

CHAPTER 2

URBAN ANALYSIS

Intelligence preparation of the battlefield (IPB) is key to all operations conducted in built-up areas—intelligence is an important part of every combat decision. To succeed as fighters in built-up areas, commanders and leaders must know the nature of built-up areas. They must analyze its effect on both enemy and friendly forces. The focus of the material presented in this chapter will be on those issues of urban analysis that commanders and their staffs must be aware of before conducting the IPB process. (For a detailed explanation of IPB in the urban battle, see FM 34-130.)

Section I. MODELS OF BUILT-UP AREAS

Each model of an urban area has distinctive characteristics. Most urban areas resemble the generalized model shown in Figure 2-1.

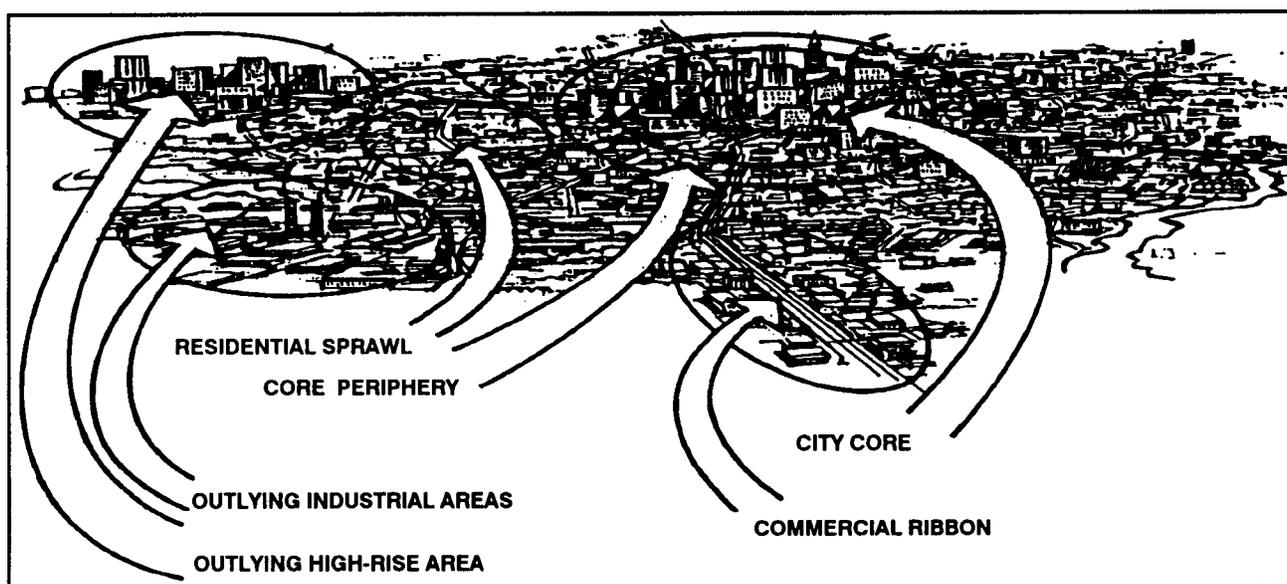


Figure 2-1. Typical urban area.

2-1. REGIONAL URBAN CHARACTERISTICS

Cities of the world are characterized by density of construction and population, street patterns, compartmentalization, affluent and poor sections, modernization, and presence of utility systems. The differences in built-up areas are in size, level of development, and style.

a. Due to colonization, most major cities throughout the world have European characteristics. They have combination street patterns, distinct economic and ethnic sections, and areas known as shanty towns. All of which present obstacles to vehicles. Also, concrete and steel high-rise structures hinder wall breaching and limit radio communications.

b. Variations in cities are caused mainly by differences in economic development and cultural needs. Developed and developing countries differ more in degree and style rather than in structure and function. Major

urban trends are: high-rise apartments, reinforced concrete construction, truck-related industrial storage, shopping centers, detached buildings, suburbs at outer edges, and apartment complexes.

c. The spatial expanse of cities throughout the world in the last three decades presents problems for MOUT. The increased use of reinforced concrete framed construction is only one example of the trend to use lighter construction, which affects how forces will attack or defend such an area. Another example is the growing apartment complexes, shopping centers, and truck-related industrial storage that lie on the outskirts of towns and cities. This change in style causes offensive action to be more difficult and enhances the defense of such an area.

