Conference Summary

URBAN WARFARE:
OPTIONS, PROBLEMS AND THE FUTURE

by: Daryl G. Press
January 1999

The summary of a conference sponsored by the MIT Security Studies Program.
Held May 20, 1998 at the Officer's Club, Hanscom Air Force Base, Bedford, Massachusetts.

Lt. Col. Rick Reece, USMC, Commandant Fellow at the MIT Security Studies Program helped greatly in organizing the conference program. Administrative assistance was provided by Amy Briemer, Kristen Cashin and Catherine Foster.

The sight of American troops patrolling foreign cities has become common. Since the end of the Cold War, American military forces have been sent on a stream of deployments to far-away cities. These urban operations pose a set of challenges to American forces which the Department of Defense, and particularly the Marine Corps and Army, are working to address. What are these challenges, what are the prospects for reducing the difficulties of urban operations, and what broader options does the United States have for avoiding costly urban engagements?

This paper addresses these questions by focusing on three issues that were raised at the conference on urban warfare hosted by the Security Studies Program at MIT on May 20, 1998. The first issue involves the inevitability of urban operations and the potential costs of preparing for urban operations. Advocates of increased efforts to prepare America's Marines and Soldiers for urban fighting point out that, regardless of the strategic wisdom of urban operations, U.S. leaders frequently order troops into cities. This trend is likely to continue, they argue, so the military must prepare itself to carry out these operations. Critics of this view counter that preparations for urban operations are futile and counterproductive. They are futile because the operations will always raise unacceptable risks to U.S. troops. They are counterproductive because American political leaders will wrongly conclude that urban operations are easy; this perception may, in turn, increase the likelihood of future U.S. deployments. The best approach, according to these critics, is less emphasis on preparing for urban operations and stronger efforts at educating policy makers about the risks of urban combat.

Who is right? Are future urban operations inevitable, and if so, shouldn't U.S. forces be prepared? Or are these operations avoidable, and do preparations increase the likelihood of deployment?

The second issue is about the feasibility of dominating enemies in an urban environment. In the late 1970s and early 1980s, innovations in American military doctrine, technology, and training caused an extraordinary leap in the lethality of U.S. forces against an armored enemy in clear terrain. Could the United States develop the same dominance

over enemies in urban terrain? Or is there something about urban combat that makes it more difficult to generate tremendous advantages over an enemy?

The third issue focuses on alternatives to urban operations. Can the United States achieve its foreign policy objectives without deploying its forces into urban centers? How practical are the alternatives?

Simple answers to these questions are elusive. Part of the problem lies in the complexity of the subject, but another part of the problem is caused by the way we have grouped a wide range of operations under the single heading, "urban operations." *Urban*, after all, is a kind of terrain, not a type of operation. Many different types of operation are conducted in urban terrain. Thinking about specific types of missions in urban terrain allows a more focused debate on the inevitability of urban operations, on the prospect for U.S. forces developing dominance in urban terrain, and on the possibility of achieving U.S. objectives without sending American troops into cities.

One goal of this paper is, therefore, to divide "urban operations" into analytically useful categories which reflect the different kinds of operations U.S. forces conduct in urban terrain. These categories are 1) policing operations; 2) raids; and 3) sustained urban combat. All categories have blurry edges, but these categories permit a more focused debate on the types of operations that America should prepare for, and the wisdom of sending U.S. forces into potentially hostile cities.

This report also makes three arguments. First, the contention that "we often do urban operations, so we must prepare for them" makes sense for policing missions and for some types of raids, but it does not justify the development of capabilities for sustained urban combat. American forces have not been sent into sustained urban combat for three decades.[1] The only way to justify the improvement of American capabilities for sustained urban combat is to show that, in contrast to the past thirty years, U.S. national interests might demand sending U.S. forces into sustained urban combat. Justifying preparations for sustained urban combat on these grounds will be difficult.

Second, evidence suggests that investments in superior doctrine, training, and technologies can generate substantial military advantages over enemies in urban terrain, especially for policing missions and raids. These advantages could translate into very favorable exchange ratios for U.S. forces, analogous to the advantages currently enjoyed by American forces in anti-armor operations. Despite these advantages, however, the cost of many urban missions will surpass the number of casualties that Americans are willing to suffer. In other words, even a 20:1 exchange rate might not be a big enough advantage for U.S. forces because the political goals which motivate most policing missions and many raids are not sufficiently critical to U.S. national interests to justify the loss of many troops.

Third, there are attractive operational and strategic alternatives to many types of urban operations. The foreign policy goals which motivate most policing operations, and some

raids, can usually be achieved through other means. And these other means present lower risks and higher returns.

When taken together, these arguments suggest that America should only send forces into urban operations on rare occasions and for limited purposes -- principally raids to evacuate embassies and free hostages. At the same time, American forces should continue to prepare for two types of missions. They should prepare for embassy evacuation and hostage rescue missions, because these missions will frequently be in the national interest, and they should prepare for policing operations, because policy makers frequently deploy U.S. military forces on humanitarian missions, despite the existence of better alternatives.

