ATP 3-06.11

BRIGADE COMBAT TEAM URBAN OPERATIONS

SEPTEMBER 2024

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BRIGADE COMBAT TEAM URBAN OPERATIONS

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Preface

ATP 3-06.11 provides doctrine on combined arms missions, tasks, and activities executed by brigade combat teams, their subordinate and supporting elements, and associated enablers in the urban environment. This publication provides commanders and staffs with the doctrine needed to conduct urban operations.

The principal audiences for ATP 3-06.11 are maneuver commanders, staffs, and subordinate leaders responsible for planning, preparing, executing, and assessing operations of brigade combat teams and their subordinate and supporting elements. Trainers and educators throughout the Army will also use this publication.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with applicable United States, international, and in some cases host-nation laws and regulations. Commanders at all levels ensure that their Soldiers operate in accordance with the law of armed conflict and the rules of engagement (see FM 6-27 for additional information). This publication contains copyrighted material.

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ATP 3-06.11 applies to the Active Army, Army National Guard/Army National Guard of the United States, and United States Army Reserve unless otherwise stated.

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Introduction

ATP 3-06.11 provides brigade combat teams and subordinate commanders and staffs specific information and techniques they will need to conduct large scale combat operations within the urban environment. Urban operations are those operations across the range of military operations planned and conducted on or against objectives on a topographical complex and its adjacent natural terrain where man-made construction or the density of population are the dominant features (see ATP 3-06). Most urban operations are planned and controlled at the division or corps level, but urban operations are executed by brigade combat teams. They are among the most complex and challenging missions a brigade combat team can undertake.

The chapters are organized by topic and have been updated to reflect changes to Army doctrine. This publication reflects changes in ADP 3-0, FM 3-0, FM 3-90, FM 3-96, FM 3-98, and ATP 3-06.

The following briefly describes the content of each chapter:

Chapter 1 starts with a description of the urban environment in the context of urban operations. It describes critical tasks that units should integrate into their planning for any urban operation, concludes with a description of potential threats, and highlights how these threats may take advantage of the urban terrain.

Chapter 2 describes effects of the urban environment on commanders' ability to command their formations, control operations, and how to mitigate those challenges through effective task organization and planning.

Chapter 3 describes environmental impacts and execution techniques for offensive operations. It also describes how to employ dismounted and mounted elements as cohesive teams, introduces a sequence for executing an attack that emphasizes condition setting, and isolating enemy forces to minimize risk to the force.

Chapter 4 describes environmental impacts and execution techniques for defensive operations. It also describes considerations for engagement area development and sequencing the defense to provide continuous disruption and defense in depth.

Chapter 5 describes environmental impacts and execution techniques for stability operations. It also describes considerations for applying the stabilization framework to focus stability tasks by echelon to mitigate sources of instability.

Chapter 6 describes techniques for executing tactical enabling operations within urban areas. It incorporates reconnaissance, security, troop movement, relief in place, countermobility, mobility, and tactical deception within urban areas.

Chapter 7 describes environmental impacts and execution techniques for sustaining urban operations. It includes planning considerations for establishing support areas and providing logistics, maintenance, recovery, health service, and personnel service support to urban operations.

Appendix A describes the operational effects of common urban patterns and terrain features to assist with terrain analysis.

Appendix B describes weapon effects on structures and employment considerations for specific weapon systems.

Appendix C describes techniques for clearing buildings as part of a larger urban operation.

Appendix D describes techniques and considerations for employing snipers and countering enemy snipers.

Appendix E describes considerations for responding to and operating within contaminated environments.

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Chapter 1
Understanding Urban Operations

A unit's *operational environment* is the aggregate of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander (JP 3-0). The first of the nine multidomain imperatives requires units, leaders, and Soldiers to "see yourself, see the enemy, and understand the operational environment" (FM 3-0). Operations in urban areas are among the most challenging and complex missions a force can undertake. They span offensive, defensive, and stability operations conducted sequentially or simultaneously within the urban environment. They may be the unit's sole mission or one of several tasks nested within a larger operation or campaign. Units plan and execute urban operations (known as UO) using existing operations structures and framing constructs in accordance with ADP 3-0, ADP 5-0, ADP 6-0, and their supporting publications. This chapter starts with a description of the urban environment in the context of UO, describes critical tasks that units should integrate into their planning for any urban operation, and concludes with a description of potential threat actions within the urban terrain.

SECTION I – URBAN ENVIRONMENT

1-1. Most current U.S. Army doctrine and training focuses on operations in areas dominated by natural terrain. *Urban operations* are operations across the range of military operations planned and conducted on, or against, objectives on a topographical complex and its adjacent natural terrain, where manmade construction or the density of population are the dominant features (ATP 3-06). Units plan and execute UO like any other, but with considerations for specific environmental impacts. Military leaders must still understand the impacts of operations in the domains of air, land, maritime, space, and cyberspace through the physical, informational, and human dimensions. Cities are unique for their density in these three dimensions. This density makes UO inherently complex. Lower echelons may not always notice the opportunities created by higher echelons or other forces that operate primarily in other domains. Leaders must understand how the absence of those opportunities such as Global Positioning System (GPS), satellite communications, and intelligence and reconnaissance affects their concepts of operations, decision-making, and risk assessment (see FM 3-0).

> In the future, I can say with very high degrees of confidence, the American Army is probably going to be fighting in urban areas. We need to man, organize, train, and equip the force for operations in urban areas, highly dense urban areas, and that's a different construct. We're not organized like that right now.
>
> Gen. Mark A. Milley
> Chief of Staff of the Army
> Defense News, 2016

1-2. Units analyze and describe an operational environment in terms of eight interrelated operational variables: political, military, economic, social, information, infrastructure, physical environment, and time (operational variables). Many of these variables have a greater effect on operations in urban areas than in other environments; however, the intensity and types of operations are also relevant. Tactical units conducting high-intensity offensive operations typically rely on the mission variables (mission, enemy, terrain and weather, troops and support available, time available, and civil considerations, each of which have informational considerations [METT-TC (I)]) (see FM 3-0) for planning and will initially be less concerned

about the social or economic aspects of the environment than understanding the military capabilities of potential threats. Once they transition into stability operations, these other variables start having more influence on planning and execution. Units must also include environmental risk assessments in concert with the operational variables and determine the amount of effort to direct at identifying, preventing, and mitigating potential impacts to the environment (see ATP 3-34.5 for information about evaluating the range of environmental media, resources, and programs that may affect the planning and execution of military operations).

1-3. U.S. Army forces commonly serve to preserve political, economic, and military interests by working together with the host nation (HN) and multinationals and combining resources to accomplish common goals and objectives. These alliances, coalitions or partnerships provide a structure to combine national capabilities and resources to restore stability within a region. Multinational partnerships habitually provide foreign humanitarian assistance, disaster relief operations, or mutual security measures to address real or perceived threats from a potential foreign aggression in urban settings. Multinational operations provide the synchronization, coordination, and integration of the activities of governmental and nongovernmental entities with military operations to achieve unity of effort within an urban environment (see FM 3-16).

POLITICAL

1-4. The political variable describes the distribution of responsibility and power at all levels of governance (see ADP 6-0). A single urban area can contain everything from a neighborhood community organization to the city administration to a national seat of power. Within these can be many political parties or factions vying for power and control. In addition to formal government institutions, there can be many groups and individuals applying informal and even covert influence with their own agendas and objectives. In some cases, they may hold more power than official government authorities.

1-5. Understanding the intricacies of the political landscape is less important during high intensity combat; however, the purpose of the urban operation may be to meet a political rather than purely military objective. The longer the operation, the more important understanding and influencing local power players are to achieving operational objectives. In many situations, the government institutions may be non- or only partially functional. Unit leaders may have to perform temporarily in roles for which the local government would normally be responsible. Reestablishing government control over the area may become a critical objective.

MILITARY

1-6. The military variable explores the military and paramilitary capabilities of all relevant actors (enemy, friendly, and neutral) in a given operational environment (see ADP 6-0). These can be the official military and police forces of the local government, a militia, private security, or a homegrown insurgency. Some of these may be under the control of a political organization while others are not. Assessing the capabilities of any element or organization with the power to effect operations through force-of-arms should be a priority for all operations.

1-7. In assessing military capabilities, units should not only address systems and organizations, but also purpose and objectives. These may not always be clear as urban areas can contain many different forces whose ultimate objectives and loyalties are unknown. Units should prioritize information collection to help them understand these groups and their potential impacts on the operation. Circumstances may allow a resourceful commander to turn a potential threat into a powerful ally.

ECONOMIC

1-8. The economic variable encompasses the individual and group behaviors related to producing, distributing, and consuming resources (see ADP 6-0). Economic systems generally have less effect on short duration, high-intensity engagements, but are important for long-term stability. These systems are also among the most delicate, hardest to directly influence, and most heavily affected by disruptions in other systems and the security situation. People who do not feel safe are less likely to leave their homes to go to work or spend money. Most economic systems also depend upon infrastructure and essential services to move, store, and distribute goods. Negative economic shifts tend to have immediate consequences, and negative effects can

combine exponentially. Positive improvements can take a long time to be apparent and may hide further problems. These combine to make economic systems very challenging to control or predict.

SOCIAL

1-9. The social variable describes the cultural, religious, and ethnic makeup within an operational environment and the beliefs, values, customs, and behaviors of society members (see ADP 6-0). UO regularly require military forces to operate among a dense civilian population. Managing people can be very manpower intensive. Operations among larger and denser populations will require more resources regardless of changes in terrain or the size of the enemy force. See appendix A for a way to classify urban areas based on their population size and density.

1-10. Certain societal norms can have a significant effect on any operation. For short-duration, high-intensity operations, the focus should be on minimizing civilian casualties and unnecessary damage. Avoiding conflict near population centers and culturally significant landmarks can help reduce later problems, as can influencing noncombatants to leave dangerous areas. Units that remain in position for longer durations will have more need to understand and directly influence the various groups that reside within their areas of operations.

1-11. While people generally have certain predictable tendencies in terms of their actions and attitudes, individuals and groups can drastically vary. Groups can be formal or informal, and people can create them based on any number of factors including shared beliefs, purpose, occupation, class, interests, history, or cultural identity. Most groups are not mutually exclusive, so a single individual can belong to any number of groups. Individuals within a group will not agree on all things; however, in any group there is something linking all members to the others. Smaller populations tend to be more homogenous, with the number and combinations of groups increasing exponentially as the population increases. It is easier to achieve consensus within more homogenous groups and populations.

1-12. Political, economic, cultural, and religious factors heavily affect groups; however, their specific beliefs, needs, and agendas can be very different. The combination of these will greatly affect how they react to stimulus. Understanding what a group believes, what they require, and what they want to accomplish is critical to predicting their actions and effectively influencing them. While it is easier to work with groups similar to oneself, it can be very dangerous to assume others share one's own cultural norms and values.

1-13. Groups have leaders that provide vision, direction, and organization. They can have a formal hierarchy with individuals filling assigned positions with strict rules and policies. They can also have informal leaders without overt power whom others respect and turn to for advice. Directing efforts towards leaders can be much more effective and efficient than trying to affect the group as a whole; however, it can be difficult to determine who actually has the power and influence over a particular group. Working with the wrong leader can be ineffective and waste resources. It could also exacerbate an unstable situation and undermine the legitimacy of future efforts in the minds of the people.

INFORMATION

1-14. The information variable describes the nature, scope, characteristics, and effects of individuals, organizations, and systems that collect, process, disseminate, or act on information (see ADP 6-0). This crosses over all the other variables, so commanders must think about how the flow of information affects all aspects of the environment. Cities serve as hubs with many ways to access or share information. Trying to control what information gets out is normally not effective or only effective for short periods. Leaders must instead control the narrative by focusing the message and getting it out first using the right media for the audience. Therefore, information analysis must include an assessment of how different groups get their information to determine the best options to monitor, disrupt, or enable the flow of information.

1-15. Just as U.S. Forces are trying to shape the narrative to influence populations, threats are doing the same. Units need to understand the methods and messages that other groups are pushing and assess the effects they are having. Just acting or countering is not enough; units must do both effectively at the same time. Understanding the flow of information to a population will enable units to develop plans, mitigate problems, and predict the results of actions.

INFRASTRUCTURE

1-16. The infrastructure variable is composed of the basic facilities, services, and installations needed for the functioning of a community or society (see ADP 6-0). Urban infrastructure supports urban inhabitants and their economy. They form the essential links between the physical terrain and the urban society. The ability to influence the population is heavily dependent upon the status of supporting infrastructure. Just as urban infrastructure sustains the population, military forces can leverage it to supplement organic capabilities. This can expand operational reach and enable the unit to sustain operations for far longer than normal or for far less cost. This can also cause units to overextend themselves and make them dependent upon that support. A major part of UO involves isolating threats from sources of support while retaining that support for friendly use. Securing, controlling, or destroying critical infrastructure nodes can be decisive in urban combat. To do this effectively, leaders must first understand what these critical nodes are, how to influence them, and how to leverage that influence to achieve operational objectives.

1-17. Urban infrastructure falls within six broad categories: economics and commerce, administration and human services, energy, cultural, transportation and distribution, and communications and information. (see ATP 3-06) Though the many components of each category already form complex systems of systems, the categories themselves can overlap and are interdependent. Major upheaval to one system is likely to resonate throughout, and it may be that the best way to influence a specific system is to affect another in a different category.

ECONOMICS AND COMMERCE

1-18. The economic and commerce category encompasses—

- Business and financial centers to include stores, shops, restaurants, hotels, marketplaces, banks, trading centers, and business offices.
- Recreational facilities such as amusement parks, golf courses, and stadiums.
- Outlying industrial, mineral, and agricultural features to include strip malls, farms, food processing and storage centers, manufacturing plants, mines, and mills.

1-19. Because economic systems are so sensitive, it does not take much to cause a negative shift. Most cities are dependent upon outside goods to survive, so a disruption to the transportation system can have a major impact on commerce. A loss of power makes it difficult for businesses to function. Resource scarcity or a lack of faith in the government can lead to massive inflation. A strained economic system and poor government perception may influence operations in the information environment, creating an opportunity for military forces. Military forces will find it easier to influence economic systems indirectly rather than trying to assume direct control. Though generally not viable for U.S. Forces, adversaries may use local commerce to support operations (trafficking drugs, theft, extortion, or buying or stealing fertilizer for homemade explosives).

ADMINISTRATION AND HUMAN SERVICES

1-20. This wide-ranging category covers urban administrative organizations and service functions concerned with an urban area's public governance, health, safety, and welfare. The administration and human services category encompasses—

- Governmental services including embassies and diplomatic organizations.
- Activities that manage vital records such as birth certificates and deeds.
- The judicial system.
- Hospitals and other medical services and facilities.
- Public housing and shelter.
- Water supply systems.
- Waste and hazardous material storage and processing facilities.
- Emergency and first-responder services such as police, fire, and rescue.
- Prisons.
- Welfare and social service systems.

1-21. Many of the systems within this category provide essential services that have a direct impact on the civilian population. They also tend to have critical nodes that are easily identifiable. Understanding these

systems and the ability to leverage them can greatly aid in gaining influence over the population. Government agencies have offices; however, the people in key positions are far more important than the locations. Their support can greatly aid or hinder UO and is essential for stability. Preserving essential services or quickly restoring them is critical to limiting unnecessary suffering. Functioning emergency services help to mitigate the effects of collateral damage and civilian casualties. It can also accomplish several tasks that would otherwise pull combat power away from other missions. Controlling nodes, like water distribution sites, can enable forces to provide a service for friendly forces and the civilian population while denying it to the enemy. (See ATP 3-34.5 for information about how to protect and manage infrastructure and other essential services through environmental considerations.)

ENERGY

1-22. The energy category covers systems that produce and distribute energy throughout an urban area. This includes the power generation plants, distribution centers, and lines that provide electricity to structures. It also includes the systems that provide fuel for vehicles, heaters, and other requirements. Power plants can be located within the city or some distance away, and the lines that carry electricity to the consumers can be vulnerable to attack. The plants also generally require fuel to operate. The fuel provided for civilian consumption may be suitable for military use, but this is not always the case. Many of the systems in other categories consume energy, so even a limited loss of power can have a significant impact. Energy distribution is an essential service since it is necessary for heating, cooking, and keeping facilities like hospitals operational. (See ATP 3-34.81 for additional information about how to assess energy distribution infrastructure.)

CULTURE

1-23. The cultural category encompasses many organizations and structures that provide the urban populace with its social identity and reflect its culture. These include—

- Religious organizations, places of worship, and shrines.
- Schools and universities.
- Museums and archeological sites.
- Historic monuments.
- Libraries.
- Theaters.

1-24. Destruction of a cultural site can have a strong negative effect on relationships with the local population. Depending on the significance of the site, the negative effect can spread across a region or even to groups across the globe. For this reason and the fact that there is generally no military advantage associated with them, many cultural or religious sites are in a protected status during conflict. Conversely, it is very difficult for a military force to have a positive cultural impact. Cultural change can take a very long time, and many people will take offense to any attempt, especially by someone from a different culture. (See ATP 3-34.5 for more information on the protection of cultural and historical resources, potential impacts of damaging these and other resources, and other environmental considerations.)

