predict the future of warfare, yet every military must do so if it expects to remain effective and relevant. Armies do not change direction rapidly and military capabilities take many years to create. This fact is particularly true within the reserve components. What is not difficult to predict is that military operations will increasingly occur on urbanized terrain. The world is becoming more and more urbanized and by 2025 the vast majority of the world's population will live in cities. The preponderance of this growth will take place in the world's poorest regions, where cities already struggle to provide even the most basic social services. Such conditions are prime incubators of civil strife and even civil war.

Increased urbanization will not, in and of itself, guarantee America's involvement in a major urban struggle. Other factors will play a more dominant role. Recognizing the technological advantages the U.S. military possesses in open terrain, our enemies may very well chose to confront America in the complex environment of large cities. Our enemies may also choose to fight in cities to strike at a critical force projection vulnerability of the U.S. military, the need for large ports and airfields. Since ports and airfields are normally part of the urban environment, control of these cities will be essential for the large-scale introduction of U.S. forces. Control will not be easy, as the Chechen Rebels demonstrated in the battle for Grozny, cities are great equalizers and technological advantages can amount to very little

The Army National Guard has a major role to play in meeting the challenges of urban warfare. Reorganizing combat brigades into specialized urban warfare units will fill a major

weakness in the Army's current operational capabilities. This conversion will produce more relevant combat units that are also more deployable, more easily sustained, and better postured for effective training. While optimized for urban warfare, these same units will also be more adaptable for the broad range of tasks required for homeland defense and domestic support.

This conversion will not come about without the allocation of adequate resources. Beyond the acquisition of vehicles and weapons, the Army must commit the resources required to expand and improve the quality of urban training facilities, to develop more effective urban computer simulations, and lastly to create a highly trained urban warfare cadre that can produce subject matter expertise within units. Each of these actions will contribute significantly to increased combat readiness of not only the National Guard, but also the readiness of the active force, sister services, and a potentially wide range of federal, state, and local agencies. It will take the Army years to create these units and commitment to sustain them. The Army should begin this process immediately.

In closing, a word of caution is required. The proposals laid out in this paper represent only one element of the overall urban warfare challenge. There are many significant issues, from the need for new operational and tactical doctrines, to improving the training of the active component that must also be addressed. New urban weapon systems, sensors, and communications systems must be developed and fielded across all components. Particular attention must be paid to the development of wide area non-lethal weapons and advanced robotic systems. The Army National Guard can make a valuable contribution to urban warfare readiness, but without significant complementary efforts across DoD the U.S. military will not be prepared for large-scale urban combat.

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## ENDNOTES

<sup>1</sup>Congressional Budget Office, Structuring the Active and Reserve Army for the 21st Century, (Washington D.C.: Congress of the United States, Congressional Budget Office, December 1997), 44.

<sup>2</sup>*Ibid.*, xiii.

<sup>3</sup>William S. Cohen, "Total Force Integration." In Annual Report to the President and the Congress (Washington, D.C.: U.S. Department of Defense, 2000), 100.

<sup>4</sup>Commission on Roles and Missions of the Armed Forces. Directions for Defense (Washington, D.C.: U.S. Department of Defense, 1995), 2-23-2-24.

<sup>5</sup>National Defense Panel. Transforming Defense: National Security in the 21st Century (Washington, D.C.: U.S. Department of Defense, 1997), 54.

<sup>6</sup>Roger C. Schultz. "An Indispensable Force In the Nation's Defense." In Army Magazine 2000-2001 Green Book, October 2000), p. 102.

<sup>7</sup>Gary Hart. The Minuteman (New York, The Free Press, 1998), 147-163.

<sup>8</sup>David T. Fatua. "Transforming the Reserve Components." Military Review, Sep/Oct 2000, Volume 80, Issue 5, p. 57.

<sup>9</sup>Eric K. Shinseki. "The Army Transformation: A Historic Opportunity." Army Magazine 2000-2001 Green Book, October 2000), p. 28.

<sup>10</sup>Commission on National Security, Road Map for National Security: The Imperative for Change, The Phase III Report of the U.S. Commission on National Security/21st Century, 2001; Available from <<http://www.nssg.gov/PhaseIIIFR.pdf>>. Accessed 7 March 2001.

<sup>11</sup>Ralph J. Peters. "Will We Be Able to Take the Cities?" Army Times, 11 May 1998, Volume 58, Issue 41, p. 34.

<sup>12</sup>Congressional Budget Office, xiii-xv.

<sup>13</sup>A. Roger Allen Brown, William Fedorochko, Jr., and John F. Schank. Assessing the State and Federal Missions of the National Guard, (Santa Monica, CA, RAND-National Defense Research Institute, 1995), xvii-xix.

<sup>14</sup>Commission on National Security.

<sup>15</sup>Thomas F. Lippiat, James C. Crowley, and Jerry M. Sollinger. Time and Resources Required for Postmobilization Training of AC/ARNG Integrated Heavy Divisions, (Santa Monica, CA, RAND-Arroyo Center, 1998), 7.

<sup>16</sup>Commission on Roles and Missions of the Armed Forces, 2-25.