2-2. SPECIFIC CHARACTERISTICS OF URBAN AREAS

A summary of regional urban characteristics is as follows:

a. **Middle East and North Africa.** All nations in the region can be reached by sea and urbanization rates are high. This region has long, hot, dry summers and mild winters, making life outside cities difficult. In spite of its vast deserts, greater urban congestion has resulted. Ancient cities have expanded into their current metropolises, and many new cities have been created because of the petroleum industry (mainly in the Persian Gulf). European influence and petroleum revenues have resulted in urban centers with modern sections of multistory buildings.

b. **Latin America.** Most urban centers can be reached by sea with many capitals serving as ports. This is a region that has mainly a tropical climate. It has a strong Spanish influence characterized by broad avenues that radiate outward from a central plaza with a large church and town hall. Upper and middle class sections combine with the urban centers, while the lower class sections are located farther out. The poor sections are located in slums at the outer edges of the city.

c. **Far East.** Except for Mongolia, all nations in this region can be reached by sea. Urbanization is dense, especially in coastal cities where modern commercial centers are surrounded by vast industrial developments and residential districts.

d. **South Asia.** This region has great European influence with wide busy streets that are overcrowded. Urban centers may be composed mainly of poorer native sections with few or no public services and alleys no more than a yard wide.

e. **Southeast Asia.** This region also has strong European influences with all capitals and major cities serving as seaports. Urban centers contain both the older, high-density native quarters with temples or religious shrines, and modern sections with boulevards, parks, and warehouses.

f. **Sub-Sahara Africa.** In contrast to other regions, this region cannot be accessed by sea and has impassable terrain. Except for a few kingdoms, towns did not exist before the arrival of the Europeans. As a result, urban areas are relatively modern and without "an old quarter," although many do have shanty towns.

2-3. CHARACTERISTICS OF URBAN AREAS

Atypical urban area consists of the city core, commercial ribbon, core periphery, residential sprawl, outlying industrial areas, and outlying high-rise areas.

a. In most cities, the core has undergone more recent development than the core periphery. As a result, the two regions are often quite different. Typical city cores of today are made up of high-rise buildings, which vary greatly in height. Modern planning for built-up areas allows for more open spaces between buildings than in old city cores or in core peripheries. Outlying high-rise areas are dominated by this open construction style more than city cores (Figures 2-2 and 2-3).