The remainder of this paper has five main sections. First, I describe the reasons to expect continued U.S. involvement in urban operations. Second, I list the main challenges posed by urban terrain. Third, I summarize some of the ways which U.S. forces are trying to mitigate these challenges. Fourth, I disaggregate urban operations into three categories. Finally, I draw conclusions about the potential for improving U.S. capabilities in different types of urban mission, discussing the possibility of achieving U.S. foreign policy objectives without embarking on urban operations and the wisdom of preparing to conduct policing missions, raids, and sustained urban combat.

A Future Full of Urban Operations

Wars tend to draw troops into urban areas. Cities have historically played an important role in military campaigns because roads and rail lines usually intersect in cities, and ports and airfields are frequently located near major metropolitan centers. Movement into a theater through ports and airfields, or within a theater on roads or rail, requires the control of major cities.

There are reasons to believe that America's future conflicts will involve more urban operations than those in the past. First, the world is becoming more urban. About half of the world's population lives in cities today; 70% will live in urban areas in 25 years.[2] As the number and size of cities grow, so will the frequency that overseas wars involve urban fighting. Second, cities are the political and economic centers of modern countries. Whatever America decides to fight for in future decades, the chances are good that it, and the people who control it, will be located in cities.[3]

Finally, Americans will frequently be drawn into cities because no enemy's military can compete with U.S. forces in open terrain. Urban terrain, for reasons described below, negates many U.S. advantages and capitalizes on America’s unwillingness to kill non-combatants.[4] Enemies will put their forces -- conventional or guerrilla -- in cities to fight on the most advantageous ground possible.

The Challenges of Operations in an Urban Environment

Urban warfare poses a different set of challenges than those that confronted the U.S.

military for nearly forty years. During the Cold War the U.S. military prepared to fight a numerically superior foe, in armored warfare, on relatively open terrain, with long-range precision weapons. A clash between NATO and the Warsaw Pact would have required the coordination of several corps of NATO ground forces. In urban terrain, by contrast, engagements occur at short-range, maneuver and command and control are difficult, and battles are typically fought at the squad level without substantial coordination or fire support from higher echelons. Finally, urban operations raise political risks which were less-relevant in Cold War scenarios.

For years the U.S. military has been working to detect and kill the enemy at longer range than the enemy could target U.S. forces. The goal behind these efforts was to force the enemy to cross a "killing zone" before they could engage U.S. forces with their shorter range systems.[5] In urban terrain, however, America's long-range weapons are less useful. Long-range acquisition is difficult because obstacles obstruct line-of-sight and because enemy infantry hide in and move through buildings. A skillful enemy will deploy his forces in ways that prevent long-range direct fire engagements. Indirect fire support is difficult in urban terrain, too. Most artillery shells and many air-to-ground weapons fall at too-shallow an angle to be effective in densely built up areas. Furthermore, low flying aircraft are vulnerable to shoulder-fired surface-to-air missiles (SAMs) and rocket-propelled grenades (RPGs). And because engagements are fought at very short range, the dangers of friendly fire from artillery or air support are multiplied. The navigation and communication difficulties resulting from urban terrain (described below) further complicate effective fire support as units have difficulty knowing or reporting their own positions or the positions of friendly and enemy forces. The long range of America’s high-tech weapons is negated in a dense urban environment.

Urban terrain also makes maneuver difficult. Streets channelize the movement of ground vehicles. Because ground routes are predictable, cities offer ideal terrain for setting ambushes. The Russian Army learned this lesson in Chechnya. Their armored thrust into Grozny was anticipated by Chechen guerrillas who ambushed the Russians from the sides, rear, and above. The narrow streets, soon blocked by burning Russian vehicles, made it difficult for the embattled Russian armored columns to advance, counter-maneuver, or even withdraw.[6]

Urban terrain impedes American command, control, communications and intelligence (C3I) more than most other types of terrain. Navigation is difficult in dense urban areas. Global positioning system (GPS) navigation devices require contact with at least three satellites to generate a location, and this is often impossible either inside buildings or outside among high-rise structures. Even when ground forces can determine their exact position in a city, communicating this information to their superiors is not simple. Radios rely on line-of-sight transmissions which are obstructed in built-up areas, especially inside buildings.

Finally, urban terrain raises political problems for U.S. forces. First, using massive firepower to overwhelm enemy positions can cause substantial physical damage to a city including the destruction of vital infrastructure and cultural sites. Enemies who sense

America’s reluctance to destroy these sites may strategically locate their forces near these locations. Second, urban operations can easily kill large numbers of non-combatants. Civilians are difficult to distinguish from enemy infantry. If enemy forces stop wearing uniforms, the risk to civilians is even higher.

In sum, urban areas deny America many of the technological advantages that it developed during the Cold War, they constrain maneuver, they strain C3I systems, and they raise substantial political problems by putting non-combatants and non-military targets in the way of military forces.

Tactical Improvement in American Urban Warfare Capabilities

The challenges of urban warfare are being addressed.[7] Because long range acquisition and targeting are difficult in an urban environment, U.S. forces are working to become more lethal at close-in engagements. For example, realistic training exercises in urban terrain, using MILES systems[8] or chalk bullets, may give light infantry forces the same type of artificial combat experience that the National Training Center (NTC) gives to armored forces. Computer simulations and virtual reality can also be used to supplement the more realistic exercises.