TRANSPORTATION AND DISTRIBUTION

1-25. The transportation and distribution category consists of all the means of transporting people and material from one place to another. The systems within this category provide physical links to the systems in other categories. Military forces use and target them more than systems in other categories because they have the most direct effect on military operations. Examples of systems, sites, and structures that fall within this category include—

- Networked highways and railways such as bridges, subways and tunnels, underpasses and overpasses, ferries, and fords.
- Ports, harbors, and inland waterways.
- Airports, seaplane stations, and heliports.
- Mass transit.
- Cableways and tramways.
- Transport companies and delivery services that facilitate the movement of supplies, equipment, and people.

1-26. Transportation systems are how people and products flow into and out of a city. Distribution systems store and move them throughout the city as needed. These systems are multi-modal (using different methods like truck, train, ship, and aircraft) and multi-nodal (using many nodes connected like a spider web). Cities that include major transportation hubs like seaports, airports, and rail terminals become highly contested due to their strategic importance. They provide the ability to project combat power into an assigned area and can be vital to the success of a military campaign.

1-27. Transportation and distribution systems intended for commercial and industrial use are often well suited for military use. They share requirements to move large quantities of heavy, bulky cargo over extended distances and the means to distribute them without creating backlogs. This is not always a smooth transition as standards, such as rail axle width, container sizes, and maximum height, can differ from place to place. Systems intended for other uses may not be strong, large, or durable enough for military vehicles and equipment.

1-28. Seizing transportation and distribution assets for military use can have a significant negative effect on the other systems described above. Destroying them in order to deny support to an enemy can have even more lasting effects. Military forces will not be able to avoid disrupting transportation systems completely. With even the smallest villages, military forces will generally have to use the established roads and trails to get from one location to another. Commanders should always consider what level of disruption is acceptable and if the long-term consequences of an act outweigh the short-term benefits.

COMMUNICATIONS AND INFORMATION

1-29. The communications and information category is composed of facilities as well as formal and informal means to transmit information and data from place to place. It links all the systems in other categories as the functioning of any system requires sharing information between people. These systems control the flow of information to the population, but also potentially the enemy. This category includes—

- Telecommunications, such as telephone (to include wireless), telegraph, radio, television, and computer systems.
- Police, fire, and rescue communications systems.
- Public address, loudspeaker, and emergency alert systems.
- The postal system.
- Newspapers, magazines, billboards and posters, banners, graffiti, and other forms of print media.
- Internet and social media.
- The informal human interaction that conveys information such as messengers, open-air speeches and protests, and everyday conversations.
- Other inventive informal means such as burning tires and honking horns.

1-30. Though not as dependent upon the transportation and distribution systems as some of the other categories, a loss of power can heavily affect communications and information systems. While preventing certain types of communication for a limited time can be very useful for operational security and maintaining surprise, attempting to prevent all communication is doomed to failure. There are simply too many means for people to share information to be able to stop everything. Even stopping a specific medium for an extended period is ineffective as people will find an alternate solution given enough time. It is far more effective to keep disruptions short and focused and use the urban communications infrastructure to supplement military capabilities.

1-31. While military forces can use civilian communications systems to pass information between units, this is generally unwise as the civilian systems are more vulnerable to disruption and intercept by adversaries. A better use is communication with the local people. These civilian systems are often the most effective way to get a specific message to a large percentage of the population quickly. Commanders can use these systems to coordinate, organize, and manage urban activities. Commanders can also use these systems to deceive the public, local government, or threat leaders.

1-32. Monitoring communications systems can be the most effective way to collect information within the urban environment. Commanders can get a feel for the sentiments of the people. Tracking rumors propagated among the population can help a commander anticipate and mitigate problems before they become too large. Threats are also vulnerable to communications intercept if using civilian communications systems. Many modern cities even have camera systems that military forces can use to locate or surveil threats. With so

much information available, the biggest issue for a military commander may be focusing effort on what is most important.

1-33. Social media platforms can be an information source, a targeting resource, and an information operations platform. The volume and speed of social media information is unmatched in the urban environment. Threat forces also use them for direct communication. Private citizens can use them to disseminate recordings of military actions worldwide. Camera phones and wireless internet connections are so pervasive that all Soldiers need to be aware that anything can be recorded and broadcast almost instantaneously. A wrongful act or even the right act taken out of context can have global political consequences.

PHYSICAL ENVIRONMENT

1-34. Urban terrain consists of complex artificial physical terrain superimposed on existing natural terrain. It presents an extraordinary blend of horizontal and vertical surfaces and internal, external, and subterranean spaces superimposed on natural relief, drainage, and vegetation. An urban area can appear small on a two-dimensional map, but with an effective size many times larger due to a prevalence of multi-story buildings and underground structures. Leaders must account not just for the flat surface area of the natural terrain, but also the external surfaces and internal spaces of buildings. Including the rooftop, a four-story building has about five times the defensible area its footprint would suggest (see figure 1-1). See appendix A for descriptions and assessments of the operational impacts of particular urban patterns and terrain features to assist with terrain analysis.

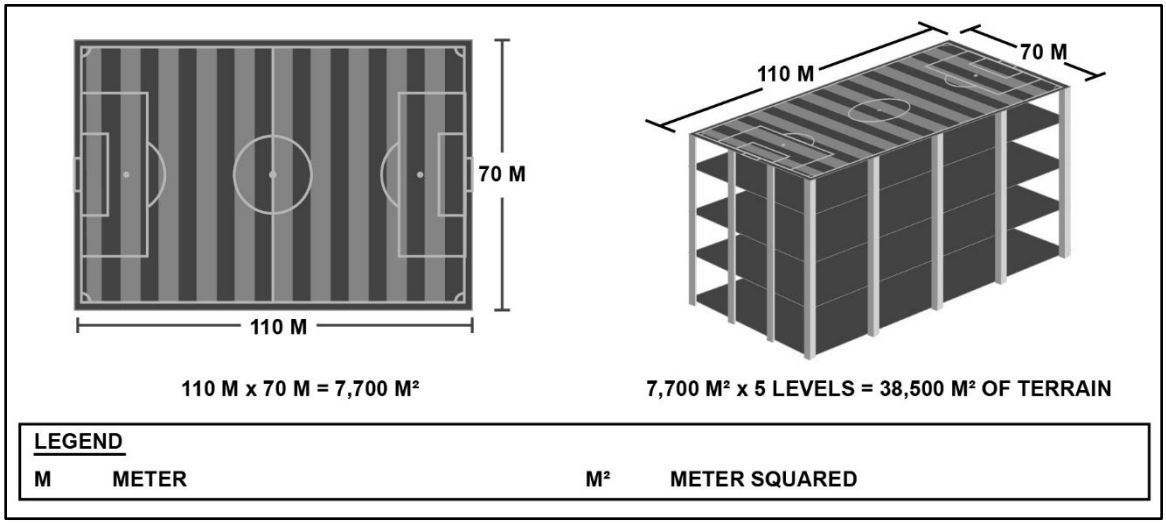

Figure 1-1. Urban environment surface area

SUBTERRANEAN AREAS

1-35. Cities generally have subterranean areas that include basements, underground garages, subways, utility tunnels, sewers, and storm drains. Even smaller towns can have significant sewer and drainage networks. Subterranean areas can—

- Provide covered and concealed locations to stage forces, cache supplies, or protect command posts (CPs).
- Facilitate troop movement that is undetectable from the surface.
  - This can enable forces to attack from unexpected locations or directions.
  - It can also allow a defender to withdraw safely to another position.
- Serve as lines of communications for the movement of forces and supplies, which can aid resupply, reinforcement, and casualty evacuation (CASEVAC).
- Offer the defender a ready-made conduit for communications wire, protecting it from tracked vehicles and indirect fires.

1-36. Knowledge of these underground features is of great value to anyone conducting operations within an urban area. Finding a route that the enemy does not know about can provide a great advantage on the offense or defense. A large route, such as a subway, could become a major avenue of approach for an attack. Even knowing that attack could come from a subterranean area forces the other side to divert resources to mitigate this threat. See ATP 3-21.51 for techniques and considerations for planning and executing in subterranean areas.

CLIMATE

1-37. Urban areas exist in almost every climate, so units can experience a wide range of weather and temperature conditions. In general, these conditions affect the trafficability of urban terrain less than other environments. The materials used to construct structures, roads, and parking areas absorb heat, so urban areas tend to be warmer than the terrain around them. Traveling surfaces like concrete and asphalt remain trafficable even when wet, though they can ice over in cold temperatures. Bridges and other elevated surfaces will generally freeze prior to surfaces in contact with the ground. Underground areas like sewers, tunnels, and basements can flood in heavy rain, or if levels rise, in nearby bodies of water.

TIME

1-38. The time variable describes the timing and duration of activities, events, or conditions within an operational environment. It also describes how the timing and duration are perceived by various actors in the operational environment (see ADP 6-0). The complexity of the urban environment greatly increases the time requirements for most activities and tasks. The actions of other entities, including unified action partners, neutral parties, and the population, can have a greater impact on operations in urban areas. Units need to understand what those actions and activities are and assess how they will affect the timing and sequencing of unit tasks.

SECTION II – FOUNDATIONS OF URBAN OPERATIONS

1-39. UO are inherently risky and require a much larger commitment of forces and resources when compared to operations in other environments. Throughout history military theorists have cautioned commanders to avoid fighting in cities; however, conflicts throughout recorded history have included cities as major operational objectives or even as centers of gravity for entire campaigns. Units should not conduct UO without a thorough risk assessment and analysis of alternatives. Characteristics of the urban environment make any urban operation high-risk, but commanders cannot ignore the potential military, economic, and political advantages of controlling certain cities. Due to the operational and potentially strategic impacts, commanders at echelons above brigade (EAB) will normally make decisions to conduct operations within urban areas (see ATP 3-06 for a more detailed discussion about the factors that influence this decision).

TENETS AND IMPERATIVES

1-40. Tenets and imperatives are used for operations to improve their prospects of success without dictating how exactly to solve a tactical or operational problem. Commanders and staffs will conduct an analysis of the UO, identify strategic impacts, and assess how best to employ their forces (see FM 3-0 for more information on tenets and imperatives).

TENETS

1-41. The tenets of operations are attributes that should be built into all plans and operations, and they are directly related to how the operational concept should be employed. Commanders use the tenets of operations to inform and assess courses of action throughout the operations process. The tenets of operations are—

- Agility, which is the ability to move forces and adjust their dispositions and activities more rapidly than the enemy.
- Convergence, which is an outcome created by the concerted employment of capabilities from multiple domains and echelons against combinations of decisive points in any domain to create effects against a system, formation, decision maker, or in a specific geographic area.

- Endurance, which is the ability to persevere over time throughout the depth of an operational environment.
- Depth, which is the extension of operations in time, space, or purpose to achieve definitive results (ADP 3-0).

IMPERATIVES

1-42. Imperatives are actions Army forces must take to defeat enemy forces and achieve objectives at acceptable cost. They are informed by the operational environment and the characteristics of the most capable threats Army forces can encounter. Imperatives include the following:

- See yourself, see the enemy, and understand the operational environment.
- Account for being under constant observation and all forms of enemy contact.
- Create and exploit relative physical, information, and human advantages in pursuit of decision dominance.
- Make initial contact with the smallest element possible.
- Impose multiple dilemmas on the enemy.
- Anticipate, plan, and execute transitions.
- Designate, weight, and sustain the main effort.
- Consolidate gains continuously.
- Understand and manage the effects of operations on units and Soldiers.

URBAN OPERATIONS INTENSITY

1-43. Units may have to conduct UO at any point along the competition continuum. The conditions under which Army leaders plan and conduct operations has an effect on the approaches they use, the amount of force they employ, and the level of risk they will accept. The strategic context, capability of the enemy, and the level of permissiveness all influence these decisions (see figure 1-2). The commander's ability to understand and visualize the operational environment, describe through intent and planning guidance that will help subordinates act in a manner that fits the conditions.

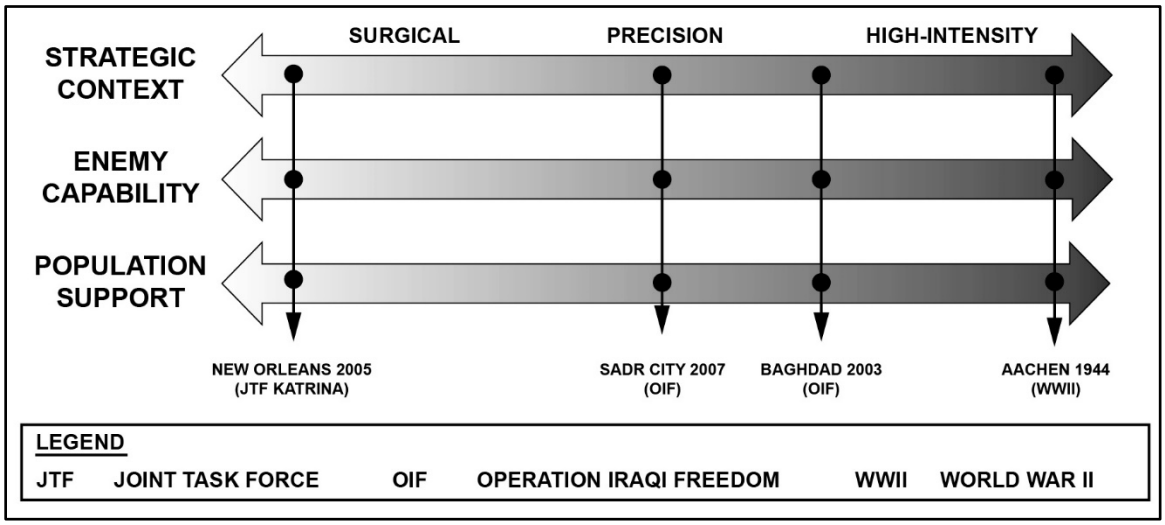

Figure 1-2. Urban operations intensity

FACTORS

1-44. While many factors influence the approach units will take for an urban operation, the primary ones are the strategic context, relative capabilities of the enemy force, and the level of popular support the unit has within the assigned area.

Strategic Context

1-45. The strategic context describes the current situation based on the relationship between the United States and a strategic partner (see FM 3-0). Army tactical formations typically conduct operations as part of competition below armed conflict, a response to a crisis, or when engaging in armed conflict. This categorization, along with where the operation occurs along the range of military operations, has the greatest overall effect on operations intensity. As the situation escalates into armed conflict, the level of violence increases accordingly. This results in higher-intensity operations and reduced restrictions on the use of force.

Enemy Capability

1-46. In keeping with the principle of proportionality, U.S. Forces will generally use less destructive force when facing threats with reduced overall combat capability. More force generally results in more damage to the surrounding area. This is unnecessary when the enemy has less combat capability, which presents less of a threat and the ability to protect themselves.

Population Support

1-47. The status of the population and support they provide to either friendly or enemy forces can have a strong influence over military decisions. The commander of a military force attempting to liberate a city in an allied nation from enemy control should show more restraint than one attempting to defeat an enemy army in their own country. Allies are unlikely to support unnecessary destruction attempting to retake a city, especially if it causes long-term problems for them.

INTENSITY

1-48. The overall approach that a unit takes towards an urban operation generally falls within three classifications: high intensity, precision, and surgical. These classifications are defined by the appropriate levels of restriction in the application of combat power. Even then, there can be crossover between these within the same operation and nuances that are specific to a situation.

High-Intensity

1-49. Units conduct operations under high-intensity combat in the least restrictive conditions against determined and capable enemy forces occupying prepared positions or conducting planned attacks. This normally happens during large-scale combat against the conventional military force of a nation-state and requires the coordinated application of combat power from the joint combined arms team. These are among the most stressful combat operations and can be casualty-intensive for all sides.

1-50. High-intensity combat is the least restrictive, but this does not mean that there are no limits on how forces employ combat capabilities. International law still applies, especially during engagements in urban areas. Units must still prevent unnecessary collateral damage and casualties among noncombatants, but commanders are willing to accept more risk to achieve effects against legitimate military targets.

Precision

1-51. Units conduct operations under precision conditions when the situation requires more restrictive use of combat power than is normal in high-intensity, such as when facing a threat that operates intermingled with noncombatants. This is common when responding to a crisis or conducting stability tasks following a high-intensity engagement. Focused and constrained application of force characterize operations under precision conditions. Elements can still bring overwhelming combat power against the enemy, but only in specific locations against specific threats while minimizing damage to surrounding areas. Target discrimination becomes very important, and units may bypass opportunities to achieve effects on the enemy if they cannot confirm it will not have a negative effect on noncombatants. Commanders develop rules of engagement (ROE) to ensure subordinates understand what munitions they can fire, where, and under what conditions. They can then tighten or loosen these restrictions to suit the changing situation.

Surgical

1-52. This condition is the most combat power restrictive, least destructive, and most tightly focused of all the conditions of UO. Operations conducted under surgical conditions include focused raids, precision strikes, personnel seizures, or arrests, focused psychological or civil affairs operations, or recovery operations. They may even involve cooperation between U.S. Forces and HN police. Special operations forces are more likely to operate under these conditions, but conventional units may support by providing outer security, crowd control, or a reaction force.