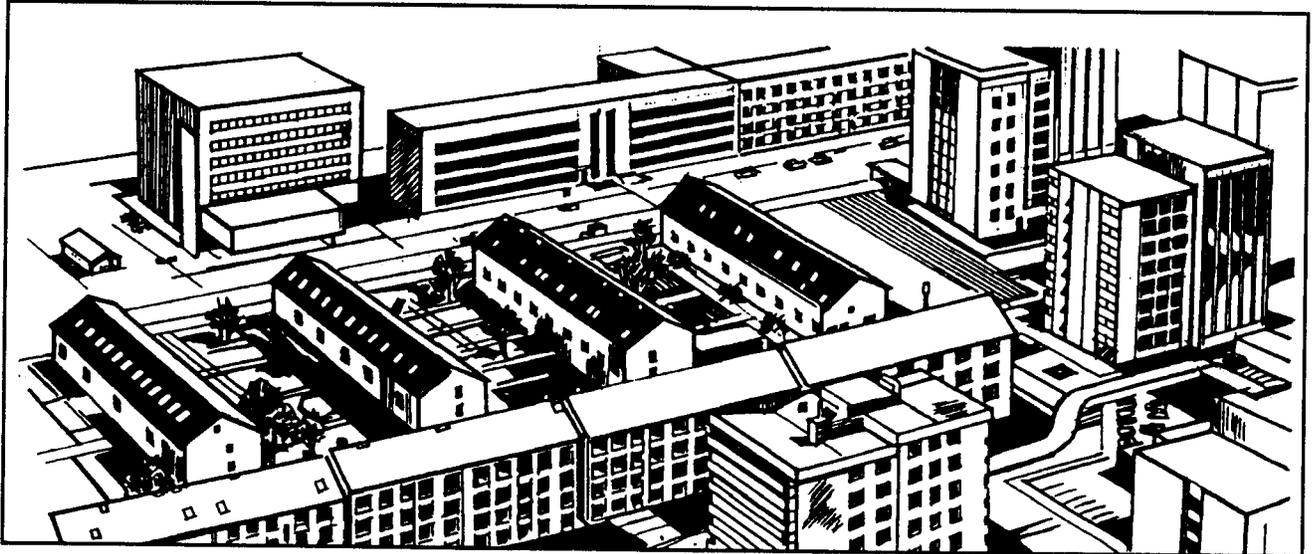


Figure 2-2. City core.

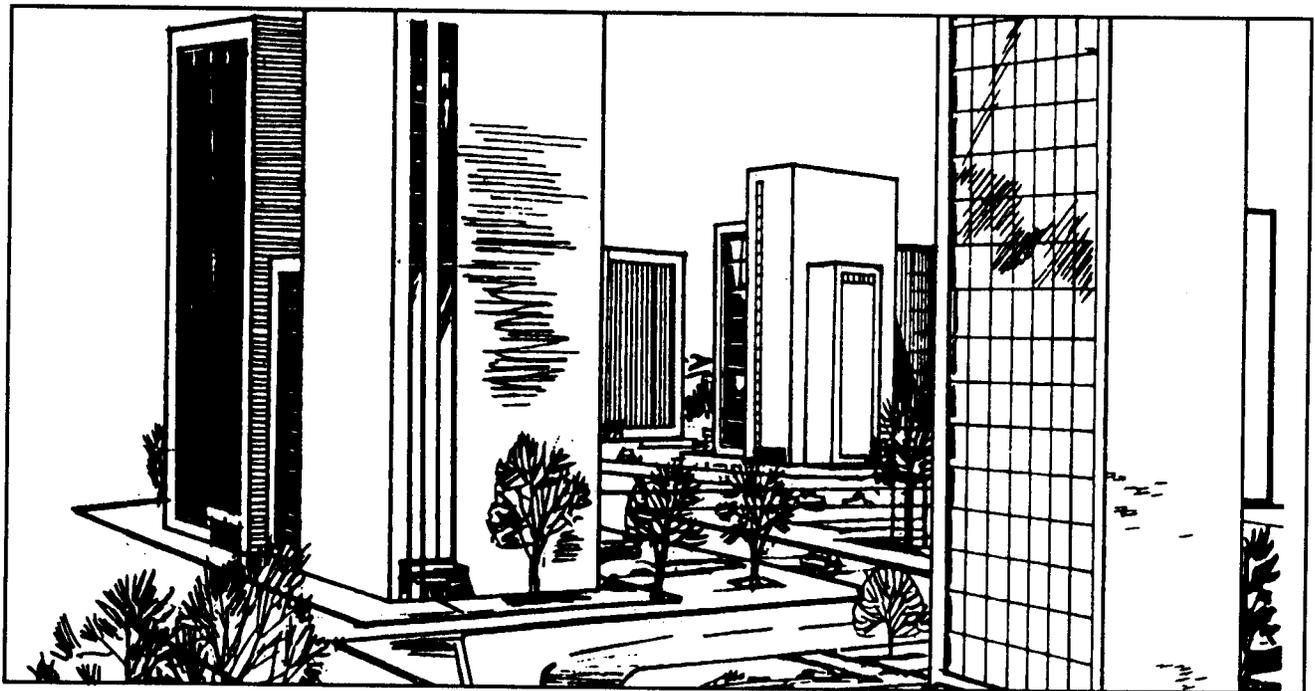


Figure 2-3. Outlying high-rise area.