Efforts are being made to improve C3I in urban areas and to increase the maneuverability of American infantry. Urban communications can be improved by new radios which perform better in obstructed areas.[9] Antennae repeaters and creative efforts to use existing city infrastructure (e.g., cellular phone networks) might reduce some of the communications problems. Additionally, better training in small unit infantry tactics at the squad level may substantially reduce C3I problems. While vehicular movement through cities will remain difficult, some new technologies, like non-explosive wall breaching equipment, may increase the ability of infantry to maneuver within and between buildings.

Precision weapons can reduce the collateral damage to civilian infrastructure and minimize non-combatant casualties. Highly accurate weapons may bring indirect fire support back into the small unit urban battle because the risks to friendly forces, city infrastructure, and non-combatants declines with precision.[10] Finally, improvements in force-protection technologies may reduce the number and severity of casualties, making all types of operations less costly. Strong, flexible, light weight body armor may reduce the exposure of infantry to small arms fire. Acoustic sniper detection devices may reduce the ability of snipers to attrit friendly forces. New weapons and sensors will not "solve" the problems of urban warfare, but they may reduce the difficulty of urban operations and allow American forces to exchange very favorably against enemy forces in urban terrain. Whether these improvements will improve American capabilities enough to make these operations viable depends on the type of urban mission, the quality of the enemy, and the number of friendly and collateral casualties American leaders are willing to risk.

The Types of Urban Operations

Urban terrain creates significant problems for U.S. forces, but are these problems "solvable" in the sense that the Army and Air Force "solved" the problem of anti-armor operations in clear terrain against 1980s vintage Soviet forces? Are there other ways for the U.S. to achieve its foreign policy objectives without exposing its military forces to the dangers of urban terrain? To assess these issues we need to disaggregate "urban operations" into the different types of operations that U.S. forces might be asked to perform in urban terrain. These categories help identify the conditions under which urban operations might make sense, the types of operations that U.S. forces should prepare to conduct, and the feasibility of U.S. forces developing dominance over enemies in urban terrain.

All categories have blurry edges, but three types of urban operations can be identified: policing operations, raids, and sustained urban conflict. Each of these operations is described below and distinguished from the others by the mission's goals, strategic importance, the nature of the adversary, and the difficulty.

The first category of urban operations is "policing operations." Like domestic policing, the primary goal of international policing is to prevent the outbreak of violence. American peacekeeping operations in Bosnia and Haiti are examples of policing missions. Policing missions usually face only scattered and uncoordinated opposition. Adversaries are often irregular forces who are less-skilled than full-time military units. The key to success, as in domestic policing, involves maintaining presence throughout the area of operations, using speed to concentrate overwhelming force against troublemakers, and separating these troublemakers from the general population as soon as possible.

Policing missions frequently involve low strategic stakes for the United States. These missions are usually intended to promote American values rather than protect America's strategic interests. As a result, American leaders and the U.S. public are unwilling to sustain many casualties on policing operations. Success in these missions is possible, however, because America's low casualty tolerance is offset by the low risks that these missions tend to pose to U.S. forces.[11] The greatest cost of policing operations is the effect of lengthy deployments on the morale, readiness, and retention rates in the armed services.[12]

The second type of urban mission -- raids -- is a broad category. Raids can have many different goals, for example evacuating an American embassy, rescuing hostages, arresting enemy leaders, seizing port facilities or airfields, or taking control of weapons of mass destruction (WMD) sites.[13] The common characteristics of these missions is that they involve 1) the rapid insertion of U.S. forces into enemy, or disputed, territory; 2) the completion of some mission at the target site (e.g. evacuation of friendly personnel, or destruction of WMD equipment); and 3) the extraction of U.S. forces.[14] The key to success in a raid is using surprise to insert overwhelming force to the target and then to extract the raid party before the adversary can react. The United States has conducted a wide variety of raids since the end of the Cold War. U.S. citizens have been evacuated

from embassies in Albania and Sierra Leone. American forces seized an airfield during the invasion of Panama and have conducted raids to arrest Bosnian Serb war criminals.

All raids are risky. Because of these dangers, although raids are sometimes launched as part of a humanitarian operation, they usually involve higher strategic stakes. Only then can the goals justify the dangers inherent in the operation.

The insertion and extraction of forces is often the hardest part of raids in urban areas. The proliferation of shoulder-fired SAMs and hand-held anti-armor weapons has made the insertion and extraction of forces very dangerous. Success is most likely when the U.S. has good intelligence about the location of the site, achieves surprise, and targets a location with weak defenses. If the raiding force is heavily engaged on their way to the target, they may be delayed long enough to warn enemy defenses, and they may be attrited beyond the point that they can carry out their objective.