Crossover

1-53. Though a particular engagement can start under one set of conditions, this can change as the fighting progresses. Different organizations may also conduct operations under different conditions at the same time within proximity. Using their understanding of the environment, commanders anticipate how conditions are likely to change and develop branches or sequels that allow their units to respond to these changes. Units must remain alert to the indicators of change and adjust their approach as the situation improves or deteriorates.

IMPLICATIONS OF URBAN OPERATIONS

1-54. Though UO may vary greatly in detail, certain common environmental characteristics affect their execution in similar ways. The commander must consider these implications and their impacts whether conducting large-scale combat, stability operations, or humanitarian efforts.

DEFENSIVE ADVANTAGES

1-55. Urban terrain restricts maneuver and provides many options for covered and concealed positions without the need for additional reinforcement. This heavily favors elements in the defense as they can engage from strong static positions while attackers must leave cover to advance. Defenders can also utilize multiple floors from buildings to better mass fires. Armored vehicles require dismounted infantry in close support to counter attacks from elevated positions.

RECONNAISSANCE CAPABILITIES

1-56. Increased terrain and population densities within urban areas hinder reconnaissance efforts and can negate many of the advantages of the technologically superior force. This is especially true if threats do not wear a common uniform or otherwise have the ability to blend in with noncombatants.

Vast Increase in Available Data

1-57. As urban areas present more data points for analysts to identify, analyze, and monitor than other environments, effective staffs must be able to organize data and focus analysis on those factors that have the greatest impact on operations to enable commanders to make informed decisions. For UO, understanding the governmental structure and its political workings is probably going to be less useful than detailed knowledge of the objectives, capabilities, and disposition of any military forces in the area. Economic and commercial infrastructure is important for long-term stability, but the requirements for human services are more immediate. Units should focus their information collection and targeting efforts based on commander's priorities and on what will have the greatest impact on the current fight rather than trying to build a complete picture of the environment from the start. (See chapter 2 for additional information.)

Degraded Collection Capability

1-58. While the amount of available data greatly increases in urban areas, it can be difficult to identify the most relevant and most important information. The physical terrain of urban areas reduces the effectiveness of collection capabilities. The height of buildings and other structures can improve observation at certain angles, but they also block vision at other angles and diffuse electronic signatures. Tall buildings form urban canyons that also conceal movement from aerial observation except at specific angles. The glass used in most structures reflects heat, limiting the effectiveness of thermal devices. The density of the population and seemingly chaotic traffic patterns serve to hide adversaries and mask their movements.

Civilian Communications

1-59. The numerous communication methods available using the civilian infrastructure (including landline phones, cellular phones, and internet data connections) may make enemies less likely to use standard military systems. These can be easier to intercept, but harder to separate from normal civilian traffic. Many systems also make use of buried fiber or cables that can be difficult to find and exploit. The volume of electromagnetic signatures can make it very difficult to identify and focus on what is important.

Population Density

1-60. Given the population density of urban areas, it is almost impossible for conventional threats to conduct any action without someone seeing it. Human intelligence (HUMINT) collection, utilizing a source pool, can provide early warnings of enemy attacks, enemy troop movement, and enemy intentions. HUMINT in an urban environment provides context and intent of enemy actions, that cannot be collected through other information collection assets. Intelligence disciplines or reconnaissance elements need to collaborate and crosstalk to validate information to aid commanders in decision-making prior to acting on such information.

Small-Unit Engagements

1-61. Urban structures compartmentalize the terrain and serve to reduce visibility and fields of fire. This combines with a limited ability to mass to make urban combat a series of close-range engagements between small units. This compartmentalization makes both attackers and defenders both vulnerable to isolation. Defenders have several options to mitigate this, but attackers generally require more forces over a given frontage.

Degraded Communications

1-62. Urban structures can disrupt communications between elements by blocking line of sight and emitting electromagnetic interference. Contact with maneuvering forces is likely to be intermittent as they move in and around structures.

High Resource Expenditure

1-63. Forces conducting UO tend to consume supplies at greater rates. Ammunition is normally the biggest concern, but this also applies to water, food, and medical supplies. Fuel consumption may increase for generator use to supply power, but vehicle consumption rates tend to stay constant or less overall due to the static nature UO. Forces may also request specialized capabilities, such as guided munitions and urban breach kits. This will increase requirements for supply delivery and storage for the brigade and subordinate units.

Increased Exposure to Disease and Toxic Industrial Materials

1-64. Many cities around the world have poor water quality and inadequate sewage and refuse removal systems. Systems in the most modern cities can quickly break down during urban combat or a natural disaster of some kind. Such conditions can give rise to diseases that can spread quickly amongst dense populations. Soldiers operating in and around the population are also at risk, and disease can create mass casualties as quickly as combat. A biological agent released among an urban population could be catastrophic. Urban areas often contain toxic industrial materials (TIMs) in large quantities. Whether by accident or deliberate action, they can also create hazardous conditions that threaten Soldier safety and that of the population. Leaders need to assess and mitigate risk when performing operations in areas where TIMs and fires are a hazard. Protective equipment issued to Soldiers do not filter out carbon monoxide or noxious fumes produced by burning plastics.

Increased Casualties

1-65. The compartmentalized nature of urban combat combined with limited situational awareness generally results in increased casualties. Units must be able to deal with the increased requirements to treat, evacuate, and replace casualties without losing momentum during operations.

INCREASED COLLATERAL DAMAGE

1-66. *Collateral damage* is a form of collateral effect that causes unintentional or incidental injury or damage to persons or objects that would not be lawful military targets in the circumstances ruling at the time (JP 3-60). Lethal engagements within urban areas will result in intentional and unintentional damage to urban structures and civilian property. The amount of damage generally increases proportional to the intensity of the combat.

PRESENCE OF NONCOMBATANTS

1-67. The population of an area is always going to have an effect on military operations. In many cases, the effectiveness by which a leader can manage and influence the local populace will determine whether a mission is successful. Soldiers also have a legal and moral obligation to protect noncombatants during conflict (see FM 6-27 and ATP 3-07.6 for additional information). The density of noncombatants can have the following effects on operations:

- Protecting the populace can limit options.
- Mounted and dismounted traffic can impede movement and maneuver.
- Noncombatants may require supplies or other support; and this can drain the resources of the unit.
- Locals can provide information about enemy activities or other topics important to the operation.
- Locals can provide information to the enemy about friendly force activities.
- Controlling or managing the population consumes combat power.

1-68. Military operations can also have a significant effect on the population. If possible, most civilians will attempt to leave an area in conflict, especially if a large-scale attack is imminent. This can lead to large numbers of dislocated civilians leaving their homes for fear of persecution or to avoid the effects of armed conflict (see ATP 3-39.30 for additional information). That said, commanders cannot assume that all civilian personnel will depart an area prior to a major combat operation and leave only combatants behind. Historically, ten percent of the civilians will not leave the area of conflict.

1-69. There are many reasons why civilians might stay despite the danger. They may support the enemy force, or the enemy force may not allow them to leave. They may not have the resources required or fear what might happen if they try to move their families and establish themselves in a new area. Especially with a larger city, there may be no other place to go as the surrounding areas are unable to cope with an influx of people. No matter the reason, military forces will encounter civilians on the battlefield and must protect them from unnecessary harm.

1-70. Ongoing military operations are likely to be very disruptive to normal civilian cycles and their patterns of life. Citizens are less likely to shop or go to work if they do not feel safe. Armored vehicles can destroy crops that are intended for harvest. The longer the conflict lasts, the harder it will become to restore stability and a sense of normalcy.

CONSOLIDATED MEDIA PRESENCE

1-71. Urban areas are more accessible to the media than many of the other conflict environments. Ready access to transportation hubs, power sources and telecommunications facilities makes it much easier for media personnel to share information with the outside world. The proliferation of camera phones and internet access allows anyone to serve as a reporter and broadcast video of events in near real-time. Although the degree and manner in which public opinion shapes government policy is uncertain, negative visual images of military operations can change political objectives and, subsequently, military objectives. While commanders do not control the media, managing the flow of information can be a critical component of operational success.

SYSTEMS OF SYSTEMS

1-72. The complex and dynamic interactions and relationships among groups of people, the infrastructure, and terrain both inside and outside the city create an overlapping and interdependent system of systems that presents unique challenges to operations. Flow is the movement of people, resources, or other things into or out of a city. Like a living organism, a city relies on flows in (food, air, and water) and flows out (waste) to remain viable. Vast amounts of energy and other vital goods must continue to flow into the largest of cities and their internal systems must continue to operate in order to sustain their populations and infrastructure.

The urban environment affects the conduct of military operations, but the nature of those operations also shapes the environment and can be extremely disruptive to those systems.

RAPIDLY CHANGING CONDITIONS

1-73. Though the challenges of operating in urban environments increase the time needed to accomplish tasks, UO can be very dynamic with conditions changing rapidly within a short time or distance. Borrowing the common analogy of the three-block war that U.S. Marine Corps General Charles Krulak first described in the late 1990s, the same unit could be conducting high-intensity attacks, enforcing population control measures, and delivering supplies to a local hospital within three contiguous city blocks at the same time. Units must be able to recognize changing conditions, increase or decrease the intensity of their operations, and transition between offensive, defensive, and stability tasks as conditions change.

FUNDAMENTALS OF URBAN OPERATIONS

1-74. As UO encompass all operations conducted within an urban area, the tasks, required force composition, and even the desired endstate can vary drastically between operations. That said, there are some fundamentals that are relevant to all UO regardless of the mission, geographical location, or level of command. These can apply to operations in other environments, but they can also become more important in areas that are denser with a higher noncombatant population. Leaders should consider these throughout the operations process rather than try to apply them in any particular order or phase. The fundamentals of UO are—

- Employ forces as combined arms teams.
- Control the essential and leverage urban systems.
- Manage the population.
- Isolate threats.
- Minimize collateral damage and maintain the integrity of urban systems.
- Create a collaborative environment.

EMPLOY FORCES AS COMBINED ARMS TEAMS

1-75. Conducting basic combat tasks in dense urban terrain requires large numbers of infantry forces; however, combined arms teams produce the best results as infantry units operating alone suffer from critical shortcomings that lead to heavy casualties. Commanders can mitigate these shortcomings by task- organizing teams with armored vehicles, heavy direct-fire weapons, and engineers, and supporting them with closely integrated aviation, fire support, information collection, communications, and sustainment elements. Optimal performance generally requires task organization of elements at lower echelons than is normal for operations in other environments (see chapter 2 for additional information).

CONTROL THE ESSENTIAL AND LEVERAGE URBAN SYSTEMS

1-76. Many modern urban areas are too large for any force to completely occupy or even effectively control. This forces units to focus on mission essential tasks. A *decisive point* is key terrain, key event, critical factor, or function that, when acted upon, enables commanders to gain a marked advantage over an enemy or contribute materially to achieving success. (JP 5-0). Though it can vary widely from situation to situation, commanders must be able to assess the complex environment and determine what is decisive to their operation. In addition to standard actions like seizing dominant physical terrain or destroying an enemy capability, urban decisive points can include influencing a particular group or controlling a particularly important piece of infrastructure. Commanders should also realize that what is essential to an urban area might not be located within that area, such as power generation or water treatment plants outside the city. The complex systems and dense population that characterize urban areas challenge units operating within them, but they can also create opportunities that a resourceful leader can exploit to create effects across domains in the physical, information, and human dimensions.

MANAGE THE POPULATION

1-77. Leaders must carefully consider and manage the perceptions, allegiance, and morale of civilians in an area and among the global community. This can include managing the flow of dislocated civilians, removing people from dangerous areas, and mitigating civil disturbances. Civilians can sometimes act in ways that are counterproductive to the mission when combat operations are occurring in their streets. Looting, rioting,

leaving vehicles in the middle of the street, and setting buildings on fire are just a few examples. In most urban areas, the civilian population will far outnumber any military forces. The widespread proliferation of camera phones, internet connections, and media outlets often causes the results of ongoing operations to be broadcast and discussed in near real time. This means the negative consequences of an action, both locally and globally, can quickly exceed any potential positive effects on an enemy force. Leaders must anticipate these consequences and establish adequate control measures to prevent them. Units must also be able to mitigate negative effects as prevention is not always feasible or sufficient. Leaders should actively work to gain the support of the local people while denying that support to adversaries.

1-78. Influencing the population requires units to conduct continual and aggressive information operations. Well-conceived and executed messaging in concert with professional military conduct enhance the position of forces relative to the urban population. In addition to influencing the attitudes and perceptions of the local populace, units need to be able to manage them directly. This can include managing the flow of internally displaced persons, removing people from dangerous areas, and mitigating civil disturbances. Effective information operations and working with local security forces and other unified action partners can aid this.

1-79. Soldier and leader engagement should be incorporated in targeting from planning and preparation, to execution, and assessment. Soldier and leader engagement is a potent capability that commanders and staffs employ to create effects that can result in a decisive advantage over adversaries or enemies and opportunities with unified action partners. Soldier and leader engagement occurs at all levels and across the full range of military operations; it is available to every Army unit and individual Soldier. Decide, detect, deliver, and assess methodology incorporating Soldier and leader engagement helps the staff's targeting working group select which targets must be acquired and engaged. The decide, detect, deliver, and assess methodology is usually focused on analyzing threat vulnerabilities and a modified process specifically for Soldier and leader engagement can identify the significant personnel in the area of operations (AO) who are crucial for creating effects in the information environment (see ATP 3-13.5 for more information).

ISOLATE THREATS

1-80. No matter the type of operation, units should strive to isolate threats physically and psychologically from the population, other units, and any other sources of support. Isolation is one of the four defeat mechanisms, and it is particularly effective during UO. It denies threat access to capabilities that enable their maneuver by controlling lines of communication, support, and reinforcement. This limits threat options while preventing them from replenishing resources. The same urban terrain complexity that can make it impossible to completely isolate a large city facilitates isolation of small elements. Physically and psychologically separating noncombatants from combatants may make UO more efficient and diminish some of the threat's potential advantages. This separation may also reduce firepower restrictions, make threats easier to identify, and have a significant psychological effect on threat forces. Later chapters describe specific actions that units can take to isolate threats during offensive, defensive, and stability operations.

MINIMIZE COLLATERAL DAMAGE AND MAINTAIN THE INTEGRITY OF URBAN SYSTEMS

1-81. As previously stated, an urban area has layered systems of systems interwoven throughout it. These systems can either be permissive to the mission or a hinderance. Forces must minimize collateral damage to the extent possible to avoid its negative short-term and long-term effects. Even commanders engaging in high-intensity combat against a capable force must weigh the consequences of potential actions before committing to a course of action. Though some amount of damage is inevitable, unnecessary, or excessive, destruction can be counterproductive by damaging essential infrastructure, angering local citizens, eroding support from national and global populations and political leaders, and increasing the costs of recovery and reconstruction. International law, host-nation law, and Army regulations may restrict or prohibit certain actions (see FM 6-27 for additional information). Avoiding unnecessary destruction of property and minimizing harm to an urban area's population helps sustain the legitimacy of the operation and facilitates the return of the area to civilian self-sufficiency.

1-82. Dense populations depend upon critical infrastructure providing essential services to survive. The larger and denser the population, the more they rely on these services. Examples of essential services include power, water, food distribution, sewage and trash collection, medical care, and law enforcement. These services depend upon systems that break down during periods of conflict. A city's infrastructure supports these systems. Commanders should accept what risk they must apply to defeat the enemy, but once the enemy

is defeated, combat operations can be scaled back. Preserving infrastructure helps to maintain the population in the short-term and reduces the long-term costs of reconstruction. The purposeful or accidental destruction of critical sites can also have an immediate negative impact on population attitudes. Preventing this may require allocating combat forces to secure critical sites. Threat forces can also use city infrastructure to increase their combat and sustainment capabilities. Leaders should look for ways to deny them using temporary or easily repairable methods.

1-83. Commanders develop ROE tailored for specific locations and operations to restrict actions that could be counterproductive. Regardless of ROE, units will always conduct themselves in accordance with the law of armed conflict and try to protect cultural sites, medical treatment facilities, or other sites of that nature. Units can use precision fires to engage enemy while minimizing destructive effects. This includes the use of guided artillery, bombs, and missiles. Snipers also have increased utility in urban areas. They can provide long- and short-range precision fires and assist isolation efforts. Minimizing collateral damage also requires anticipating enemy actions and considering how attacks against friendly forces might put civilians at risk. Not all threats are going to constrain themselves when provided an opportunity to inflict casualties and destroy capabilities. They might even target the civilian population directly as is common of terrorist threats. This may influence the positioning of forces or the decision to occupy a populated area. It may also require committing forces to protect citizens even if not at a critical site.

1-84. Active efforts to preserve critical infrastructure help, but they are not enough on their own. As described above, some level of damage is going to occur during combat operations; therefore, units must be prepared to mitigate this damage at the best time. During a high intensity conflict, combat power is not allocated to guard areas or buildings, however, after the conflict is resolved, rapid restoration of essential services become critical to stabilization efforts. This starts with effective information operations, but can extend to casualty treatment, direct payments to property owners, and reconstruction efforts. Providing services also requires people to manage systems, operate equipment, and transport goods. During conflict, people with the right knowledge and skills may depart the area, go into hiding, or otherwise go missing. In addition to facilitating infrastructure repair, units will need to help locate trained people within the area, encourage qualified people to move to the area, or develop training programs of their own. For tasks like these, enlisting the aid of functioning local governments, other government agencies, and nongovernmental organizations can be vital.