b. Commercial ribbons are rows of stores, shops, and restaurants that are built along both sides of major streets through built-up areas. Usually, such streets are 25 meters wide or more. The buildings are uniformly two to three stories tall—about one story taller than the dwellings on the streets behind them (Figure 2-4).



Figure 2-4. Commercial ribbons.

c. The core periphery consists of streets 12 to 20 meters wide with continuous fronts of brick or concrete buildings. The building heights are fairly uniform—2 or 3 stories in small towns, 5 to 10 stories in large cities (Figure 2-5).

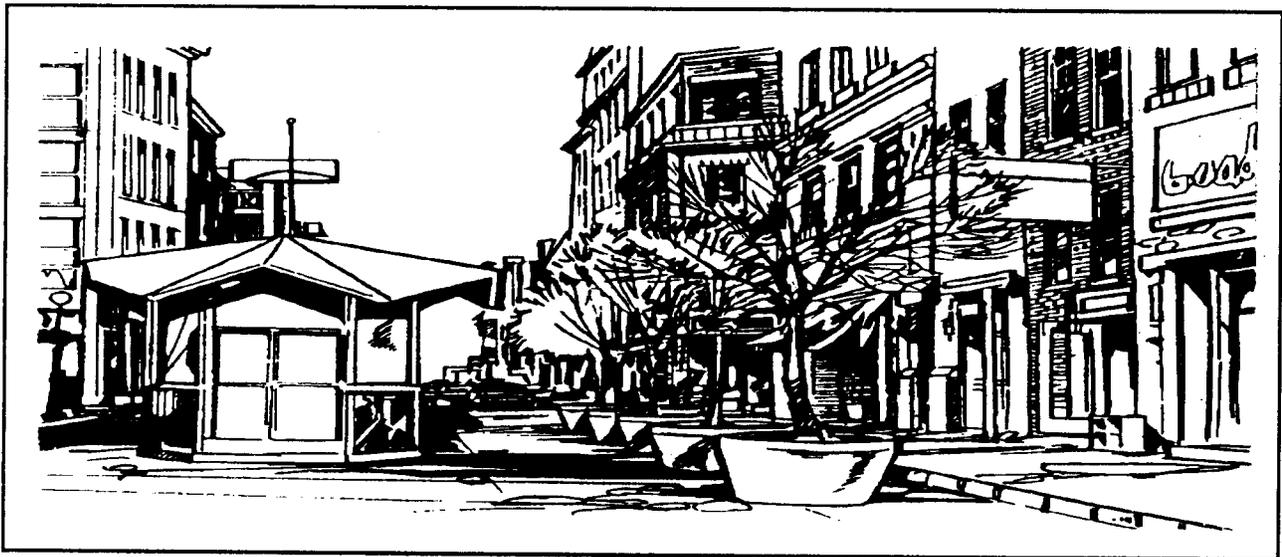


Figure 2-5. Core periphery.

d. Residential sprawl and outlying industrial areas consist of low buildings that are 1 to 3 stories tall. Buildings are detached and arranged in irregular patterns along the streets with many open areas (Figures 2-6 and 2-7).



Figure 2-6. Residential sprawl.