The action on the objective -- the seizure of an enemy leader or the evacuation of an embassy, for example -- is also risky. Like insertion and extraction, success depends on good intelligence, achieving surprise, and light enemy defenses. If forces at the objective put up a stiff fight and delay the raiding party, more enemy forces can be mobilized to prevent extraction. For example, in the first six raids against the clan of Somali Warlord Mohammed Aidid, U.S. forces achieved surprise, inserted forces successfully, quickly executed their mission, and were safely extracted. On the last raid, however, delays at the objective allowed Aidid's clan to rally their defenses. The ensuing battle delayed extraction by fifteen hours and lead to the deaths of eighteen elite U.S. soldiers.[15]

Using the criteria of intelligence, surprise, and the strength of the defenses, raid missions can be ordered from the least to the most dangerous. The easiest type of raids are usually evacuations from embassies. Intelligence is often good -- the U.S. knows the precise locations of its overseas facilities and may have worked out evacuation contingency plans. Most of these cases are prompted by violent instability in the country, rather than a direct military threat to the compound, so resistance is usually light and uncoordinated. Hostage rescue is much harder. Getting good intelligence on the exact location of hostages is often impossible. Furthermore, in a hostage situation, unlike an embassy evacuation, there is a group of people who plan to resist the raid.

The seizure of port facilities or an airfield is also a hard mission. On one hand, gathering intelligence for port or airfield seizure operations should be easier than for hostage rescue. On the other hand, ports and airfields are high-value targets and will often be heavily defended. Enemies should understand that the seizure of local ports and airfields is necessary for the U.S. to conduct sustained military operations in many parts of the world, so defense of these facilities should warrant high quality military assets. Furthermore, to secure a port U.S. forces may need to suppress mortar or artillery attacks from nearby urban areas. Depending on the location of non-combatants, counter-battery fire may not be an acceptable response, and the U.S. might need to launch raids into the city to suppress harassing fire.

The hardest type of urban raid mission is likely to be operations against WMD sites. Gathering intelligence on these sites is difficult because the facilities can be hidden. Chemical weapon facilities can be disguised to look like innocuous chemical or pharmaceutical manufacturing plants. Facilities for biological weapons are easy to hide because many agents, like anthrax, can be cultured without heavy machinery.[16] Finally, advances in digging and excavation technology, which make many facilities impervious to airstrikes, also conceal the exact location of facilities.[17] Even when excavated sites are detected, the layout and exact location of WMD facilities within them are often unknown.

Nuclear facilities require greater infrastructure than chemical or biological weapons plants. The Iraqi nuclear program, for example, employed more than 20,000 Iraqis throughout the 1980s. But even the Iraqi program went undetected for most of the 1980s and, throughout the Gulf War the extent of it was not understood.[18]

Even knowing the location of a large nuclear weapons facility may not be specific enough intelligence to facilitate an effective raid. For instance, the Yongbyon nuclear facility in North Korea is known to be involved in the North Korean nuclear program. The facility, however, sprawls across acres of industrial complex. Ground forces who were tasked with clearing out North Korean defenses throughout the Yongbyon facility and searching the buildings to discover and destroy critical weapons making facilities might require days or weeks on the ground. Unless there is extremely precise intelligence, operations would take so long that they would require an enormous raiding force to fend off counterattack and would greatly complicate extraction.

Raids against WMD facilities not only pose challenges in intelligence gathering; they also usually involve well-defended facilities. WMD sites are very expensive and valuable facilities and will likely attract the best defenses a state can muster.

Raids to seize enemy leaders are harder to categorize. In some circumstances, precise intelligence about the location of a leader is difficult to obtain. Saddam Hussein, for example, moved around constantly during the Gulf War and was very difficult to track. Other leaders take fewer precautions. Radovan Karadzic reportedly traveled by car through NATO checkpoints as late as mid-1997. U.S. forces easily tracked Aidid as he moved through Somalia. Only after the U.S. announced its intentions to arrest him did he keep a low profile.

Raids against an enemy's leadership also encounter different levels of defenses. Karadzic's house in Pale was a well-defended fortification with security personnel armed with SAMs to guard against a helicopter assault and sentries to delay a ground advance. Other leaders have very little security. Raids against leadership targets can, therefore, sometimes be as easy as an embassy evacuation; other times they are harder than most hostage rescue missions.

The third category of urban operations is sustained urban combat. The goals of sustained urban combat are to hold a city, take a city, or destroy enemy military forces that are using a city for shelter. American forces have not been engaged in sustained urban

combat for thirty years -- since the fighting in Hue during the Vietnam War. The Russian assault into Grozny is the most recent example of sustained urban fighting.

Sustained urban combat could be waged against forces with skill levels that range from poorly-trained civilians to regular military forces. For the reasons described earlier, it is one of the most difficult and costly types of military operations. Even irregular forces can inflict substantial losses on an attacking force in sustained urban combat.

The United States could send forces into sustained urban combat in order to achieve a range of objectives, but because the costs of these missions is usually great, it is unlikely that the U.S. would embark on sustained urban combat unless significant national interests were at stake.

The three categories of urban operations and their salient features are summarized in Table 1.

Type	Goals	Strategic Importance	Military Risks	Recent Examples
Policing Operations	deter violence	low	low	Haiti, Bosnia, Somalia (early)
Raids				
evacuation of embassies	insert, execute, extract	med	med -	Liberia, Albania, Sierra Leone
seize ports and airfields		med +	med	Panama
counter WMD		med +	high	
seize enemy leaders		?	low to high	Panama, Bosnia, Somalia (late)
Sustained Urban Combat	Defeat enemy forces	?	very high	Grozny, no recent US example

Can the risks inherent in urban operations be reduced? Are there good alternatives to urban operations -- in other words can the U.S. achieve its foreign policy goals without sending forces on these missions? Which types of urban missions should the U.S. prepare for? These are the subjects of the next three sections.