Create a Collaborative Environment

1-85. Effective UO require working with other organizations, though the specific requirements of each situation may vary. These can include adjacent and supporting units, other services and government agencies, host-nation security forces (HNSF), local government officials, and nongovernmental organizations. Given the complexity of the urban environment, elements collecting within the same area using different methods, at different times, or among different local groups will have access to different information. Training and knowledge of the area and its people also enhances or limits their ability to understand that information. Rapid information sharing—providing and receiving—from the operational level to the tactical level and laterally provides access to additional data as well as specialized knowledge and skills that would have otherwise been unavailable.

1-86. In addition to having access to different information, the various organizations operating within an area are likely to have different objectives, different capabilities, and operate using different means. Maintaining unity of effort can be extremely difficult under these conditions. Collaboration leads to shared understanding and a pooling of resources, but also shared purpose and focus. Building trust is critical as organizations will only contribute if they believe it is in their best interests and aid in accomplishing their objectives. Commanders need to be prepared to share control and authority in addition to intelligence and other capabilities. Military units may also find themselves subordinate to local civilian leaders depending on the situation and mission.

SECTION III – THREATS AND HAZARDS

1-87. Forces engaged in UO face the same kinds of threats as in other operational environments; however, the predominance of certain types of forces and their behaviors may change due to environmental factors. Forces conducting UO also face several hazards that are not common in other operational environments.

THREAT GROUPS

1-88. A *threat* is any combination of actors, entities, or forces that have the capability and intent to harm United States forces, United States national interests, or the homeland (ADP 3-0). *Hybrid threat* refers to the diverse and dynamic combination of regular forces, irregular forces, terrorists, or criminal elements unified to achieve mutually benefitting effects (ADP 3-0). Because of the complexity of the urban environment, there can also be many different threats working separately towards different objectives within the same area that require different approaches to defeat. At the same time, it can be very difficult to distinguish enemies and adversaries from neutral parties or friends.

1-89. Peer threats choose to conduct UO for many of the same reasons that U.S. Forces do (see ATP 3-06 for additional information). In addition, they may want to use cultural landmarks or the civilian population itself as a shield to deter conventional attack. A weaker threat may also choose to conduct UO because the environment degrades or negates many of the technological advantages the U.S. military has over other forces. Use of the civilian infrastructure may also grant them capabilities that would not otherwise have been possible.

1-90. In many cases, threat forces will have closer ties to the local population than U.S. Forces. This is largely a result of proximity and can manifest out of shared language, culture, history, interests, or even physical features. It can also be a great benefit in conducting effective inform, influence, or information intelligence collection operations. This proximity makes it easier to support forces both overtly and covertly. Threat forces can have close ties with one element of the local population causing balkanization and extending the conflict into the local citizenry.

REGULAR FORCES

1-91. Regular forces are the uniformed, conventional military forces of nation states. They tend to share many of the same strengths and weaknesses as U.S. conventional military forces, such as similar combined arms capabilities, especially if from or supported by a peer nation. They benefit greatly from proximity to their home country and may enjoy a position of relative advantage within a specific region.

1-92. Regular forces employ anti-access and area-denial capabilities to prevent access into critical urban areas, especially those with major ports or airfields. Though their combat vehicles and uniforms make them stand out from the urban population, they will reduce their electronic signatures and make use of structures, underground routes, and deception to mask their actual compositions, dispositions, and strengths.

1-93. Regular forces will employ armored vehicles in support of dismounted infantry. Infantry may have access to incendiary weapons that can be very effective for clearing rooms and structures before entering them. They will establish anti-armor and anti-aircraft ambushes using mounted and dismounted rocket and missile systems. They may have their own aircraft and artillery and will employ them to destroy high value targets. Infantry may also have access to weapons of mass destruction, but they are unlikely to employ them except in extreme situations.

1-94. All forces are subject to the same international laws and conventions regarding the use of force and protection of civilians, but they may be less focused on complying with these rules depending on the specific threat and situation. Regular forces from other nations experience the same degradation to their capabilities as U.S. Forces. They also require sustainment beyond the capabilities of the urban area that may be vulnerable to attack.

IRREGULAR FORCES

1-95. Irregular forces can describe a number of different groups that do not fall within the definition of regular forces. They can include everything from newly formed militias to private security to highly trained special operations forces or a spontaneous uprising of inhabitants who take up arms to resist an invading force (“levée en masse”). Organization, equipment, and training levels can all vary significantly. Irregulars may receive their support from the local population or serve as proxies for an external nation. They may have distinct uniforms or dress to match the populace.

1-96. Irregular forces generally lack the heavy military vehicles and munitions of the regular forces, but they are better able to blend in with the population or otherwise move undetected. This makes them highly suited

for ambush, sabotage, or any other attack that involves striking from stealth and escaping. Irregular forces may use high volumes of indirect fire in the urban area with no regard for the local population. This allows the force to inflict maximum damage for minimum risk. They generally do not have the firepower of regular forces nor the suicidal fanaticism of terrorists. Instead, they must be smarter to make better use of the capabilities available to them. Irregular forces tend to use weapons like small arms, machine guns, rocket propelled grenades, and improvised explosive devices (IEDs).

1-97. Among the biggest threats to irregular forces are hostile populations. Though it may be difficult to identify them when looking from the outside, the movements of irregular forces are generally more apparent to the local people. This is especially true of special operations forces from outside the area. Irregular forces are often local citizens who are culturally aligned with an external state who may be augmented by regular forces from that state. They generally lack aerial and space-based capabilities unless receiving direct support from a conventional or special operations force.

TERRORISTS

1-98. *Terrorism* is the unlawful use of violence or threat of violence, often motivated by religious, political, or other ideological beliefs, to instill fear and coerce individuals, governments or societies in pursuit of terrorist goals (JP 3-26). Terrorist groups radicalize populations, incite violence, and employ terror to impose their visions on fragile societies. Terrorists are willing to use almost any means to accomplish their ends. Their attacks generally focus on targets that will generate the most public and media attention rather than what provides a tactical advantage. This includes civilians and government officials. Terrorists are the most likely group to use a weapon of mass destruction given the opportunity.

1-99. While generally not able to defeat a trained military unit in a conventional engagement, the terrorists' true danger comes from their ability to remain hidden and a lack of regard for their own safety. They also tend to operate as networks rather than employing hierarchal structures. This can make identifying leaders difficult and neutralizing them only marginally effective. Terrorists generally look and dress like the people around them. They will not overtly display any kind of weapons or military gear. Terrorists favor the use of bombs, and many extremists are willing to employ them even at the cost of their own lives. Blending in with the population, they can often get very close to their targets undetected. Understanding the signs and maintaining extreme vigilance are critical to stopping terrorists before they can complete their attacks (see ATP 3-37.2 for additional information).

CRIMINAL ELEMENTS

1-100. Opportunistic individuals, criminal networks, and other actors often seek to exploit the chaos and discontent inherent in a crisis for political or economic advantage. Criminal elements exist anywhere that people congregate and include everything from individual thieves to transnational criminal organizations. Criminal activities can include theft, smuggling, weapon and drug trafficking, extortion, kidnapping, and assassination. They may also provide resources or information to other forces described above. Criminals may carry out actions in secrecy or overtly, secure in the belief that they have protection from local law enforcement. They may operate openly as legitimate businesses or even as part of the government while illegal activities remain hidden.

1-101. Criminal elements can be extremely difficult to identify and doing so can require assistance from supporting military police. They are unlikely to engage in direct action without a profit motive; however, they will defend what they have. Even without conducting direct attacks, their activities undermine stability efforts and bring the legitimacy of other organizations' actions and objectives into question (see ATP 3-39.10 and ATP 3-39.20 for additional information).

OPPOSING POLITICAL GROUPS

1-102. Opposing political groups are likely to fight more with words or demonstrations than direct fire, but their actions can escalate beyond control. They tend to be mostly focused on each other, but can easily shift attention towards a military force, especially if they see the force as a threat to their objectives or in support of their opponents. Some military forces also have a political arm to add legitimacy to their efforts and expand the options available to achieve their objectives.

1-103. In most cases, the battlefield for a political group occurs within the minds of the people. They may focus on local groups or broaden their appeal to a global audience. They may also target the American people directly in an attempt to sway favor or undermine popular support. This can make defeating a political group difficult for a conventional force as any direct action can have massive consequences in the information environment. Even a military loss can turn into a political win for the group under the right circumstances. The weakness of a political group generally comes from a lack of ability to take direct action and the fickle nature of popular support.

Civil Disturbances

1-104. In some cases, the local population can become a threat. The laws of many nations, including the United States, protect the right of citizens to peacefully protest or stage demonstrations; however, stressful conditions can cause these events to escalate into riots that result in property destruction and violence against others. U.S. Forces may have to respond to civil disturbances in the midst of combat operations against a foreign power, while attempting to stabilize a partnered government. Adversaries may even provoke such incidents to create additional dilemmas for U.S. Forces. Crowd control requires forces to deal with noncombatants while respecting their recognized rights. Failure to do this is a violation of U.S. and international law and can make the situation worse through further escalation (see ATP 3-39.33 for additional information).

THREAT TACTICS AND TECHNIQUES

1-105. There are many types of threat forces that fight in urban areas. These threat forces will employ various tactics and techniques to maximize the beneficial characteristics of the environment. The following is not an all-inclusive list but an example of some techniques a unit fighting in a city can expect to face.

Obstacles and Restrictive Movement

1-106. Adversaries will still employ standard obstacles and construction techniques, but simple obstacles such as rubble, parked vehicles, or burning tires can effectively block routes within dense urban areas. These require few resources to create or maintain. This also applies within buildings as they may place walls behind doorways or create fighting positions along hallways.

High Points on Buildings for Antiair and Antiarmor Battle Positions

1-107. Rooftops can provide clear line of sight to aerial targets while offering concealment and quick escape routes to covered positions. High windows in buildings allow threat forces to engage combat vehicles on their weaker top armor while remaining above the maximum elevation of return fire.

Creating Improvised Weapons

1-108. When lacking access to adequate conventional weapons and munitions, threats often use common products to create improvised weapons. The most famous of these are the IED and Molotov cocktail; however, threats can also do things like using 3D-printers to create firearm parts and attaching explosives to civilian unmanned aircraft systems (UASs). Even simple weapons can have devastating effects when employed effectively against unprepared targets.

Demolitions or Improvised Explosives for Offensive Destruction of Buildings, Bridges, or Other Structures

1-109. While destroying a bridge behind a withdrawing force is a common tactic in any environment, urban areas provide many more opportunities to use relatively small amounts of explosives to have a major impact on an attacking force. For example, threats may set demolitions to destroy a structure while friendly forces are clearing it. Often called a house-borne IED, these can be catastrophic for any elements caught within. Less common but still dangerous is the use of explosives under bridges or overpasses. Even culverts allow threats to place a large number of explosives under a route with little effort. With the right placement and timing, these can destroy even the most heavily armored vehicles.

Structures and Underground Routes for Concealed Movement

1-110. Threat forces will use existing or newly created routes through buildings and underground to defeat U.S. efforts to locate and track them. Even hanging cloth like sheets, curtains, or blankets between buildings will prevent observation by most aerial reconnaissance assets.

Isolating Units

1-111. Threat forces will take advantage of the terrain's restrictions on mobility and line of sight to isolate vulnerable elements from sources of support and defeat them in detail. They may also attempt to capture isolated personnel. Leaders at every echelon, from platoon through brigade, are responsible for efforts taken to prepare for and execute the recovery of isolated personnel. (See ATP 3-50.10 for more information on personnel recovery.)

Attacking Soft or Unprepared Targets From Stealth or Using Indirect Fires

1-112. Threat forces will use deception and concealed routes to observe fires or conduct surprise attacks against CPs, communications nodes, sustainment units, or uncommitted forces. Irregular forces and terrorists can be very difficult to distinguish from civilians when not actively firing. Even uniformed forces can use the terrain and population to move undetected in small groups. Extremist groups can use concealed suicide bombs, either on the body or in a civilian vehicle, to inflict casualties and shock defenders. They may use these in isolation, groups, or to weaken defenses in preparation for the main attack.

UAS as Artillery Spotters or for Direct Attack

1-113. With UAS continuing to be less expensive and more available, their use on modern battlefields continues to increase. Threats can use them to identify vulnerable targets for artillery or attack directly using an integrated weapon or munition. Armed UAS have proven highly effective even against well-equipped regular forces with armored vehicles.

Civilian Infrastructure to Control the City and Supplement Sustainment and Intelligence Capabilities

1-114. Threat forces may seize control of production and distribution sites, communications nodes, and government offices. Threat forces can use established infrastructure for water, power, and protection. Threat forces can also use sites like sewage treatment plants and flood control machinery to make portions of the urban area uninhabitable. Expect threats to purchase or seize products such as food, fuel, vehicles, or weapons on civilian or black markets. Threat forces can also influence, hire, or intimidate civilians into providing information on U.S. Forces composition, disposition, and actions. Extensive camera systems provide an additional capability to monitor the movement of forces in a modern city.

Protected Sites and Populations as Cover

1-115. Some threats will ignore international law and use protected populations and sites to create ethical dilemmas for attacking forces. This can include acts like using a protected structure such as a hospital, school, or cultural site as a base of operations; operating within a building containing civilians; or physically placing civilians between themselves and an attacking force.

Conducting Aggressive Information Operations Supported by Video

1-116. Threats will use information operations to influence global opinion and undermine the resolve of the American people. They can place portable cameras to observe actions or use footage collected on civilian cameras and cellular phones. Widespread internet capability allows even poorly resourced forces to distribute products globally in near real time. Video of structure damage, civilian casualties, or other negative acts can provoke a strong and immediate response. Commanders should be mindful that videos and information operations can be edited or altered to achieve the threat's intent. These can be effective even if false or staged as countering narratives can be difficult once they have taken hold.

CIVILIANS TO BURDEN SUSTAINMENT AND FORCE PROTECTION RESOURCES

1-117. Some threats may use the civilian populace itself as a weapon against U.S. Forces. Their local information operations can turn groups hostile and lead to demonstrations and riots. This can be especially effective when focused on excessive collateral damage and civilian casualties, whether real or perceived. They can also force populations to displace which impedes mobility and requires the commitment of additional forces to manage.

1-118. Operational medicine forces supporting UO view threats from two perspectives: the general threat and the health threat. Although operational medicine's primary concern is that of the health threat, the general threat must also be fully considered as it influences the—

- Character, types, and severity of wounds and injuries to which U.S. Forces may be exposed.
- Enemy's ability and willingness to disrupt Army Health System (AHS) operations and to respect the conditions of the Geneva Conventions regarding the protection of AHS personnel while engaged in their humanitarian mission.

1-119. The health threat faced by deployed U.S. Forces in an UO is depicted in table 1-1 on page 22. The health threat is a composite of ongoing or potential enemy actions; adverse environmental, occupational, and geographic and meteorological conditions; endemic and emerging diseases; and employment of chemical, biological, radiological, and nuclear (CBRN) weapons (to include weapons of mass destruction that have the potential to affect the short- or long-term health [including psychological impact] of personnel).

Table 1-1. Health threat

Type of Threat	*Cause*
Injuries	Musculoskeletal injuries from urban combat
Diseases	Climatic (heat, cold, humidity, and significant elevations above sea level) Toxic industrial materials Accidental or deliberate dispersion of chemical, biological, and radiological material Disruption of sanitation services/facilities (such as sewage and waste disposal) Effects of industrial operations and industrial and operational noise
Occupational and environmental health (OEH) hazards	Poisonous plants, bacteria, and fungus Venomous reptiles, amphibians, arthropods, and animals
Poisonous or venomous flora and fauna	Poisonous plants, bacteria, and fungus Venomous reptiles, amphibians, arthropods, and animals
Medical effects of weapons	Conventional (to include blast and mild traumatic brain injury/concussion) Improvised (to include improvised explosive devices) chemical, biological, radiological, and nuclear warfare agents Directed energy Weapons of mass destruction Thermal (from nuclear blast or direct energy) Combined injury (chemical, biological, radiological agent plus thermal, blast, explosive, or projectiles)
Physiologic and psychological stressors	Continuous operations Combat and operational stress reactions Wear of mission-oriented protective posture ensemble Stability tasks Home front issues

HAZARDS

1-120. A hazard is a condition with the potential to cause injury, illness, or death of personnel, damage to or loss of equipment or property, or mission degradation. Risks are the probability and severity of loss linked to hazards. *Risk management* is the process to identify, assess, and mitigate risks and make decisions that balance risk cost with mission benefits (JP 3-0). Leaders assess and mitigate risk to protect the force and ensure mission accomplishment. The urban environment exposes the force to hazards that are not present or less prevalent in other environments (see ATP 5-19 for additional information about risk identification and mitigation).

STRUCTURAL INSTABILITY

1-121. Building standards vary between locations. Even within the same country, facilities may vary widely in complexity and safety. Damage to the frame, supporting columns, load-bearing walls, or foundation caused by explosives, munitions, or physical strikes can further compromise the integrity of a structure. This damage can be accidental or a deliberate attempt to collapse the building. Damage to the exterior of a building can also cause falling rubble on the streets and walkways around it. Forces operating in and around buildings must exercise extreme caution as the collapse of even a single-story building is often fatal for everyone inside (see appendix B for additional information).