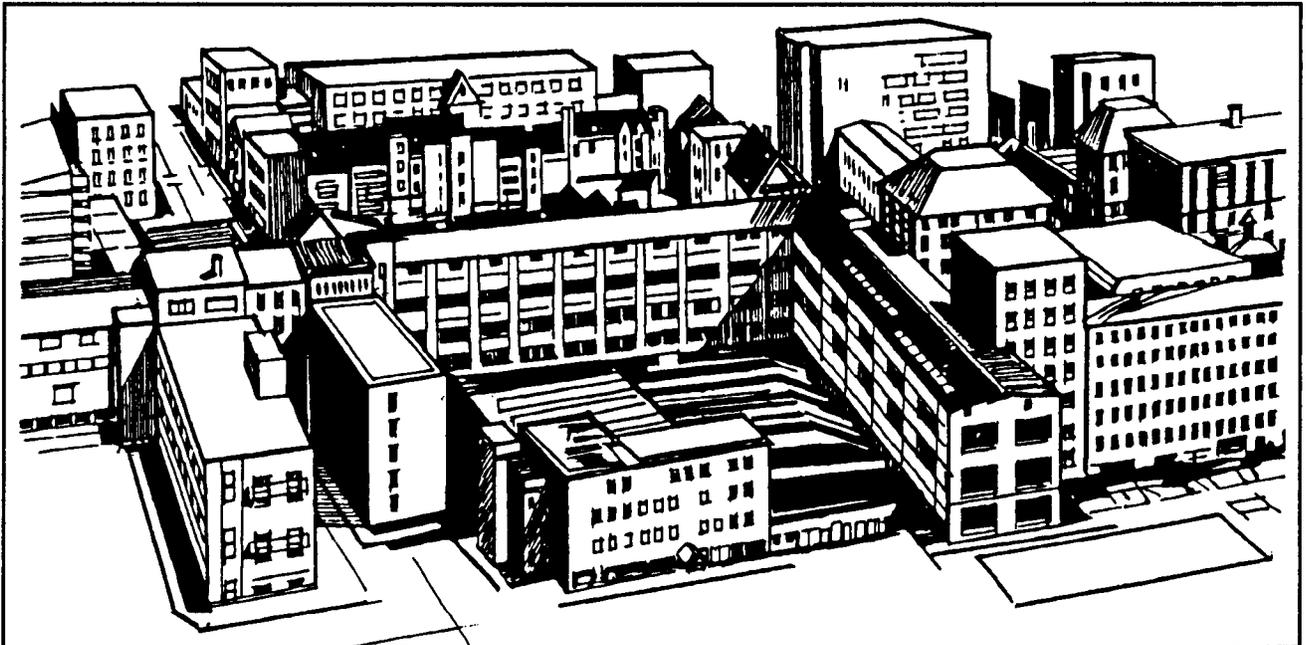


Figure 2-7. Outlying industrial areas.

Section II. TERRAIN AND WEATHER ANALYSIS

Terrain analysis for urban combat differs significantly from that of open country, whereas a weather analysis does not. Although special considerations peculiar to the urban environment must be considered, a weather analysis for urban combat is mostly the same as for other operations. (See Appendix H for more detailed information.)

2-4. SPECIAL TERRAIN CONSIDERATIONS

Several special considerations have implications in a terrain analysis and must be considered when developing the tactical plan for combat. Special terrain products must be developed to include specialized overlays, maps, and plans augmented by vertical or hand-held imagery. The depiction of GO, SLOW-GO, NO-GO, obstacles, avenues of approach, key terrain, observation and fields of fire, and cover and concealment must focus on the terrain analysis.

a. Military maps, normally the basic tactical terrain analysis tool, do not provide sufficient detail for a terrain analysis in built-up areas. Due to growth, towns and cities are constantly adding new structures and demolishing existing ones. Therefore, any map of a built-up area, including city maps or plans published by the city, state, or national government, will be inaccurate and obsolete.

b. The nature of combat can radically alter the terrain in a built-up area in a short period. Incidental or intentional demolition of structures can change the topography of an area and destroy reference points, create obstacles to mobility, and provide additional defensive positions for defenders.