Urban Operations: Can the Risks be Reduced?

During the Cold War, U.S. forces in Europe were trained and equipped to achieve overwhelming advantages over an armored foe in open terrain. Could similar efforts create an analogous leap in the lethality and superiority of U.S. forces in urban operations? Before addressing this question it is important to note that developing huge advantages for U.S. forces in urban terrain, a very ambitions undertaking, might not be good enough to make urban operations attractive options for U.S. military policy. Even if the U.S. can develop dominance over adversaries in urban terrain, the low strategic value of many (but not all) of these missions will make them too costly.

For example, in a conventional war between NATO and the Warsaw Pact, a 10:1 exchange ratio in NATO's favor would have been a tremendous victory for the West. But in a conflict in 1993 between U.S. soldiers and Somali gunmen, a 25:1 exchange rate in America's favor was considered to be a terrible defeat.[19] The difference between these two scenarios is obvious: Americans believed that defending NATO from a Soviet attack was worth the lives of thousands of Americans; arresting the Somali Warlord Mohammed Farrah Aidid, on the other hand, did not merit the loss of even eighteen soldiers. The point is that improved doctrine, specialized equipment, and realistic training can reduce the risks of various types of urban operations, but these missions will still be unpalatable if the risks remain high, if the interests at stake are small, or if there are better ways to achieve the foreign policy objectives.

Policing Missions

All military operations entail risks, but urban policing missions are the lowest risk of the urban operations. In most circumstances, American policing operations will not produce large numbers of U.S. casualties. Evidence from recent overseas policing missions, and evidence from domestic policing, suggest that the key to low-risk policing operations is well-trained troops and an emphasis on force protection.

America’s recent experience in two large military policing missions suggests that well-trained forces can often conduct policing operations with low costs. No Americans were killed by enemy forces during the 1994 occupation of Haiti. The most serious incident happened during the first week of the intervention when a Marine patrol exchanged fire with Haitian police and paramilitary forces. Nine Haitians were killed; one Navy enlisted man suffered a minor injury.[20] In Bosnia, U.S. forces have gone to great lengths to maximize force protection. Despite the hardship that these restrictions have placed on U.S. soldiers, the result is that only one American has been killed.

The experience of domestic police forces in the United States corroborates the evidence from the overseas missions. Police are typically armed no better than the criminals they face. But against scattered opposition, superior police training can create a very high "exchange rate" between police and violent criminals.[21] Like the police, U.S. troops can be trained to very high levels of competence at urban policing, and in addition, U.S.

troops can be armed with better equipment than their adversaries. With proper training and equipment, U.S. forces should be able to police urban areas with low casualties.

New technologies might reduce the risks of policing operations further. Sniper detection will help foot soldiers detect enemy snipers. Improved, light-weight body armor will give foot soldiers increased protection from hand gun and rifle rounds. Optical equipment that allows troops to look around corners without exposing themselves will give them greater protection.

Although policing operations are not risk free, they are the lowest risk type of urban operation. Whether these operations make sense depends on the importance that Americans place on the objectives -- usually promoting American values abroad -- and the alternatives that exist to achieve these objectives without conducting urban operations.

Raids

The category of *raids* includes a wide range of missions. Some of these missions can usually be carried out within acceptable levels of risk, and they can become easier with improvements in training and doctrine. Other raid missions are very risky and seem less-amenable to improvements in U.S. capabilities.

The two biggest obstacles in most raid missions are 1) intelligence, and 2) the successful insertion and extraction of forces. The better the intelligence that the U.S. has on the whereabouts of hostages, the precise location of WMD facilities, and the type and quality of defenses around a particular objective, the greater the chance of achieving success at low costs. Improving U.S. intelligence capabilities -- space sensors, ground-based listening posts, and agents -- is not the type of thing which immediately comes to mind when thinking of urban operations, but they might be the best ways to improve the prospects for success in these missions.

The second way to greatly reduce the risks inherent in raid operations are steps to facilitate the insertion and extraction of forces. The primary dangers to helicopters and ground vehicles during insertion and extraction are RPGs, shoulder-fired SAMs, and hand-held anti-armor weapons. Infrared-seeking shoulder-fired SAMs are susceptible to countermeasures; it might be possible to reduce U.S. vulnerability to short-range SAMs during the insertion and extraction of forces through a combination of better decoys and new tactics. RPGs and many hand-held anti-armor weapons, on the other hand, are unguided, so jamming and decoys are not a viable solution. There are some ways of reducing this threat, however, through doctrine. For example, night operations increase the likelihood that U.S. forces will achieve surprise and delay the reaction of enemy forces once they learn they are under attack. Furthermore, darkness interferes with the use of weapons that do not have special night-sights (such as RPGs and many anti-armor weapons). Darkness complicates all military operations; if the United States trains and equips its soldiers to operate effectively at night in urban raid missions, they can generate substantial advantages over our relatively unprepared enemies, and thereby reduce some of the risks inherent in insertion and extraction.