1-122. Bridges and overpasses also have differences in standards and suffer effects from munitions and explosives. Combat vehicles, especially when armored, tend to be very heavy, and many bridges and overpasses designed for civilian use will not support the weight even when undamaged. Forces must assess and confirm the capacity of any bridge or overpass before use and be prepared with alternate routes.

FIRE

1-123. Fires are a likely outcome of combat actions. Uncontrolled fires can be extremely dangerous and destructive in urban areas due to the density of flammable construction materials, chemicals, and fuel. In addition to putting Soldiers at risk, fires can cause massive civilian casualties and property damage. This greatly increases the difficulty and cost of later reconstruction efforts. Soldiers should try to avoid starting fires where they can, but they also need to be prepared to put out small fires when identified using chemical fire extinguishers, water, or soil. Smaller fires are much easier to extinguish directly. For larger fires, it is better for units to focus on isolation and preventing the fire from spreading. Commanders should try to work with civilian firefighters or allow them to take the lead where possible as they are likely to be better trained and equipped to deal with the problem.

ELECTROCUTION

1-124. There are many ways that a Soldier can be electrocuted when operating within a city with an active power grid. Power lines can often be unauthorized, unregulated, and hang low causing a hazard for U.S. military vehicles and personnel. In underdeveloped nations, power lines can be thin and fragile. City developers may suspend them over roads or run them through underground conduit. Some cities use streetcars for mass transit that receive power from a charged wire suspended over the road. Building interiors also use wires to distribute power throughout the structure. Safety standards vary by location; therefore, any of these can be a hazard during normal conditions. Damage to these wires or the structures supporting them only increases the danger.

1-125. Soldiers must remain alert to ensure they do not touch any exposed wires nor any conductive objects in contact with the wires. Touching a wire with a ladder, pole, or vehicle antenna can send a lethal shock through the item and into the Soldier or vehicle. Contact with exposed wires above or below the surface can electrify pools of water. Even showers can be dangerous if poorly constructed.

HAZARDOUS MATERIALS

1-126. Forces operating in or near industrial areas will likely encounter TIMs. A subset of CBRN hazards, *toxic industrial material* is a generic term for toxic, chemical, biological, or radioactive substances in solid, liquid, aerosolized, or gaseous form that may be used, or stored for use, for industrial, commercial, medical, military, or domestic purpose (JP 3-11). TIM can result in toxic industrial hazards, the contamination or irradiation of personnel, the environment, and areas. These substances can be hazardous to forces operating near them whether they are released intentionally by threat forces or unintentionally due to collateral damage from direct or indirect fires. TIM include natural gases, debris, and concrete dust from collapsed buildings (see ATP 3-21.51 for additional information).

1-127. Civilian companies transport hazardous materials and TIMs by air, water, road, rail, and pipeline. They also maintain these hazardous and toxic materials in large storage facilities, transportation vehicles, and small containers. Civilians use and store less hazardous TIM in their homes and offices. Thus, one can find TIMs almost anywhere. In addition, less hazardous TIMs can cause direct harm to a military force. Though TIM can be anywhere, table 1-2 on page 24 lists the types of materials commonly found in various urban locations.

Table 1-2. Locations and associated types of toxic industrial material

Location	*Common Toxic Industrial Materials*
Airports	Aviation gasoline and jet fuel
Farm and garden supply warehouses	Pesticides
Shipping terminals	Bulk petroleum and chemicals
College laboratories	Organic chemicals and radioactive materials
Electronics manufacturers	Arsine and arsenic trichloride
Food processing and storage areas	Ammonia
Glass and mirror plants	Fluorine and hydrofluoric acid
Pipelines and propane storage tanks	Ammonia, methane, and propane
Plastic manufacturers	Isocyanates and cyanide compounds
Landscaping businesses	Ricin
Medical facilities	Radioactive isotopes and mercury
Hard rock ore mines	Potassium and sodium cyanide
Pesticide plants	Organophosphate pesticides
Petroleum storage tanks	Gasoline and diesel fuel
Photographic supply distributors	Cyanides and heavy metals
Rail and trucking lanes	Anhydrous ammonia, sulfuric phosphoric, and hydrochloric acids; flammable liquids
Chemical manufacturing plants	Chlorine, peroxides, and other industrial gases
Power stations and transformers	Polychlorinated biphenyls

1-128. Any force operating in or around an urban area should include an analysis of the locations likely to contain TIM, the types of hazards likely to be found there, and any mitigation measures effective for those specific hazards. They should also train their Soldiers to identify and read TIM-related markers and placards. This enables them to identify the material, assess the risk, and respond appropriately. The damage caused by the release of TIMs depends on the—

- Type and size of the discharge.
- Physical phase of the material discharged.
- Terrain of the environment where the release occurs.
- Rate of movement and distance of travel, which can be affected by weather patterns, terrain, and other factors.
- Route of exposure for affected personnel.
- Distance from the point of release.
- Exposure period.
- Length of time between exposure and treatment.

1-129. Many TIMs are airborne and flammable. Forces should exercise caution when operating around them even without a visible spill (see ATP 3-11.32 for additional information about exposure to hazardous materials and ATP 3-34.5 for information about how the DD Form 2993 *[Environmental Baseline Survey (EBS) Checklist]* can be used to identify and document hazards and concerns, such as hazardous materials, in the operational environment).

Chapter 2

Command and Control of Urban Operations

The *command and control warfighting function* is the related tasks and a system that enable commanders to synchronize and converge all elements of combat power (ADP 3-0). The complexity of the urban environment and its direct effects on communication systems make it difficult to effectively command and maintain control during operations. It greatly increases the amount of information leaders must communicate and the number of groups leaders must communicate with while degrading communications capabilities. This chapter describes the operational challenges the environment imposes on command and control and how to mitigate those challenges through effective planning, preparation, and task organization.

SECTION I – IMPACTS ON COMMAND AND CONTROL

2-1. The density of terrain, population, infrastructure, and subterranean spaces in a city influences how both threat and U.S. Forces operate, complicating fires employment, movement and maneuver, and information collection. Constraints on mobility increase risks to mutual support, reinforcement, sustainment, CASEVAC, personnel replacement, and equipment reconstitution. Unmanned ground vehicles can provide units the ability to transport sustainment items, heavy weapons, and reconstruction equipment while in and out of contact. Military operations in urban areas may radically alter the physical characteristics of a city in ways not experienced in other environments, increasing operational complications over time. They may cause uncontrollable fires or the loss of electricity. A power outage may lead to flooding (especially in subsurface areas) by shutting down pumping stations. Destroying buildings can eliminate reference points, leave large piles of rubble, alter fields of fire, and make movement and transportation extremely difficult.

2-2. This section describes how characteristics of the urban environment affect the art of command and science of control. Later chapters describe how those characteristics affect other aspects of combat operations using the warfighting functions as a framework. A *warfighting function* is a group of tasks and systems united by a common purpose that commanders use to accomplish missions and training objectives (ADP 3-0). See ADP 3-0 for definitions of the six warfighting functions and tasks associated with each. Understanding effects on warfighting functions helps commanders visualize their operational environment and make appropriate risk decisions.

APPLYING MISSION COMMAND

2-3. *Mission command* is the Army's approach to command and control that empowers subordinate decision-making and decentralized execution appropriate to the situation (ADP 6-0). The Army's view that war is inherently chaotic and uncertain forms the basis for this approach. It helps commanders capitalize on subordinate ingenuity, innovation, and decision-making to achieve the commander's intent when conditions change, or current orders are no longer relevant. The mission command principles of competence, mutual trust, shared understanding, commander's intent, mission orders, disciplined initiative, and risk acceptance enable commanders to give subordinates the greatest possible freedom of action to accomplish tasks. In most situations, U.S. Army operations must integrate multinational and Unified Action Partners while applying each of these mission command principles. Interoperability solutions across human, procedural, and technical dimensions are enabled by these mission command principles (see ADP 3-0 for information about Unified Action Partners, and FM 3-16 for information about command and control in multi-national operations).

2-4. UO are complex, and poor planning or a mistake during execution can have increased consequences. Urban combat is chaotic and disorienting. Commanders must achieve decisive effects while protecting noncombatants and minimizing property damage. Magnified political awareness and media sensitivity bring enormous scrutiny to every action. All of this will force commanders to accept more risk when applying mission command. Fear of the consequences of actions outside of their control can cause commanders to centralize decision-making and limit subordinate freedom of action. This stifles initiative and the ability to

adapt as the situation changes. Threats can capitalize on this by seizing the initiative and acting faster than friendly forces can react.

2-5. Urban fighting's decentralized and compartmentalized nature makes mission command and initiative more important here than in other environments. Short engagement ranges limit the ability of higher echelon leaders to influence outcomes, especially once forces start entering buildings. The size and density of the urban area will often require units to operate in a noncontiguous way to focus efforts on key terrain. This carries with it all the normal challenges associated with noncontiguous operations in any other environment. It also amplifies the challenges of building a common operational picture and maintaining communications.

2-6. Given expected combat conditions, leaders at all levels should avoid placing unnecessary limits on their subordinates' freedom of action. Commanders can overcome the challenges of UO by understanding the environment, issuing clear intent, anticipating and mitigating risk, and exercising disciplined initiative. For example, commanders must provide clear intent because communications will be lost when lower echelons move into buildings and underground structures. Key staff can support by conducting a thorough intelligence preparation of the operational environment process; maintaining running estimates, developing simple schemes of maneuver, and developing plans for maneuver options likely to occur during execution. Leaders at the point of decision must have the knowledge, training, and authority to make the right decisions in support of the commander's intent. Thinking through contingencies during planning can help reduce the need for leader decisions and enable subordinates to act. Leaders will still need to make many decisions over the course of an urban operation; however, effective planning and preparation can reduce individual burdens while speeding reaction time. Encouraging cross talk between subordinate leaders enables them to develop their own solutions to unexpected problems without requiring the senior leader to interject.

2-7. Though the risks can be daunting, leaders conducting UO must empower their subordinates and trust that they will make the right decisions. Decentralized execution speeds up decisions and allows commanders to focus on the overall situation instead of the numerous details of lower-level tactical problems. This takes active, engaged leadership to develop subordinates in addition to effective risk mitigation measures (see FM 6-22 for more information). Leaders must also demonstrate patience and restraint as individual actions can take longer to complete in urban environments, even as the number of actions occurring simultaneously can become overwhelming.

URBAN CONSIDERATIONS FOR COMMAND AND CONTROL

2-8. Common urban environmental characteristics affect leaders' ability to exercise command and control over their units. The commander must consider these implications and their impacts whether conducting large scale combat, stability operations, or humanitarian efforts.

INCOMPLETE COMMON OPERATIONAL PICTURE

2-9. The *common operational picture* is a display of relevant information within a commander's area of interest tailored to the user's requirements and based on common data and information shared by more than one command (ADP 6-0). Urban terrain can be very disorienting, which can lead to false reports, units out of position, and possible fratricide. Urban areas are inherently complex, and that can make it very difficult to understand the situation and communicate relevant operational information. Current digital command and control systems are not able to depict this complexity. They generally use overhead maps or images that do not show building interiors or even delineate between forces on different floors. They do not depict subterranean routes and structures or infrastructure such as power lines or water pipes. Operators can generally input gatherings of people, such as demonstrations, but these systems are not sophisticated enough to track systems like traffic flows, infrastructure status, or population demographics in real time. Staffs normally track the status of individuals, groups, and services separately from other operational information. This makes it difficult to fully understand the situation and the factors that influence it.

2-10. Focusing effort, streamlining systems, and training staffs can help CPs manage the volume of information. Subordinate leaders and CPs must be able to filter through information to determine what is critical rather than merely informative. Commanders and staffs should listen for discrepancies and use reports from multiple sources to verify status. In urban terrain, line of sight and constant decentralized unit movement create reporting challenges while using mission command systems. Latency in reporting make it difficult to

track accurate front-line trace of units and clearance of fires. CPs should post "as of" time and understand that unit locations might be an approximation.

2-11. Small unit leaders using analog methods face additional challenges. Using the military grid reference system (MGRS) and a 1:50,000 or 1:25,000 scale map works very well for most terrain, but it is not precise enough for UO. The maps will miss details that can be critical during an urban operation. They may also be outdated, include mistakes, or use names for features that differ from what the locals use. Using overhead photo imagery or three-dimensional models generally work better for planning, navigation, and battle tracking than standard military maps in urban areas. Photos require more interpretation to understand what everything is, but they can show routes and obstructions that would not otherwise be visible. Combining this with a gridded reference graphic (GRG) can help leaders communicate specific locations on the urban terrain. UO sketches can also be useful for clearly depicting graphic control measures (see section II for additional information).

COMMAND POST

2-12. During large-scale combat operations in urban terrain, selecting the right location to position a CP is critical to its survivability. Leaders and staffs must keep the second multidomain imperative firmly in mind when considering where, when, and how to move a CP, such as accounting for being under constant observation and all forms of enemy contact. Poor placement can result in limited flexibility, limited mobility, enemy detection, degraded survivability, and reduced effectiveness. Stationary CPs and other facilities for command and control warfighting function require extra protection to lessen their vulnerability. Several factors affect CP survivability such as, dispersion, mobility, redundancy, size, signatures (electromagnetic, visual, radar, infrared, and so forth), camouflage, and concealment. Special care should be taken to ensure that when CP elements are dispersed, they are not emitting an increased signature while attempting to communicate with each other. CP mobility is important, especially at lower echelons during large-scale combat operations. Lower-echelon CPs and those employed forward in the combat zone may need to move quickly and often. Commanders should disperse their CPs across nodes and reduce them in size for survivability. Reducing the size of the CP down to the minimum and careful planning enables rapid and effective CP displacement. Commanders select a CP location by conducting a mission variable analysis. They consider METT-TC (I)—mission, enemy, terrain and weather, troops and support available, time available, civil considerations, and informational considerations.

2-13. Urban areas can be good locations for CPs because they provide cover and concealment, access to electricity and other services, and adequate ingress and regress routes. Commanders may use existing hardened facilities or other constructed shelters. However, CPs will not be positioned near or around protected sites such as schools, medical facilities, or other structures of cultural significance unless these buildings have already been destroyed to the point where they are no longer used for their particular and original purpose. Placing CPs in urban areas can also place indigenous populations at risk and can provide enemy units with covered and concealed positions to monitor and attack the CP.

2-14. Dense physical characteristics of urban areas generates clutter (an abundance of electromagnetic signatures in each area) that increases the difficulty of identifying specific targets. Urban clutter greatly reduces the effectiveness of threat surveillance sensors, particularly in the infrared and radar wavelengths. Clutter will be greater in urban environments that are operational compared to when the infrastructure has been diminished or destroyed. Therefore, urban terrain provides an excellent background for concealing CPs. Dispersing CPs, equipment, and personnel enhances unit survivability against direct and indirect fire threats. Commanders place minimum resources forward and keep more elaborate facilities back. This makes it harder for enemies to find and attack them.

DEGRADED COMMUNICATIONS

2-15. In addition to being difficult to depict, aspects of the terrain directly hinder communications. Buildings can block signals between individuals on the inside and outside. This can also affect Soldiers on different floors or even in different rooms on the same floor. Structures disrupt line of sight for radio and satellite communications between those that are outside. There is also a greatly increased level of electromagnetic interference as military systems must compete with numerous civilian systems like radios, televisions, cell phones, and wireless internet for bandwidth within the electromagnetic spectrum (see ATP 6-02.70 for techniques to identify and mitigate spectrum management challenges).

2-16. These communications challenges are particularly problematic for brigades and their subordinate elements that rely on constant radio contact during operations. Having a mobile tactical CP to remain close to the front and track the battle is very important, but it does expose leaders to enemy fire. To mitigate the terrain's disruptive effects, leaders must simultaneously increase unit capability to communicate (supply) while reducing the need for communications (demand). Figure 2-1 provides options to do both (see ATP 3-06). Visual signals, employed in accordance with unit standard operating procedures (SOPs), can be effective to mark unit locations and track the progress of an operation; however, the terrain severely limits who can see individual signals and from what angles. Units must also ensure they have an adequate supply to last throughout the mission (see ATP 6-02.53 for additional techniques to improve the performance and reliability of tactical radio networks).