c. Maps and diagrams of sewer systems, subway systems, underground water systems, elevated railways, mass transit routes, fuel and gas supply and storage facilities, electric power stations and emergency systems, and mass communications facilities (radio, telephone) are of key importance during urban operations. Sewer and subway systems provide covered infiltration and small-unit approach routes. Elevated railways and mass transit routes provide mobility between city sectors, and point to locations where obstacles might be expected. Utility facilities are key targets for insurgents, guerrillas, and terrorists, and their destruction can hinder the capabilities of a defending force.

d. Certain public buildings must be identified during the terrain-analysis phase of an IPB. Hospitals, clinics, and surgical facilities are critical because the laws of war prohibit their attack when not being used for military purposes other than medical support. As command and control breaks down during urban operations, hospitals become an important source of medical support to combat forces. The locations of civil defense, air raid shelters, and food supplies are critical in dealing with civilian affairs. The same is true during insurgency, guerrilla, or terrorist actions.

e. Stadiums, parks, sports fields, and school playgrounds are of high interest during both conventional and unconventional operations in built-up areas. They provide civilian holding areas, interrogation centers, insurgent segregation areas, and prisoner of war holding facilities. These open areas also provide helicopter landing sites. They provide logistic support areas and offer air resupply possibilities because they are often centrally located within a city or city district.

f. Construction sites and commercial operations, such as lumberyards, brickyards, steelyards, and railroad maintenance yards, serve as primary sources of obstacle and barrier construction materials when rubble is not present or is insufficient. They can also provide engineers with materials to strengthen existing rubble obstacles or with materials for antitank hedgehogs or crib-type roadblocks.

g. Roads, rivers, streams, and bridges provide high-speed avenues of movement. They also provide supporting engineer units locations to analyze demolition targets and to estimate requirements for explosives.

h. Public baths, swimming facilities, and cisterns are useful in providing bathing facilities. They also provide an alternate water source when public utilities break down.

i. A close liaison and working relationship should be developed with local government officials and military forces. In addition to information on items of special interest, they may provide information on the population, size, and density of the built-up area; fire fighting capabilities; the location of hazardous materials; police and security capabilities; civil evacuation plans; and key public buildings. They may also provide English translators, if needed.

2-5. SPECIAL WEATHER CONSIDERATIONS

Some weather effects peculiar to an urban environment are discussed herein.

a. Rain or melting snow often floods basements and subway systems. This is especially true when automatic pumping facilities that normally handle rising water levels are deprived of power. Rain also makes storm and other sewer systems hazardous or impassable. Chemical agents are washed into underground systems by precipitation. As a result, these systems contain agent concentrations much higher than surface areas and become contaminated "hot spots." These effects become more pronounced as agents are absorbed by brick or unsealed concrete sewer walls.

b. Many major cities are located along canals or rivers, which often creates a potential for fog in the low-lying areas. Industrial and transportation areas are the most affected by fog due to their proximity to waterways.

c. Air inversion layers are common over cities, especially cities located in low-lying "bowls" or in river valleys. Inversion layers trap dust, chemical agents, and other pollutants, reducing visibility, and often creating a greenhouse effect, which causes a rise in ground and air temperature.

d. The heating of buildings during the winter and the reflection and absorption of summer heat make built-up areas warmer than surrounding open areas during both summer and winter. This difference can be as great as 10 to 20 degrees, and can add to the already high logistics requirements of urban combat.

e. Wind chill is not as pronounced in built-up areas. However, the configuration of streets, especially in closed-orderly block and high-rise areas, can cause wind canalization. This increases the effects of the wind on streets that parallel the wind direction, while cross-streets remain relatively well protected.

f. Light data have special significance during urban operations. Night and periods of reduced visibility favor surprise, infiltration, detailed reconnaissance, attacks across open areas, seizure of defended strongpoints, and

reduction of defended obstacles. However, the difficulties of night navigation in restrictive terrain, without reference points and near the enemy, forces reliance on simple maneuver plans with easily recognizable objectives.