Sustained Urban Combat

Sustained urban combat is the most difficult and costly of all urban operations, but there is evidence that American forces can generate substantial advantages over enemy forces in urban fighting. Some armies have become quite good at sustained urban combat, but even an historically favorable exchange ratio would imply very high U.S. casualties in most urban combat scenarios. Furthermore, minimizing U.S. casualties may require taking steps that increase civilian casualties and collateral damage. America would not tolerate the losses resulting from "favorable" exchange ratios, and perhaps not the civilian casualties either, unless important national interests were at stake which could not be attained in a cheaper way.

History demonstrates that well trained forces can conduct sustained urban combat and generate favorable exchange ratios. In 1967, well trained Israeli forces took Eastern Jerusalem from Jordanian forces in 2 days at a cost of only 200 Israeli soldiers killed. About twice as many Jordanians died in the battle, and there was relatively little damage to the city.[22] The following year, U.S. and South Vietnamese forces demonstrated that well-trained forces could achieve a much better exchange ratio in urban warfare *if* they were willing to destroy the city. It took 3 1/2 weeks for U.S. and South Vietnamese forces to drive the North Vietnamese Army and Viet Cong from Hue. About 5,000 North Vietnamese were killed in the battle. The costs to the U.S. and South Vietnamese were 147 Americans killed, 384 South Vietnamese soldiers killed, and tremendous destruction to large parts of the city.[23]

The U.S. and South Vietnamese forces were highly effective at Hue, but at the cost of tremendous destruction to the city. The Soviets in Grozny demonstrated what happens when a poorly trained army tries to do what the U.S. and South Vietnamese did in Hue. The Soviets exercised no restraint in their assault and destroyed much of Grozny, but they probably only exchanged roughly evenly with the highly motivated Chechen militia.

The Israelis in 1967, an excellent army, were able to exchange 2:1 with the Jordanians while refraining from massive use of firepower. Even if the U.S. could achieve similarly impressive results in the future, the missions would still be costly. Only 63 Americans died during the ground attack during the Gulf War.[24] Had the U.S. been forced to fight a Republican Guard division in Kuwait City, and had the U.S. achieved a 2:1 exchange ratio in the urban fighting, several thousand American soldiers and Marines would have been killed. Even if the U.S. invests the resources necessary to prepare its forces for sustained urban combat, only important national objectives will merit these types of casualties. And these missions will only make sense if there are no cheaper ways to achieve these objectives.

In sum, America's recent experiences in peacekeeping, and the experiences of domestic police in the United States, suggest that policing can be done effectively and at relatively low risk to U.S. troops. Technological advances may improve force protection. Some raids are also feasible at relatively low cost, though the risks involved in inserting and

extracting forces into disputed territory will always make raids more dangerous than most policing missions. Other raids, on the other hand, and sustained urban combat, are very high risk missions. The question that U.S. military policy planners must address in assessing the wisdom of any of these operations is the importance of the national objectives and the alternative ways of achieving these goals.

Alternatives to Urban Operations

There are viable alternatives to conducting urban policing operations. The United States can support its humanitarian values without sending its military forces to police urban terrain. Flooding, poor sewage treatment, and dirty drinking water kill hundreds of thousands of people around the world each year. There are many places in the world in which people need, and would welcome, American help. Experts on humanitarian operations claim that America's aid money could be 10-20 times as effective if it were spent on these 'silent' emergencies rather than humanitarian military interventions.[25] In other words, America can best express its humanitarian concerns and help people overseas without sending its troops into overseas conflicts.

Some analysts argue that non-military aid missions are not an alternative to humanitarian interventions. When CNN shows people dying in Bosnia, for example, the public will not be satisfied by the knowledge that the U.S. has saved 100,000 people that year from cholera in South East Asia. The so-called 'CNN Effect' suggests that Americans will demand military intervention to stop overseas killing.

This argument, however, is not persuasive. Neither CNN, nor a swell of public opinion, pushed the Clinton Administration to intervene in Bosnia. To the contrary, Congress and the public opposed intervention until the U.S.-brokered peace agreement brought the fighting to an end. Revealingly, when the President finally explained the need to intervene to the American people he did it in terms of national security -- warning of the dissolution of NATO and the history of World Wars beginning in the Balkans. American leaders are not forced to embark upon humanitarian military interventions by a crusading public. They do have the opportunity to choose how and when to help people overseas. Military intervention is rarely the best strategy; non-military assistance can save many more lives.

Some types of raids offer attractive alternatives. Ports or airfields which are heavily defended or located near urban areas might be rejected in favor of alternate facilities in remote locations. Instead of launching raids against WMD facilities, the U.S. could rely on deterrence to prevent WMD use. A policy of technology restrictions to slow the spread of WMD, and a robust deterrence to prevent WMD use, worked well for the United States for the past fifty years and may be the most attractive option for the future.[26] Other raid missions, on the other hand, do not offer attractive alternatives. It is difficult to imagine an alternative to using ground forces to evacuate an American embassy or rescue U.S. hostages.