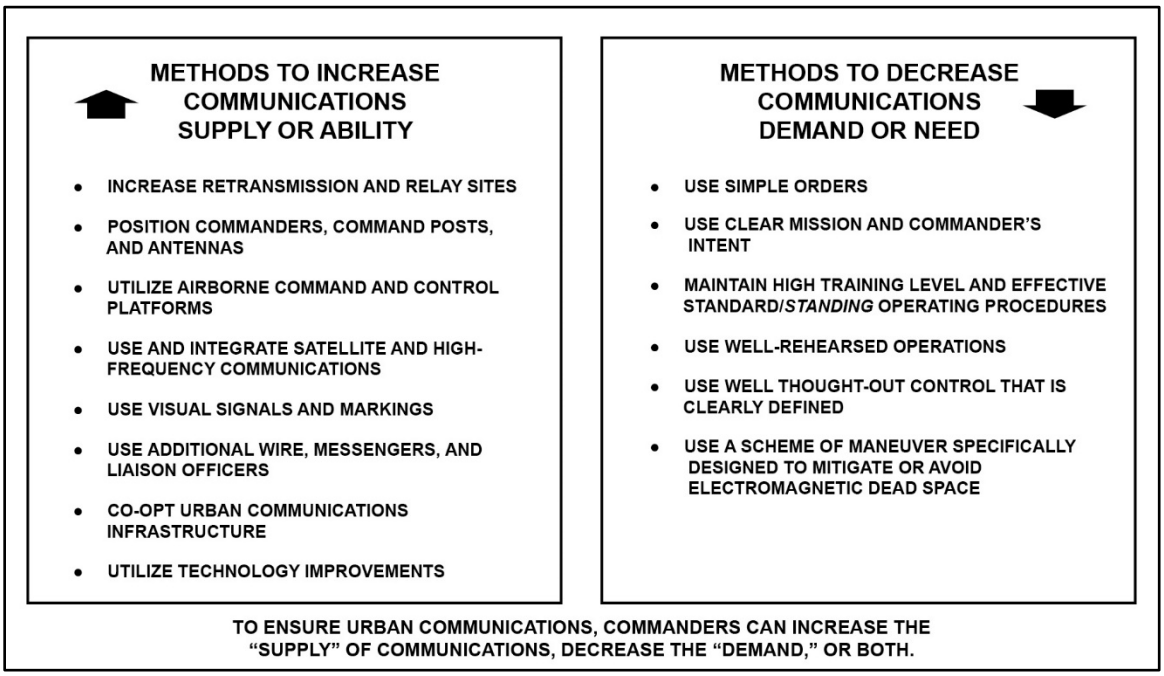

Figure 2-1. Methods to overcome urban communications challenges

2-17. Establishing command nodes in buildings provides protection and access to city services such as water and power; however, the design of most U.S. Army communications systems facilitate use in tents positioned in open areas. The numerous short cables can make it difficult to connect systems positioned within a building to external antennas, satellite dishes, or power sources. Even with longer cables, this limits potential CP locations and generally means running those cables through doors, windows, or holes made in the walls. This leads to increased setup time, potential damage to the structure, and additional requirements to mitigate weather effects. Units will have to be careful to avoid the stovepipe effect that can occur when staffs locate inside separate rooms within a building.

2-18. Units can park radio-equipped vehicles inside structures for cover and concealment. Several of the radio systems currently in the force have retransmission and adaptive networking capabilities to improve communications in degraded environments. Employing these systems in the right locations on aircraft, ground vehicles, or even dismounted Soldiers can allow CPs to maintain contact with forces once line-of-sight is lost. Placing generators against buildings or under sheds reduces noise emission, though they must receive adequate ventilation.

2-19. Cities provide opportunities to supplement military communications with access to hardline phones, cell phones, and civilian networks. Military communication systems also tend to use different bands than the civilian ones, so threats may be able to distinguish between the two and target appropriately. Using the civilian infrastructure can make forces harder to track within a densely populated area and may make it easier to communicate with unified action partners; however, these are generally easier to intercept making operational security an issue. Encryption can mitigate this to an extent, but Soldiers and leaders must remain

aware of the classification level of their communications as they change between different systems. Command and Control and communications systems rely on timing provided by the GPS satellite network for encryption and frequency hopping. Units should plan for degraded communications (risk of timing drift) when choosing structures which limit access to satellites.

2-20. Space weather resulting from solar radiation can also degrade capabilities, to include satellites, communications links, and ground stations. Commanders and operational planners must have a good understanding of space weather effects in order to mitigate operational impacts during forecast periods of reduced communications availability.

2-21. Applying the mitigation measures described above will make it easier to share relevant information between elements. Commanders will understand the situation better and subordinates will better understand the intent; however, the environment is still complex, the operations are dynamic, and the enemy is uncooperative. Commanders at all levels will still struggle to understand what is occurring beyond the reach of their own senses.

CONTINUOUS RISK ASSESSMENT

2-22. Each action during an urban operation is subject to the same kind of risk assessment that preceded the start of the operation. Practically speaking, as the nature of the operation changes from combat to stability, as the level of permissiveness, or enemy capabilities increase (or decrease), the nature and type of risk changes. In an extreme example, destroying a residential building full of civilians in order to kill one enemy sniper is unacceptable. Commanders must instead determine the best course of action given the risk to mission, risk to force, and risk to population. This might include using a smaller and more precise munition that only destroys the room with the sniper, sending a squad in to clear the room the sniper is in, or bypassing the building to continue mission while leaving a small force to prevent the sniper from repositioning.

2-23. Communicating political concepts in simple terms, particularly at lower echelons, can prevent potentially damaging political actions and enable subordinates to make decisions that support military and political objectives. Once committed to a course of action, the main way for commanders to minimize collateral damage without unnecessarily restricting the force or slowing its tempo is to establish clear and sensible ROE. The ROE describes when force is authorized, the level of acceptable force (sometimes to the types of munitions) for a particular situation, and the process for getting further approval. Effective ROE provides clear guidance that allows subordinate leaders to make risk decisions at their level. Leaders also need to be able to assess changes to the situation and adjust the ROE to fit (see section II below for additional information).

2-24. Commanders can also aid subordinate decision-making by providing necessary expertise. UO require specific knowledge and capabilities that are not generally resident within maneuver formations. Identifying the specific requirements of a mission or situation and providing experts to facilitate the operation can greatly increase subordinate unit capabilities. Commanders may task organize combined arms teams augmented with specialized capabilities, and specifically task these teams to deal with some aspect of the operations in support of subordinate units. Commanders employ civil-military integration mechanisms such as civil-military teams to coordinate with multinational partners and other U.S. Government departments and agencies to facilitate cooperation, mutual support, and understanding. (See JP 3-08 and FM 3-57.)

CONFLICTING PURPOSES AND AGENDAS

2-25. While ensuring unity of command among Army units is relatively simple, establishing and maintaining unity of effort among the various military and civilian leaders and organizations that influence UO can be a significant challenge. As the type and nature of UO changes from combat to stability, the type of organizations that an Army leader might have to work with include—

- Other U.S. Services.
- Other U.S. Government agencies, such as the U.S. Intelligence Community partners or the Department of State.
- U.S. or international nongovernment agencies.
- U.S. or international media.
- Allied or partnered nations or their forces.
- Local government agencies and security forces.

- Local media.
- Local militias.
- Local service providers.
- Local religious leaders.
- Other persons or organizations of significant influence or wealth.

2-26. The amount by which the purposes and agendas of these organizations align with those of the Army commander can vary significantly. As described in the previous section, creating a collaborative environment can greatly aid information sharing and achieving unity of effort. That said, determining the true purpose and agenda of a specific individual or group can be very challenging. People rarely clearly state what they really want, a common trait that certain cultures emphasize. In addition, one cannot assume that everyone else is acting in good faith, as there may be some working for personal gain or even on an adversary's behalf. This requires leaders that are personable and perceptive, both able to work well with others while determining what they truly want. Though the specifics of every situation are different and change over time, leaders able to accommodate the needs of others are more likely to get support from others for their own objectives.

INCREASED IMPORTANCE OF INFORMATION OPERATIONS

2-27. The relative level of popular support for a military force can have a significant effect on its ability to conduct operations and the number of forces required to accomplish a task. This support can be expressed in terms of permissive, neutral, and hostile populations. These are not hard categories, but rather a continuum that represents the general attitudes of the population, group, or individual. Conducting operations among a hostile population is far more difficult and dangerous than a permissive one. There may also be neutral or hostile groups or individuals within a supportive population or any other combination thereof. This merely describes how a force might approach situations differently given a change in popular attitudes.

Supportive or Permissive

2-28. Populations that are supportive of U.S. Forces and objectives are more likely to create a permissive environment. They may provide access to resources or information regarding adversary activities. These populations are more likely to overlook negative reports, but their support can still be lost if they feel their safety or security are being compromised by U.S. actions.

2-29. Leaders working with a permissive population should leverage that support by working with relevant groups to accomplish objectives. Fewer forces will be required to manage the population, and this can be reduced further by empowering the local government or security forces. Leaders must still take steps to ensure forces do not get complacent as there will still likely be individuals or groups that are hostile, or adversary agents, within even a permissive population. While it should not be the driving consideration for planning combat operations, commanders must be careful to retain the support of the populace even if they will transition ownership to another unit upon the completion of combat operations.

Neutral

2-30. Populations that are neutral towards U.S. Forces' actions and objectives are less likely to provide direct or indirect support without a strong expectation of personal gain. They may wish to remain neutral, or they may be waiting to see which faction will succeed. They are likely to be the most susceptible to information operations by both friendly and adversary forces.

2-31. Leaders working among a neutral population should attempt to gain their support while maintaining a strong security posture. Leaders should attempt to minimize direct contact with people in ways that could be taken negatively by working with local government and security forces.

Hostile or Nonpermissive

2-32. Populations that are hostile towards U.S. Forces and objectives will actively oppose efforts, resulting in a nonpermissive environment. This can take the form of providing intelligence to adversaries, potentially feeding misinformation to U.S. Forces, civil disturbances, sabotage, or even direct attacks. These populations are likely to view any act in the most negative light and resist attempts to influence them.

2-33. Leaders working among a hostile population should emphasize security. More forces will be required to manage the population with tighter control measures, and local government or security forces should not be trusted. Leaders should avoid any act which makes their forces look weak or vulnerable, but without further agitating the people.

Information-Influence Relational Framework

2-34. A population's initial level of support can depend upon a number of factors. Potentially the biggest is whether the population perceives a military force as a conqueror or a liberator. Ideology is a factor, but people will tend to gravitate towards the side with whom they feel safest. People will also look more favorably upon groups that share their culture, values, language, ethnicity, and religion. Many people will place more importance on these factors than the objectives of the combatants.

2-35. Maintaining the support of the people becomes everyone's problem as every action taken within the urban environment has an effect on the people and influences their opinions. No matter its starting point, military forces will see their support drop over time the longer they are in contact with the populace. The people will become less tolerant of civilian casualties from combat actions and accidents. They may even blame the occupying force for the actions of the other side. Rather than protecting, they can see military presence as something that draws fire and puts them at additional risk. It takes an active information campaign and clear progress towards stability to counter this negative slide and build support. This creates another level to the conflict as all sides try to draw support while undermining their adversaries.

2-36. Commanders should communicate with local and global media while integrating public affairs detachments. Commanders must coordinate with their higher headquarters to guide the narrative and to ensure the message accurately portrays relevant information. Commanders should take care when developing their messaging to appreciate that the population is not homogenous. Multiple messages tailored to the myriad of groups inside the area of operation are more effective than one blanket message. Ignoring the media can allow adversaries to shape public opinion uncontested. Credibility and trust form the basis of successful relations between units and the news media. This evolves over time from regular interaction. More information is generally better than less, except when the release of specific information threatens the safety and privacy of Soldiers. Leaders must consider media interest as a normal part of the planning process and work to ensure that their units present information that is accurate, timely, and consistent with operations security.

2-37. Commanders should prioritize efforts to keep elements from becoming hostile over appeasing groups that already have a somewhat favorable opinion. Even a small group working against U.S. interests can have a disruptive effect on operations that outweigh the benefits of a larger supportive population. A neutral population still allows units to conduct their operations with minimal interference. This makes planning for consequence management and mitigation especially important.

2-38. Information operations are far more effective if the unit can get their messages out before any adversaries. The message that gets out first tends to resonate more with people and puts the other side on the defensive as they try to refute the content. Commanders should look for information operations opportunities stemming from enemy violations of laws of armed conflict. When violations occur, units should drop a pre-scripted public affairs message. Preparing and pre-approving messages during planning can facilitate rapid response despite procedural limitations (see ATP 3-13.1 for additional information).

SECTION II – MISSION PLANNING AND PREPARATION

2-39. Units planning for UO employ Army planning processes (Army Design Methodology, Military Decision-Making Process, and Troop Leading Procedures) as appropriate for their echelon just like any other operation. The biggest differences relate back to the complexity of the environment and the need for techniques to help units manage that complexity and focus their effort without becoming overwhelmed.

MISSION VARIABLES

2-40. While the operational variables help leaders and staffs to understand and describe the overall environment, mission variable analysis focuses on those aspects of the environment that influence a specific

mission. The commander must consider these variables and their impacts on the mission whether conducting large-scale combat, stability operations, or humanitarian efforts.

MISSION

2-41. It is important to understand which tasks require units to operate within the urban area and which can be completed from outside the area. An example of a mission task within an urban area might be to seize a key node such as a government complex, which is a task that a unit is well equipped and trained to execute. Another example may be a mission which requires the unit to assess an infrastructure site like a power distribution center. Most combat arms units do not possess the knowledge and skills to do this, so they would need assistance from a subject matter expert to complete this task.

ENEMY

2-42. The basis of enemy analysis at this stage is determining the composition, disposition, and strength of any enemy forces that can influence the operation. The unit can then use this and the other mission variables for context to determine likely threat courses of action. See chapter 1 for more information about threat types and potential tactics and techniques. The following section covering intelligence preparation of the operational environment contains additional considerations for assessing threat capabilities and determining threat courses of action.

TERRAIN AND WEATHER

2-43. Terrain and weather analysis should focus on terrain features and weather effects within the objective area and along connecting routes. Military maps generally do not provide sufficient detail for urban terrain analysis. They may be useful for identifying avenues of approach, but they do not depict building height, subterranean features (like sewer systems, subways, and basements), elevated routes (like vehicle overpasses and railways), or infrastructure nodes (like power distribution stations, communications facilities, and mass transit stations). Aerial imagery, open-source information, and getting first-hand knowledge of the city become much more important. City maps can be very helpful, but they can quickly become obsolete as city projects alter the terrain to add new structures and demolish existing ones. The congested nature of urban terrain poses challenges to forming, massing forces for operations, consequently, make longer movements. Planning for weather and terrain should include the U.S. Air Force staff weather officer, who coordinates activities with the S2.

Observation and Fields of Fire

2-44. High building density limits observation and fields of fire. This can result in shorter engagement ranges. A tall structure on its own or on the edge of an area can provide line of sight across a great distance. Placing elements in the right locations can allow them to view and engage across a large area. Some cities have camera systems that can allow a unit to observe areas without committing their own combat power. Certain terrain, such as traffic circles or critical intersections with long straight roads maximize both observation and fields of fire and are usually tactical objectives.

Avenues of Approach

2-45. Urban areas contain many narrow mobility corridors that disrupt the movement of large formations. Street width and straightness are major concerns as narrow, winding roads greatly restrict mounted movement. In some cases, significant waterways or underground passages can provide alternate routes to enable maneuver. Elevated roadways may ease trafficability but expose the user to direct fires. Vehicle weight may limit availability of avenues of approach and units must understand bridge load classifications.

Key Terrain

2-46. In addition to terrain that provides a marked tactical advantage, urban key terrain can include infrastructure nodes and locations with cultural or political significance. Whether a specific location is key can vary based on the situation, mission, and commander’s intent. Careful analysis of infrastructure nodes and locations is required to reveal their interactions. Nodal interactions could result in elevating a location to key terrain which does not appear critical at first glance.

Obstacles

2-47. Examples of common urban obstacles that can have a significant effect on maneuver include the density of civilian vehicles, power lines (which can affect tall vehicles and potentially aircraft), and rubble. Particularly tall structures (like tall antennas or wires strung between buildings) can restrict air movements and can be very dangerous if it is hard to see. Understanding where movement is already restricted allows units to be efficient with their mobility and countermobility efforts.

Cover and Concealment

2-48. The types of structures in the area and the materials used in their construction will have a significant impact on the amount of cover they provide. Units must understand the degree of cover actually afforded by urban construction materials and incorporate that in their planning (see appendix B for additional information). Units should look for covered or concealed routes between structures that allow for undetected maneuver.

Weather Effects

2-49. Cities have their own microclimates which can affect operations. Dust, smog, wind channeling, night illumination, and sun reflection off buildings are all conditions that could alter operations. Roads already impacted by rubble can be covered by snow and standing water hindering movement of tracked and wheeled vehicles. For example, concrete and asphalt surfaces will not saturate, therefore vehicles can still plan to move in wet conditions. However, flowing water can undercut roads causing them to collapse or flood underground routes and facilities. Flash flooding conditions occur much quicker in urban terrain due to the water having nowhere to go but downhill. Cities are generally warmer than their surrounding areas which will affect infrared signatures. Yet, at night some portions may cool more quickly than others to cause a wide temperature variation. Bridges and overpasses will freeze before ground surfaces. Urban environments produce large volumes of pollution and aerosols which affect target detection. The presence of "urban canyons" increases the effects of winds on streets which parallel the wind direction while cross-streets remain relatively protected. Another side effect from the urban canyons is degraded GPS signal at the ground level due to satellite signals being obscured by the tall buildings. The extra luminescence provided by the ambient artificial lights of the city will mitigate the effects of nighttime operations and the benefits of night-vision devices. The use of heaters and warming fires in the winter can clutter thermal sights with numerous hotspots. Smog inversion layers are common over cities which may trap dust, smoke, and chemicals in the air.