Section III. THREAT EVALUATION AND INTEGRATION

Threat evaluation for urban combat uses a three-step process: developing a threat data base, determining enemy capabilities, and developing a doctrinal template file as threat evaluation for open terrain. Due to the unique aspects of urban combat, certain operational factors and future threat capabilities must be recognized. These factors must be considered before preparing the required templates during threat integration of the IPB process.

2-6. OPERATIONAL FACTORS

The basic tenets of AirLand Battle doctrine are the rapid deployment and employment of US forces across the operational spectrum to achieve national and strategic objectives. This doctrinal concept, and recent changes in the international security environment, presupposes the increasing chance of conflict with regional threats. These conflicts will be with the conventional forces of one or more Third World nations, to include the possibility of a regional war or, at the lower end of the operational spectrum, combat operations against insurgent forces. Because of the political and socioeconomic structures within the Third World, urban combat will be a greater probability in the future.

a. Most regular armies emphasize managing combined arms operations in built-up areas. Among the conventional force structures, the poorer the nation, the less likely it is to field, maneuver, and sustain forces beyond logistic centers. Also, the extreme environment in some regions restricts operations beyond urban centers.

b. Urban structural characteristics are shaped by social, cultural, and economic factors. These elements are the prime reasons that MOU doctrine and tactics differ between nations. Coupled with the restrictive nature of urban combat, the differences in tactics may be superficial. More than any other factor, the advent of high technology, precision weapons has enabled nations to modify and update their MOU doctrine and tactics. Research has revealed many factors to consider in the planning and execution of MOU. Some key factors are—

(1) Urban combat is only combat in different terrain. Urban combat consumes time. A well-planned defense, even if cut off or lacking in air, armor, or artillery weapons, can consume a great deal of an attacker's time.

(2) The ability to control military operations in highly decentralized circumstances remains the priority for both attacker and defender. Personnel training and motivation continue to be as important as equipment or force balance factors.

(3) The required size of the attacking force depends on the quality of intelligence, degree of surprise, and degree of superior firepower the attacker can achieve rather than the degree of sophistication with which the defender has prepared the city.

(4) The degree of a defender's resistance depends on whether or not he is separated from the local population, is wholly or partly cut off from external support, or has effective communication systems.

(5) The belief that armor has no role in city fighting is wrong. Tanks and APCs have proven vital to the attacker inside the city as long as they are protected by dismounted infantry.

(6) If the attacker is subject to any constraints, the defender has a good chance of winning or prolonging the battle, thus raising the cost for the attacker.

(7) The defender has three tactical options: defense in depth, key sector defense, and mobile defense. Defense in depth suggests an outer and inner defense combination; key sector defense means strongpoint defense of vital positions, mainly those controlling major avenues of approach; and mobile defense is based on counterattacks. These are not mutually exclusive options.

(8) Exfiltration and movement within a city by small groups are easy at night.

(9) The prevention of the reentry of cleared buildings by the enemy will be a significant challenge to both the attacker and defender.

(10) Mortars may be used more heavily than other artillery in MOUT due to their immediate response and high-angle fire capabilities.

(11) The employment of snipers in urban combat can prove to be extremely effective for both the attacker and defender. Snipers are usually found two to three stories below the top floor in high buildings.

(12) Ammunition consumption is five to ten times greater in urban environments than infield environments. (See Chapter 7 for more information.)

2-7. URBAN COUNTERINSURGENCY, COUNTERGUERRILLA, AND COUNTERTERRORIST OPERATIONS

During urban counterinsurgency, counter guerrilla, and counterterrorist operations, threat evaluation is similar to that for low-intensity conflict. When conducting these operations, the five low-intensity imperatives (political dominance, unity of effort, adaptability, legitimacy, and perseverance) must be followed. (See FM 7-98 for more information.)

a. Population status overlays are prepared for the city, showing potential neighborhoods or districts where a hostile population could be encountered. Overlays are also prepared showing insurgent or terrorist safe houses, headquarters, known operating areas, contact points, and weapons supply sources. These overlays must include buildings that are known, or could become, explosives, ammunition, or weapons storage sites.