There are alternatives to engaging in sustained urban combat. A city can be taken, and enemy forces hiding inside can be destroyed, without sending combat units to fight their way through the city. Instead of conquering a city, U.S. forces could simply surround it and establish a loose cordon. In this plan, utilities could be selectively turned on and shut off to encourage rebellion and desertion from the city. Civilians would be allowed to leave the city through designated checkpoints at which they would be identified, disarmed, and then moved to a temporary holding camp. There they would be fed and given shelter until the enemy had surrendered and they could return to their homes.[27]

This alternative has its drawbacks. Enemy forces could punish the city's civilian population, and they might be able to hold out in the city for a long period of time, even after water and power has been shut off. This strategy is not ideal, but compared with the alternative of sustaining hundreds or thousands of U.S. casualties in an attempt to seize the city, this less-than-ideal strategy is appealing. It is easy to think of scenarios in which U.S. decision makers would prefer to drive enemy forces out of a city quickly -- to prevent the enemy from destroying the city's infrastructure, for example -- but it is hard to think of scenarios in which the need to drive them out quickly will justify the costs and collateral damage of sustained urban combat.

In sum, there are good alternatives to policing missions, to sustained urban combat, and to some raids. Policing missions may be the easiest type of urban operation, but their objectives can usually be met more efficiently without urban operations. Sustained urban combat is so costly that even less-than-ideal alternatives will almost always be preferable. There are also good alternatives to the most dangerous types of raid missions -- counter-WMD -- and in some circumstances there are good alternatives to airfield- and port-seizure operations. The raids which offer the worst set of alternatives are embassy evacuation (the easiest raids) and hostage rescue (harder missions).

Table 2: The Risks and Alternatives of Different Urban Missions

Type	Military Risks	Success Depends On...	Difficulties	Alternatives	Makes Sense?
Policing Operations	low	force protection	relatively easy	non-military humanitarian aid	No; US can accomplish more with non-military efforts
Raids					
evacuation of embassies	med -	surprise, light defenses	relatively easy	none	Yes
seize ports and	med	surprise, light defenses	if lightly defended,	use other facilities	Sometimes

airfields			easy to med		
counter WMD	high	surprise, very good intel, light defenses	high	restrict tech. transfer, deter	No; mission is risky, alternatives are good
seize enemy leaders	low to high	?	intel is hard, operation at site, easy to very high	?	?
Sustained Urban Combat	very high	US tolerance for American, civilian casualties	very high	loose cordon	No; mission is very costly, alternatives are good enough

Preparing For Future Operations in Urban Terrain

The United States Army and Marine Corps are equipping and training U.S. troops for urban operations. Their new focus on urban operations is warranted. The U.S. military is likely to spend far more time in the next decade engaged in urban operations than destroying armored formations in open terrain. But what type of operations should they prepare for?

This paper argues that U.S. military forces should be prepared to conduct embassy evacuations and hostage rescue missions in urban areas. They should also prepare for policing operations. Although policing missions are rarely in America's interests -- our humanitarian goals can be achieved more effectively with less risk to U.S. soldiers through non-military alternatives -- this mission continues to be common. Until this pattern changes, U.S. troops should prepare for urban policing missions.

There are not good reasons, on the other hand, for preparing U.S. forces to engage in sustained urban combat. The United States has not sent troops into sustained urban combat for thirty years, and it is difficult to imagine future scenarios that would justify the substantial costs which these missions entail. There are other ways of disarming enemy forces who have entrenched themselves in a city. Although these alternatives are not ideal, they are far better than the likely consequences of sustained urban combat.

Footnotes

1. The last case of sustained urban combat for the US military was the battle to retake Hue from the North Vietnamese in 1968. See Keith William Nolan, *Battle for Hue: Tet, 1968* (Novato, Calif: Presidio Press, 1996). Return to Text

2. Marine Corps Warfighting Laboratory, Urban Warrior: Conceptual Experimental Framework, (Quantico, Virginia: United States Marine Corps, 1998), p. 2. Return to Text

3. An exception might be oil. It might be possible in Saudi Arabia, for example, to control the extraction of oil from the ground and the transport of oil to shipping terminals without controlliing any major urban areas. Return to Text

4. Harvey M. Sapolsky and Jeremy Shapiro, "Casualties, Technology, and America's Future Wars," *Parameters*, Vol. XXVI, No. 2 (Summer 1996), pp. 119 - 127. Return to Text

5. In the Gulf War, American armored vehicles and helicopters frequently engaged Iraqi ground forces from outside the range of Iraq's Russian-made weapon systems. Return to Text

6. For a vivid description of the Chechen ambushes, see Carlotta Gall and Thomas de Waal, *Chechnya: Calamity in the Caucuses* (New York: New York University Press, 1998). Return to Text

7. This section is based on the presentations at the Security Studies Program's conference on urban warfare on May 20, 1998. Return to Text

8. MILES is a set of lasers and laser sensors that is affixed to weapons and personnel to create realistic training exercises. When soldiers fire their weapons, a laser is emitted instead of a round of ammunition. If the laser hits a sensor on antoher soldier or a vehicle, a computer determines whether that weapon is capable of killing that target. If the target is determined to be killed, a signal notifies the target that it has been eliminated from the exercise. Return to Text