TROOPS AND SUPPORT AVAILABLE

2-50. UO are personnel-intensive, so units must ensure they have adequate forces to accomplish required tasks and achieve operational objectives. Analysis of available support should include the capabilities of unified action partners. Units operating in urban areas are likely to have support from agencies and organizations with which they are unfamiliar.

TIME AVAILABLE

2-51. The complexity of the urban environment regularly causes units to take longer to complete tasks than similar actions in other environments. Planners should account for this by allocating additional time to accomplish tasks and building flexibility into the plan to absorb delays. Movement in urban terrain during times of limited visibility is slow and methodical requiring planners to pay particular attention to the timing and synchronization of operations.

CIVIL CONSIDERATIONS

2-52. Due to the complexity and volume of data involving civil considerations, there is no simple model for presenting civil considerations analysis. Instead, intelligence staff produce tailored overlays and assessments to fit mission planning requirements. Conducting a crosswalk of civil considerations with the operational variables can provide a comprehensive look at the civilian factors that might influence an operation (see ATP 2-01.3 for more information).

Areas

2-53. Understanding political boundaries can provide key information regarding who is responsible for an area or how an area's systems function. This becomes very important when trying to establish or restore essential services. Social or religious lines can also be important as these are where conflict is most likely to occur.

Structures

2-54. Not every structure is significant; however, it can be difficult to know what will be important for an operation. Knowing the locations of hospitals, clinics, and surgical facilities can be critical as international law prohibits attacks against them as long as they are solely providing medical support. Stadiums, parks, sports fields, and playgrounds can be good locations to send noncombatants to get them away from the fighting.

Capabilities

2-55. The most critical civilian capabilities are those needed to save, sustain, or enhance life, in that order. These include what the civilian population will require during or immediately after a combat operation. They can also include any resources or services that the military force may be able to use to support their mission.

Organizations

2-56. Organizations include any nonmilitary groups or institutions that might influence the conduct of the operation. They influence and interact with the populace, friendly forces, the threat, and each other. These can be political, but can also include media, religious, and criminal organizations, and those providing humanitarian support.

People

2-57. This includes analysis of relevant social, cultural, and behavioral factors that influence different groups of people, but also an analysis of individuals that may shape the operation in some way.

Events

2-58. Knowing about upcoming planned events can help units avoid conditions that would hinder mission execution. Units should identify these events, assess their impacts, and recommend changes to the course of action to ensure these events do not have a negative effect. Planners must consider not only the dominant or majority culture, but also minority subsets. These subsets will have different events or may view shared cultural events from an opposing point of view.

INFORMATIONAL CONSIDERATIONS

2-59. Informational considerations are those aspects of the human, information, and physical dimensions that affect how humans and automated systems derive meaning from, use, act upon, and are impacted by information. Informational considerations are expressed as a parenthetical variable because it is not an independent consideration, but an important component of each mission variable that leaders must understand when developing understanding of a situation. (See ATP 3-13.1 for more details about informational considerations.)

INTELLIGENCE PREPARATION OF THE URBAN ENVIRONMENT

2-60. Effective UO require units to develop and maintain a continuous understanding of the environment. *Intelligence preparation of the operational environment* is the systematic process of analyzing the mission variables of enemy, terrain, weather, and civil considerations in an area of interest to determine their effect on operation (FM 2-0). The urban environment provides a nearly infinite amount of data about the terrain, population, and supporting infrastructure for units to collect and analyze, much of which changes over time. Dense urban terrain is already very complex and requires detailed study and analysis to determine its effects on operations. The other aspects of the environment, specifically its people and infrastructure, multiply this

complexity exponentially. The first chapter described how urban areas have many different groups with their own beliefs, needs, and agendas. Their infrastructure also forms systems of systems that can enable small disturbances to have far-reaching effects. Commanders and staffs can quickly become overwhelmed trying to understand these components and how they interact to predict the effects of specific actions. Effective staffs must be able to organize data and focus analysis on those factors that have the greatest impact on operations to enable commanders to make informed decisions.

2-61. Urban areas present more data points for analysts to identify, analyze, and monitor than other environments. They also require more specifically focused intelligence resources. Commanders and staffs must broaden their awareness to extend beyond threat forces and the effects of terrain to include how friendly, neutral, and threat actions affect the environment as the characteristics of the environment can change rapidly over the course of an operation. Realistically, staffs cannot provide the level of specificity and certainty commanders are accustomed to in other environments; therefore, it is even more important that they constantly refine their estimates and adapt the plan as the situation evolves (see ATP 2-01.3 for additional information).

STEP 1 – DEFINE THE OPERATIONAL ENVIRONMENT

2-62. During this step, the commander and staff identify the significant characteristics of the urban area that are relevant to the mission and determine the assigned area and area of interest. Staff should request intelligence analysis and assessments from EAB to understand the terrain, local population, and enemy critical to the operation; however, expanding this to include the urban area's infrastructure, civil systems, and population may reveal improved methods to achieve operational objectives and enable units to focus efforts. The higher order will influence these, but analysis may reveal relevant factors that may require refinement to the higher plan. Remember that the population and supporting infrastructure are part of the environment, and staffs should include them in any assessment. A cultural or ethnic border may correspond to a physical boundary, but not always. In some cases, the cultural border may be more important. Though not all-inclusive, appendix A provides ways to classify environmental characteristics that provide a starting point for units to understand what might be relevant to their operations.

2-63. Understanding the flows of information, goods, people, energy, waste, and commerce is essential to understanding how a city functions. These flows are all interdependent, and a disruption of one often affects the others. This complexity and inter-relation of systems can produce multiple consequences out of every action. Understanding urban systems can allow commanders to avoid negative effects while identifying opportunities to achieve operational objectives through indirect means. The complex inter-relationships between different systems can lead to rapid and frequent changes. This can present new challenges and opportunities. Tactical leaders at all echelons must continually refine their understanding to ensure they can continue to meet their higher commanders' intent within this changing environment.

2-64. If unable to locate through open-source options, city utility workers may be able to provide maps for sewers, gas lines, and electrical lines along with other information about the city infrastructure. Critical elements of the infrastructure may be located beyond the physical confines of the urban area. For example, power stations and water treatment plants may be located outside the physical limits of the urban area in rural or neighboring urban areas. This may require commanders to expand the assigned area to ensure forces are able to mitigate threats to the infrastructure. After defining the assigned area and area of interest, commanders must be careful not to treat areas or their populations as completely homogenous. This can lead to false assumptions, cultural misunderstandings, and poor situational understanding.

STEP 2 – DESCRIBE THE ENVIRONMENTAL EFFECTS ON OPERATIONS

2-65. During this step, the commander and staff describe how the environmental characteristics from the first step affect friendly operations. Later chapters describe some of the common ways that urban areas affect different types of operations, but units still need to evaluate this based on the particulars of the urban area, the mission, and their own capabilities. Factors that have a severe impact on one unit may be negligible to another due to differences in force structure, size, capabilities, and mission requirements. ATP 2-01.3 describes how to assess characteristics of the environment and modify common intelligence preparation of the operational environment products to better depict urban areas.

2-66. Describing environmental effects on operations generally requires an understanding of the infrastructure that supports the city. This may start with an initial map reconnaissance and open-source analysis before expanding into a full engineer assessment of specific sites as the operation progresses. Commanders need to understand what systems support the city and what nodes sustain those systems. Seizing, securing, or even destroying those nodes can become major shaping operations that directly contribute to operational success.

2-67. There are significant characteristics of the urban environment that impact operations. Terrain can canalize forces limiting mobility and the ability to support one another. Terrain is variant and can be immediately different from block to block. Smaller decentralized elements will be challenged when synchronizing operations. Urban structures break up line of sight creating no-notice contact at close range limiting stand-off capabilities of weapons systems. Threat forces may use subterranean terrain to maneuver against friendly forces.

2-68. Language can be a significant barrier to effective UO. Leaders should understand what the predominant languages are within an area and resource means to communicate. This can include identifying Soldiers with the right knowledge and placing them where they can have the most effect, hiring interpreters, or developing communication aids like phrase cards.

STEP 3 – EVALUATE THE THREAT

2-69. During this step, the commander and staff assess the different potential threats in the area and determine how these threats can affect friendly operations. Chapter 1 provides information about some of the types of threat groups that forces can expect to encounter in an urban area, but it does not account for the characteristics of specific threat groups and organizations. Elements that fit within a similar category can be very different, just as the conventional forces of different nations can have very different organizational structures, equipment, doctrine, and training. Leaders must also understand that a particular group, element, or individual can be a threat to the mission without being an enemy combatant. The population of any given area can have enemies, adversaries, supporters, and neutrals intermixed without an easy means to distinguish one from another. Staffs must emphasize the differences between groups to enable forces to identify enemies and adversaries as well as understand their specific capabilities and activities.

STEP 4 – DETERMINE THREAT COURSES OF ACTION

2-70. During this step the commander and staff develop possible threat courses of action that can affect the friendly mission. This kind of predictive analysis requires a thorough understanding of the environment and the threat that successful completion of the previous steps should provide. It also requires constant refinement as events unfold and units gather more information. For example, why did the enemy choose the urban terrain and are they postured to defend or go on the offensive? After analysis, staff determine probable threat force courses of action needed to accomplish their objectives in the urban environment. While the terrain is always going to have a significant impact to threat courses of action, UO require commanders and staff to determine how the population and existence of supporting infrastructure might affect threat decision-making. Do friendly and enemy forces see the population as a threat, potential ally, or both? Is the population an obstacle to overcome or a critical center of gravity? Friendly and enemy forces may see parts of the infrastructure as resources to either exploit or deny to opposing forces. Since urban threats generally have goals and objectives that are more complicated than simply defeating friendly forces, it can be much harder to predict how they will proceed.

2-71. Different threat groups will also interact with each other in ways that units may be able to exploit. Leaders should not assume that all threats are working together nor that they will all operate independently. Analysis of threat courses of action should account for how they will interact with each other, the local population, and any other groups of significant power or influence.

TROOP LEADING PROCEDURES

2-72. Company commanders and platoon leaders do not have staff to assist in assessing the environment or analyzing the results of operations. They rely on products prepared at higher echelons, their own knowledge, and the expertise of a few key personnel in their units. This also requires them to focus on what is most important for their current mission or task. In most cases, small unit leaders should provide bottom-up refinement of battalion and brigade products rather than trying to create their own. During high-intensity,

large-scale combat operations, commanders will continue to focus on combat operations. When units transition to stability operations, commanders interact with the population and provide feedback to their higher headquarters. This feedback is based on the knowledge gained from engagements with the populous in their assigned area. It is critical for higher echelons to develop and maintain an accurate common operating picture of the environment.

2-73. Employing digital information systems (such as the tactical ground reporting system within the joint battle command-platform) can help ensure that units do not lose relevant information as they transition from mission to mission. They enable small unit leaders to provide reports and record data points that intelligence analysts can later access directly as they become relevant to the changing situation. That said, accessing the right information when needed can become difficult or even impossible if the unit does not have the discipline to implement and follow clear and effective information recording procedures.

APPLYING DEFEAT MECHANISMS

2-74. When developing an approach for offensive and defensive operations, commanders employ combinations of defeat mechanisms to achieve their objectives. A *defeat mechanism* is a method through which friendly forces accomplish their mission against enemy opposition (ADP 3-0).

DESTROY

2-75. *Destroy* is a tactical mission task that physically renders an enemy force combat-ineffective until reconstituted (FM 3-90). An enemy cannot restore a destroyed force to a usable condition without entirely rebuilding it. This is the most direct way to defeat an enemy and the simplest in terms of visualization and confirming the results. Within an urban area, destroying an enemy force is resource intensive and generally results in significant damage or destruction to any structures, infrastructure, or population around them. Units should identify ways to accomplish mission objectives while minimizing collateral damage before developing courses of action to destroy.

DISLOCATE

2-76. *Dislocate* is to employ forces to obtain significant positional advantage in one or more domains, rendering the enemy's dispositions less valuable, perhaps even irrelevant (FM 3-0). Achieving positional advantage can defeat the enemy, even cause them to withdraw from the urban area completely, with minimal damage to the surrounding area. This should be a unit's first choice when facing a threat in an urban area; however, it requires very specific circumstances, and its effects are fleeting as the enemy can just move to a better position.

DISINTEGRATE

2-77. *Disintegrate* means to disrupt the enemy's command and control system, degrading its ability to conduct operations while leading to a rapid collapse of the enemy's capabilities or will to fight (FM 3-0). This normally requires destruction of specific enemy capabilities, though electromagnetic warfare (EW) assets may be able to achieve this temporarily. *Electromagnetic warfare* is military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy (JP 3-85). Disintegration makes larger elements unable to synchronize efforts, but forces must still contend with the subordinate ground elements that may still fight at different levels of autonomy. Urban terrain facilitates disintegration by naturally disrupting maneuver formations and hampering standard communication systems. It also provides additional, nonstandard means of communication and enables smaller units to make them more effective even without support from higher echelons.

ISOLATE

2-78. *Isolate* is to separate a force from its sources of support in order to reduce its effectiveness and increase its vulnerability to defeat (FM 3-90). Isolation can be conducted using the electromagnetic spectrum. The urban environment can make isolation of a large force more challenging or even impossible. Large urban areas offer many surface and subterranean routes to move personnel and equipment in and out. A dense civilian population increases the challenges of distinguishing between enemy forces and noncombatants. This can increase the combat power requirements to isolate the city beyond what is feasible. Though units are unlikely to defeat large enemy forces through isolation, they should still restrict the flow of supplies and

reinforcements as much as they are able. At the same time, urban terrain facilitates isolation of small elements, potentially enabling a defeat in detail.

COMBINING DEFEAT MECHANISMS

2-79. The most effective approaches will generally involve multiple defeat mechanisms employed simultaneously or in sequence to achieve operational objectives. For example, a brigade combat team (BCT) attacking to defeat an enemy force in a city could seize key terrain around the enemy force (isolate), conduct lethal and electromagnetic strikes against command and control nodes (disintegrate), conduct a counterattack within the urban environment against an attacking enemy (dislocate), and then mass effects on more favorable ground away from the civilian population (destroy). Though this describes an optimal outcome that will not be possible in every situation, it still shows how commanders could use different defeat mechanisms to achieve objectives.

RULES OF ENGAGEMENT

2-80. The urban environment is unique in its density of civilians and their property. This magnifies the political and operational consequences of any action, requiring leaders to impose restrictions that can make meeting mission objectives more challenging. The *law of war*, or law of armed conflict, is that part of international law that regulates the conduct of armed hostilities (JP 3-84). It imposes restrictions on military action and requires leaders to consider five principles that govern the law of armed conflict when planning and executing operations: military necessity, humanity, distinction, proportionality, and honor. Its main purposes are to—

- Protect combatants, noncombatants, and civilians from unnecessary suffering.
- Provide certain fundamental protections for persons who fall into the hands of the enemy, particularly prisoners of war, civilians, and military wounded, sick, and shipwrecked.
- Facilitate the restoration of peace.
- Help military commanders in ensuring the disciplined and efficient use of military force.
- Preserve the professionalism and humanity of combatants (see FM 6-27 for additional information).

2-81. Violations of the law of armed conflict are unacceptable and will likely lead to criminal prosecution. Though the law of armed conflict imposes some restrictions, political and operational necessity will have a stronger influence on mission planning and execution. This forces leaders to consider not just whether they are allowed to act, but if the potential military gains outweigh the political consequences. Conducting a full assessment of every individual action in an urban conflict would quickly overwhelm any staff and halt the progress of the operation. This requires commanders and staffs to streamline the process to assess consequences while maintaining operating tempo. Establishing clear and specific ROE is one of the best methods available for commanders to accomplish this. *Rules of engagement* are directives issued by competent military authority that delineate the circumstances and limitations under which United States Forces will initiate and/or continue combat engagement with other forces encountered (JP 3-84). Combatant commanders then refine this guidance to produce standing ROE that are specific to a theater. Subordinate commanders can then determine whether the standing ROE are sufficient to accomplish the mission or if they must supplement with additional measures.

RULES OF ENGAGEMENT GUIDELINES

2-82. Communicating clear intent and mission-specific ROE can help subordinate commanders and Soldiers make appropriate decisions regarding the type and amount of force needed for specific situations. Effective ROE should address target identification and response, acceptable amount of collateral damage, capability restrictions, and approval authorities by echelon.

TARGET IDENTIFICATION AND RESPONSE

2-83. This is generally easier in conventional combat against a uniformed force, but facing an unconventional or hybrid force requires Soldiers to adjust how they respond to perceived threats. Not everyone that carries a weapon is an enemy and not all threats carry weapons or wear uniforms.

Acceptable Amount of Collateral Damage

2-84. Commanders should think of this in terms of a graduated scale based on the level of threat and importance of the target. Commanders may also restrict fires based on the level of confidence that a particular threat is present. This can manifest in a more stringent target approval process or a requirement that Soldiers positively identify an enemy combatant rather than suppressing suspected or likely enemy positions.

Capability Restrictions

2-85. Commanders conducting UO regularly restrict the use of certain types of weapon systems, munitions, and other joint force capabilities to prevent excessive damage or other negative impacts on the civilian populace. In general, employing more precise weapons that project less explosive force. There are also capabilities available to the force designed to incapacitate targets rather than kill or destroy. That said, whatever units use still need to be effective for the situation. Commanders must employ the appropriate and effective level of force to obtain a military advantage supporting a military objective. An overly restrictive ROE can lead to greater casualties by forcing Soldiers to use fewer effective means to neutralize a threat or preventing them from taking necessary action.