b. Underground routes are of primary concern when considering insurgent and terrorist avenues of approach and lines of communications. Sewers, subways, tunnels, cisterns, and basements provide mobility, concealment, cover, and storage sites for insurgents and terrorists. Elevated railways, pedestrian overpasses, rooftops, fire escapes, balconies, and access ladders provide mobility and concealment, and can serve as relatively good fighting or sniper positions.

c. Although doctrinal templates are not developed for urban insurgency and terrorist operations, pattern analysis reveals how the insurgent or terrorist group operates, and what its primary targets are. Once the group's method of operation is determined, insurgent situation maps can be developed. These maps pinpoint likely sabotage targets, kidnap or assassination targets, ambush points, and bombing targets. When developing these maps, electric power generation and transmission facilities, gas production and

holding facilities, water and sewer pumping and treatment plants, telephone exchanges and facilities, and radio and television stations should be considered as primary insurgent and terrorist targets.

d. If the enemy has, for whatever reason, become intermingled with the population, a greater degree of control is required for military operations. While detection is more difficult, the enemy forces operating without uniforms share some common characteristics with guerrillas, insurgents, and terrorists.

(1) As with any operation of this type, intelligence, rather than force, plays the dominant role. Known members of the armed forces, their auxiliaries, and the underground must be identified and arrested and or removed from the populace. Use of minimum force is critical. As a last resort, cordon and search into suspected or known hostile areas may be used. This is the least preferred method since it will cause moderate to severe casualties for both the friendly forces and the local civilian population.

(2) The local population's support to the enemy may be either forced or given willingly. In either case, an effort must be made to separate the enemy from the local population base. A population can be forced into giving support by a combination of terrorism (either by coercion or intimidation) and harassment. The friendly force commander must be observant and sensitive to the local populations concerns before the population may be willing to help the friendly forces.

(3) Logistical support will be in smaller packages. The enemy must rely on the local population to support the distribution of logistics so that identification and destruction of the logistics base is more difficult. To curb resupply operations totally, the friendly forces would have to stop all movement within the built-up area. For obvious reasons, this is not an option. Therefore, a priority for intelligence should be to identify and destroy the enemy's logistics base.

(4) Soldiers must remember the political and psychological impact of their actions if they use force. The local population may be neutral or have luke-warm support for the friendly forces, but excessive use of force will cause the local civilians to support the enemy. Of special concern is the media (newspapers, television, magazines, and so forth). Due to the large numbers of journalists and amateur and or professional photographers in built-up areas, any negative images of friendly forces will probably be published. This negative publicity could have a serious adverse effect on both civilian opinion and United States political interests. Conversely, positive publicity can greatly enhance friendly operations and morale. This also can sway the local population away from the enemy. Therefore, all media members should be accompanied.

(5) While not officially part of doctrine, infantry forces have historically been used as a part of the effort to separate the enemy from the local civilian populace. Some units may be detailed to provide civil services such as law enforcement patrols, trash pick-up, and or the restoration and maintenance of power, telephone, and water services.

2-8. PROJECTED THREAT CAPABILITIES

The wealth of some Third World nations will be used to modernize their armed forces through the acquisition of new technologies. Future conflicts

may be against Third World forces armed better than or equal to US weapon systems. Projected future threat force capabilities are—

- New munitions such as fuel air explosives (FAE), enhanced blast, intense light, and other improved ballistic technologies.
- Systems with interchangeable warheads, some designed for MOUT combat.
- Precision-guided munitions.
- Robotics.
- Day or night target acquisition systems.
- Elevated gun systems.
- Improved engineering abilities to breach or emplace obstacles.
- Soft-launch hand-held AT and flame weapons.
- Nonlethal incapacitating chemical or biological agents by conventional forces.
- Lethal chemical or biological agents by insurgent forces.
- Improved self-protection (body armor).
- Improved communications.