9. Currently, however, these radios are too expensive to distribute below the platoon level. Return to Text

10. The main hurdles to overcome, however, will probably not be the precision of the weapon by the difficulty of locating and identifying enemy infantry at sufficient range to call in artillery or airstrikes. When the positions of enemy forces, friendly units, and non-combatants are unknown, or when enemy forces are intermingled with non-combatants or friendly forces, the utility of stand-off weapons will remain very limited. Return to Text

11. Foreign policy analysts sometimes worry about the risks that a policing mission could become a Vietnam-like quagmire. But America's casualty sensitivity places an upper limit on the military costs that one of these missions could incur. Policing missions can, therefore, easily result in *political* failures, but they do not pose great military risks. Return to Text

12. Maintaining one division deployed overseas usually ties up three divisions for the length of the deploment. At any given time one division is deployed, one division is

recovering from deployment, and one division is preparing to deploy. See James Quinlivan, "Force Requirements for Stability Operations," *Parameters*, Vol. XXV, No. 4 (Winter 1995), pp. 59 - 69. Return to Text

13. Embassies, airfields, port facilities and WMD sites are frequently located in or near major urban areas. Port facilities and nuclear sites may be located in more-remote industrial parks, but these pose many of the same problems for U.S. forces as urban areas. Return to Text

14. Raids designed to seize airfields or port facilities may not involve extraction of US forces because the raiding party may become an element of the main force. Return to Text

15. US Rangers and Delta Force soldiers were delayed when two Blackhawk helicopters were shot down. US forces moved to secure the wreckage and could not be located by the extraction force. Furthermore, the humvees and trucks sent to extract the soldiers took withering machine gun and RPG fire. Most of the eighteen US fatalities in this raid occurred during the fifteen hours in which the raiding party waited to be extracted. See Mark Bowden, *Black Hawk Down: A Story of Modern War* (New York: Grove Atlantic Press, forthcoming March 1999). Return to Text

16. Furthermore, because many biological agents are lethal in very small doses (they are lethan in much smaller doses than most chemical weapons) a dangerous bio-weapon arsenal does not require large amounts of biological agent. This means that manufacturing facilities can be small and dispersed, making them much harder to detect. Return to Text

17. New excavation technology may be encouraging America's adversaries to protect and conceal WMD facilities by burying them. See Michael Wines, "US Hints at Chemical Arms Bunker in Libya," New York Times, March 7, 1991, section A, p. 13; Jim Mann, "Problems May Doom US Pact with N. Korea," Los Angeles Times, November 22, 1998, part A, p. 1. Return to Text

18. See Thomas A. Keaney and Eliot A. Cohen, *Gulf War Air Power Survey: Summary Report* (Washington, DC: Office of the Secretary of the Air Force, 1993), pp. 78 - 79. During the Gulf War air campaign, American military planners had identified two Iraqi nuclear sites. After the war, United Nations observers on the ground in Iraq discovered sixteen main facilities and other smaller sites. Return to Text

19. See Bowden, *Black Hawk Down*. The US lost 18 soldiers in the battle. Approximately 500 Somalis were killed. The exchange ratio is, therefore, about 25:1. Return to Text

20. William Booth and James Rupert, "Marines Kill Nine Haitians in Battle at Police Station," Washington Post, September 25, 1994, p. A1. Return to Text

21. Only 65 police officcers were killed by criminals in the United States in 1997; over 350,000 criminals were arrested in urban areas for murder, forcible rape, aggravated assault, and armed robbery. See Criminal Justice Information Services Division, "Law Enforcement Officers Killed and Assaulted, 1997," Federal Bureau of Investigation, pp. 21, 29; Criminal Justice Information Services Division, "Crime in the United States, 1997," Federal Bureau of Investigation, p. 243. Both documents are available on the FBI web site at http://www.fbi.gov/ucr/ucreports.htm. Return to Text

22. Trevor N. Dupuy, *Elusive Victory: The Arab-Israeli Wars, 1947 - 1974* (Fairfax, Virginia: Hero Books, 1984), pp. 293 - 305 for the length of the attack and the number of casualties on both sides. The number of Jordanians killed is estimated using the table on page 333. Return to Text

23. Nolan, *Battle for Hue*, pp. 184 - 85. Return to Text

24. Stephen T. Hosmer, *Psychological Effects of U.S. Air Operations in Four Wars 1941 - 1991: Lessons for U.S. Commanders* (Santa Monica, Calif: RAND Corporation, 1996) pp. 155. Return to Text

25. Thomas G. Weiss, "A Research Note about Military-Civilian Humanitarianism: More Questions than Answers," *Disasters* Vol. 21, No. 2 (Month 1997), pp. 111. Return to Text

26. Some foreign policy analysts question the utility of deterrence in the post-Cold War World because America's future enemies may be dictators who care little about the fortunes of their people or religious zealots who fear no earthly punishment. Theses worries, however, do not seem to find support in the history of WMD use and non-use. State actors, at least, seem to be deterrable through traditional deterrent strategies and threats. Return to Text

27. Major General Robert H. Scales, Jr., "The Indirect Approach," *Armed Forces Journal International*, October 1998, pp. 68 - 75. Return to Text