<sup>17</sup>Sun Tzu, The Art of War, trans Samuel B. Griffith (London, Oxford University Press, 1963), 77-78.

<sup>18</sup>Timothy L. Thomas, "The Battle of Grozny: Deadly Classroom for Urban Combat", The City's Many Faces, Proceedings of the RAND Arroyo-MCWL-J8 Urban Working Group, Urban Operations Conference, (Santa Monica, CA, RAND-Arroyo Center, 2000), 602.

<sup>19</sup>Ibid., 610-611.

<sup>20</sup>Matt Van Konynenburg, The Urban Century: Developing World Trends and Possible Factors Affecting Military Operations, (Quantico, VA, U.S. Marine Corps Intelligence Agency, 1997), 1-6.

<sup>21</sup>"Shanghai", Encyclopedia Britannica. Available from <<http://www.britannica.com/bcom/eb/article/4/0,5716,117524+1,00.html>>. Internet. Accessed 27 December 2000.

<sup>22</sup>Thomas, 600.

<sup>23</sup>Department of the Army, FM 90-10-1, An Infantryman's Guide to Combat in Built-Up Areas, (Washington, D.C.: U.S. Government Printing Office, 1993), 33.

<sup>24</sup>Author's analysis based on the current organizational design of the U.S. Army's Light and Mechanized Infantry Divisions. The urban fighting power of the light infantry division is found within its infantry rifle companies, infantry battalion scout and anti-tank platoons, and light engineer platoons. Each light division is comprised of nine infantry battalions, each with three rifle companies, one scout platoon, one anti-tank platoon, and one habitually attached engineer platoon. The total of these units is 4086 personnel. The standard mechanized division contains five infantry battalions, each with three rifle companies, a scout platoon, and a habitually attached engineer company. The standard dismounted strength of the rifle company is 105. The total for these elements is 1695 personnel.

<sup>25</sup>Timothy L. Thomas, "The Battle of Grozny: Deadly Classroom for Urban Combat", Parameters, U.S. Army War College, Summer 1999, Volume 29, Issue 2, p. 98.

<sup>26</sup>U.S. Marine Corps Combat Development Command, A Concept for Future Military Operations on Urbanized Terrain, Quantico, VA: U.S. Department of the Navy, 25 July 1997.

<sup>27</sup>Thomas, 97.

<sup>28</sup>Ibid.

<sup>29</sup>U.S. Army Infantry School and Center, "Bridging the Full Spectrum Threat", U.S. Department of the Army, available from <<http://www-benning.army.mil/BCTTF>>. Accessed 7 January 2001.

<sup>30</sup>Ibid.

<sup>31</sup>Center for Army Lessons Learned, "Combined Arms Maneuver During Urban Warfare", CALL Newsletter No. 99-1, U.S. Department of the Army, available from <<http://call.army.mil/products/newsletters/99-16/chap4.htm>>. Accessed 7 January 2001.

<sup>32</sup>Ibid.

<sup>33</sup>National Defense Panel. Transforming Defense: National Security in the 21st Century (Washington, D.C.: U.S. Department of Defense, 1997), 53.

<sup>34</sup>Jim Caldwell, "Technology Breakthroughs to Keep Transformation on Track", The Pentagon, (Washington, D.C.: Department of the Army, 14 July 2001), available from <[http://206.165.117.25/army/pentagram/jul14/pt\\_g71400.html](http://206.165.117.25/army/pentagram/jul14/pt_g71400.html)>. Accessed 7 January 2001.

<sup>35</sup>The cost to create an IBCT is roughly estimated at \$800 million per brigade. The majority of this cost is related to the procurement of the various models of the Interim Armored Vehicle (IAV). The MBCT will cost 60-70% of the IBCT total because it will contain significantly fewer IAVs. Based on an MBCT equipped with 30% fewer IAVs, the approximate cost per brigade would be \$560 million.

<sup>36</sup>This is an admittedly rough approximation of costs, but it is adequate for comparative purposes. The costs of upgrading and sustaining the National Guard's armored vehicle fleet is difficult to determine. Conversion of the National Guard to an Objective Force organization will take from 20-30 years to complete. In that period of time, substantial sums of money will have to be spent sustaining aging M1s and M2s, as well as related artillery, aviation, and engineering equipment.

<sup>37</sup>One such facility was the regional fire training facility in Fairbanks, Alaska. This four story training facility was an excellent resource for active duty infantry and military police units stationed at nearby Fort Wainwright.

<sup>38</sup>U.S. General Accounting Office, Report to Congressional Committees: Focused Attention Needed to Prepare U.S. Forces for Combat in Urban Areas, (Washington D.C.: U.S. General Accounting Office, February 2000), 13.

<sup>39</sup>Ibid., 33.

<sup>40</sup>Thomas, "The Battle of Grozny: Deadly Classroom for Urban Combat", 88.

<sup>41</sup>U.S. General Accounting Office, 13.

<sup>42</sup>The reader has only to go the Center for Army Lessons Learned (CALL) Home Page and review many years worth of CTC trends and observations related to leader and staff proficiency. The training of the staff and often commanders is consistently cited as a unit weakness.



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