Approval Authorities by Echelon

2-86. Even the best plan cannot account for all possible outcomes, so leaders need to know who has the authority to make specific risk decisions as the situation changes. This can vary based on the amount of expected damage, the current level of popular support, and the capabilities of the threat.

PROTECTION OF CIVILIANS

2-87. Lethal capabilities of U.S. Forces, enemy actions, and the resulting collateral damage might destroy all or part of an urban area and put civilians at risk. The consequences of some actions may be so great that they require follow-on operations to manage their effects. Consequence management planning may include civilian CASEVAC to local hospitals, direct payments to property owners, and reconstruction efforts depending on the situation and type of mission. Having prepared responses to collateral damage and other potential consequences makes limiting negative impacts much easier (see ATP 3-07.6 for additional information).

2-88. Minimizing collateral damage may require establishing and communicating sensible ROE that place reasonable restrictions on when and how units employ lethal capabilities. Though forces should minimize collateral damage as much as possible, combat within an urban area is going to cause some level of destruction. Not all threats are going to constrain themselves when provided an opportunity to inflict casualties and destroy capabilities. They might even target the civilian population directly as is common of terrorist threats. This may influence the positioning of forces or the decision to occupy a populated area. It may also require committing forces to protect citizens even if not at a critical site. A unit may want to develop a branch plan to cover how they will respond if an enemy attack destroys a major infrastructure site. When combat operations subside and the unit transitions to stability operations, the brigade staff mitigates damage by planning for consequence management.

OPERATIONS GRAPHICS

2-89. While higher echelons tend to rely on digital systems to communicate operations graphics and battle track, lower echelons primarily use analog methods including overlays scaled to work with standard MGRS maps. These maps generally do not have the necessary level of detail to depict the density and complexity of the urban terrain and require graphic control measures to compress beyond readability. *Graphic control measures* are symbols used on maps and displays to regulate forces and warfighting functions (ADP 6-0). These combine to make standard MGRS maps less useful for battle tracking and communicating locations than in other environments. Two tools that can be effective for tactical units are the GRG combined with scaled photo imagery and the UO sketch. Both help leaders communicate specific locations on the urban terrain, though they have drawbacks that make them suited for different purposes.

2-90. A GRG is a grid overlay commonly used with overhead imagery to provide a mean to identify locations (see figure 2-2). The grids should be uniform and are generally in much smaller increments than standard military maps. In addition to grid labels, effective unit tactical SOPs will include specific markings,

numbering systems, or naming conventions for streets, buildings, rooms, windows, and even the corners or sides of buildings. It is a critical point that all units attempting to communicate this information have the same graphics overlaid on the same picture using the same names. This includes external aviation and fires elements supporting the operation. While the use of a common GRG can help a leader articulate the specific location of a target, either the coordinating headquarters or the firing unit needs to convert the information from the GRG into a useable format for the fire direction center and gun line to conduct a fire mission. A GRG that conforms to MGRS can help reduce the chances for confusion or mistakes. Whenever possible, use aerial photos or satellite imagery taken when the sun was directly overhead to minimize the amount of shadowing around structures.

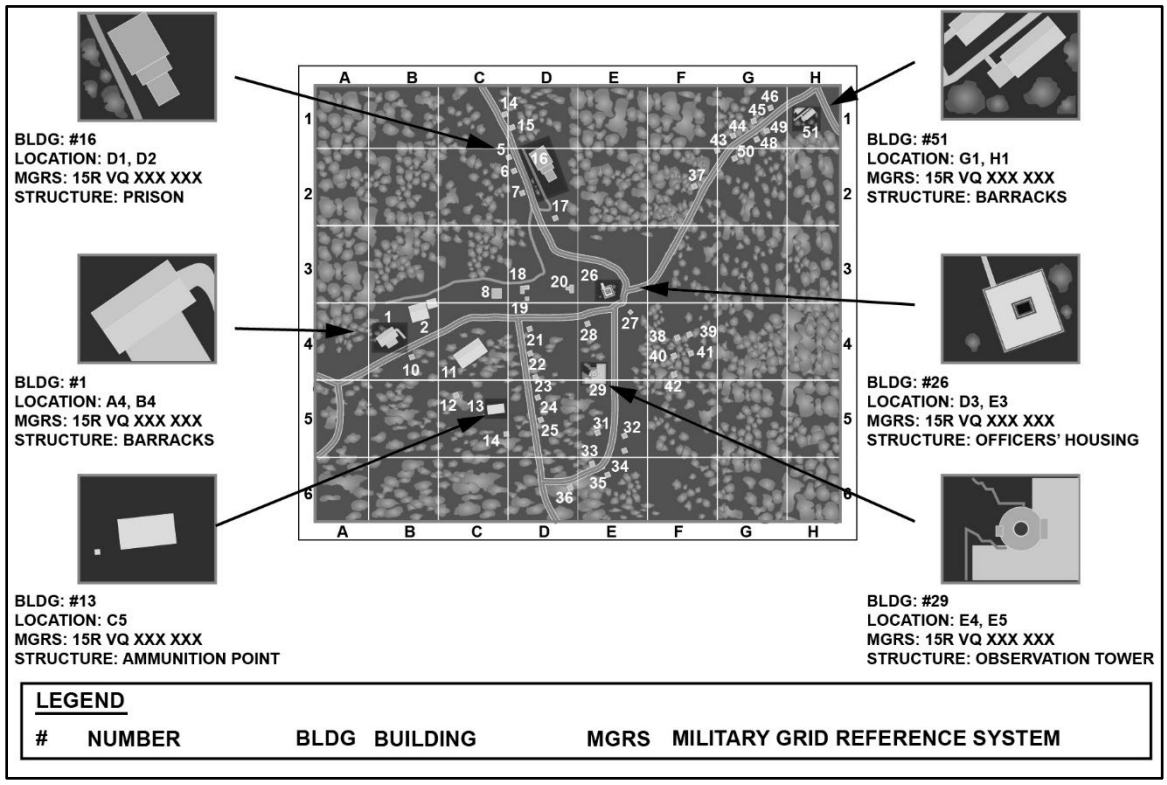

Figure 2-2. Example gridded reference graphic

2-91. While overhead images and photos can be very useful for planning urban combat, they can also be cluttered and make it difficult to find specific landmarks during rehearsals and execution. Leaders that just want to focus on what is important can use a UO sketch to show key landmarks and graphics (see figure 2-3). While not as precise as imagery, UO sketches can clarify graphic control measures. Generally, leaders will want to combine these with an MGRS map or a GRG on scaled overhead imagery for more precise tasks like calling for indirect fires. For a sketch map example of a subterranean facility see ATP 3-21.51.

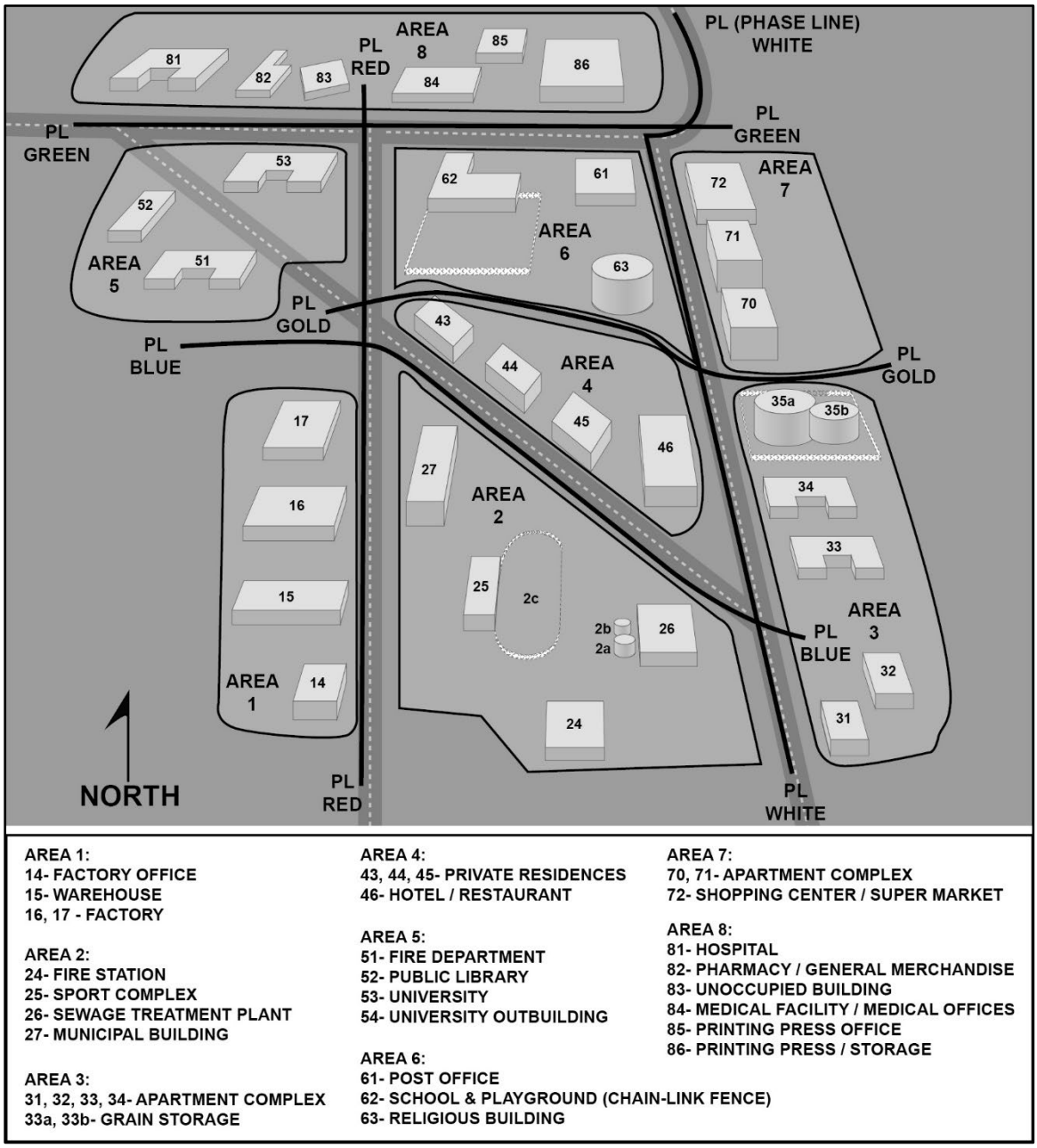

Figure 2-3. Example urban operations sketch

2-92. Whether using analog or digital means, grouping information on overlays enables leaders to only show the information they need at that point in planning or execution. Most operations use standard overlays that depict information like enemy disposition, friendly force disposition, obstacles, targets, and maneuver graphics. UO may require overlays that depict additional information like infrastructure networks, populace ethnicity or religious affiliation, and functional areas. These overlays cannot replace detailed and accurate staff running estimates, but they can highlight the relationships between different factors when combined.

REHEARSALS

2-93. Rehearsals are an important part of preparing for any operation, but this is especially true in the urban environment. There is a lot of uncertainty and unfamiliarity that comes with UO. Units must regularly perform different tasks or familiar tasks using different procedures. They have equipment that they either

only use in urban areas or otherwise use much less frequently. The need to form combined arms teams and close proximity of unified action partners requires elements with very different training, experiences, and procedures to work together. The complexity of the environment makes it easy for leaders to become disoriented and misunderstand operational graphics or control measures. Structures disrupt line of sight for radio and satellite communications, so units should conduct detailed signals and command and control rehearsal emphasizing the primary, alternate, contingency, and emergency communications plan. They may also struggle to see how the civilian populace might affect their operations. All of this uncertainty and unfamiliarity makes it more likely that Soldiers and leaders will make mistakes that can have catastrophic consequences. Leaders use rehearsals to ensure that subordinates understand their roles, their responsibilities to others, and the sequence of events in time and space. Rehearsals also allow leaders to explore likely contingencies to ensure everyone is ready to manage them.

2-94. Urban rehearsals should include situations that require application of the ROE and contingency plans to ensure all leaders understand how they affect the overall operation. Remember that the primary focus of a rehearsal should be following the sequence of events as planned to ensure everyone understands how their actions synchronize with the actions of others. Rehearsals should not devolve into an expanded wargaming session, but instead review and reinforce expected responses to add clarity. Reviewing key contingencies is good but including too many can confuse participants.

2-95. Rehearsals become especially important when working with unified action partners. Differences in capabilities, standards, and language can cause elements to have very different expectations even with a common order. Effective rehearsals can help ensure that all parties understand what their requirements are and what the elements around them will be doing. This is especially important for units that are supporting one another.

SECTION III – ORGANIZATION

2-96. *Task-organizing* is the act of designing a force, support staff, or sustainment package of specific size and composition to meet a unique task or mission (ADP 3-0). One of the fundamentals of UO described in an earlier section is to employ forces as combined arms teams. These operations require a large base of infantry Soldiers to move through the restrictive terrain to achieve mission objectives; however, infantry Soldiers do not possess all of the required knowledge, training, or equipment to accomplish all the various types of tasks a mission might require and are vulnerable when unsupported. Armored BCTs organically combine armored vehicles with dismounted infantry, but generally do not have enough dismounted infantry to conduct UO without reinforcement. An effective organization for conducting UO combines a strong infantry base with armored vehicles, heavy direct-fire weapons, and engineers supported by closely integrated aviation, fire support, information collection, communications, and sustainment elements. Based on the mission and situation, units may require other elements, such as military police, explosive ordnance disposal military information support operations, public affairs, and civil affairs.

LIGHT ARMOR INTEGRATION

2-97. Light Infantry and Armored forces fighting separately in urban areas have critical vulnerabilities that an enemy can exploit with devastating results. This section describes techniques to combine the two to form effective teams that can compensate for their individual weaknesses and take advantage of their strengths. Armored forces can refer to mounted formations equipped with Abrams main battle tanks, Bradley fighting vehicles (known as BFV), or Stryker infantry carrier vehicles (known as ICVs). Though these have their own characteristics that make them more or less suited for specific situations, they all possess the ability to provide stabilized fires from a protected platform, a critical capability that addresses a key weakness of light infantry formations.

LIGHT INFANTRY

2-98. UO entail movement through structures and direct communication with people, neither of which is effective while mounted. Light Infantry provide mobility through restrictive terrain at a significant cost in firepower and protection. They should comprise the bulk of forces organized for an urban conflict as large numbers of light infantry forces are essential for clearing and holding structures.

Capabilities

2-99. The capabilities of light Infantry forces include the following:

- Engage targets with small-arms fire under almost all conditions.
- Infantry small-arms fire within a building can eliminate resistance without seriously damaging the structure.
- Physically clear and occupy buildings.
- Provide high-angle indirect fires with an organic mortar section.
- Move through restrictive terrain without alerting the enemy.
- Soldiers can move over, around, or through most urban terrain regardless of the amount of damage to buildings and have excellent all-round vision.
- Conduct air assault and airborne operations.
- Operate in all terrain and weather conditions.

Limitations

2-100. The limitations of light Infantry forces include the following:

- Lacks heavy supporting firepower, protection, and mobility.
- Possesses limited sustainment assets at the company level.
- Vulnerable to enemy armor, artillery, and air assets.
- Vulnerable to enemy CBRN attacks with limited decontamination capability.
- Do not move at the pace of Armored forces.
- Challenging to resupply when deployed forward conducting decentralized operations.
- Difficult to battle track frontline trace, making it hard to clear for fires.

ARMORED FORCES

2-101. Armored formations combine mobility, protection, and firepower to place lethal effects against enemy forces and defensive positions. Though not required in the same numbers as light Infantry, armored platforms are necessary to defeat enemy strongpoints and destroy enemy armored vehicles at close range. Commanders should distribute them throughout the attacking force to ensure they can provide responsive direct fires at critical times and locations.

Capabilities

2-102. The capabilities of Armored forces include the following:

- Deliver precision cannon and machine gunfire under armor to effectively suppress or destroy enemy through the following:
  - Stabilized direct fires can penetrate most building materials and are accurate far beyond the range of infantry small arms weapons.
  - Explosive weapons can destroy groups of enemies without the need for a precise hit.
- Protected against enemy fires (up to 12.7mm for Stryker ICV, 30mm for the BFV, and 125mm for the Abrams main battle tanks; rocket propelled grenade screens, reactive armor, and active protection systems provide additional protection against certain munitions).
- Improved target acquisition with long-range day and night optics.
- Breach makeshift roadblocks, rubble, walls, gates, and buildings:
  - This can be executed as a manual breach or ballistic.
  - This also requires munitions that are effective against the construction material (see appendix B for additional information).
- Overpressure systems allow for operations in CBRN-contaminated environments.
- Facilitate resupply of ammunition and explosives or evacuation of casualties and prisoners, which applies mostly to Stryker ICVs and BFVs since Abrams main battle tanks have limited available space and are better suited for other roles.
- Provides limited obscuration using smoke grenade launchers.

- Projects a psychological presence that aids friendly forces in preventing violence, such as mounted patrols that can monitor large areas of a city while their presence bolsters friendly elements and deters threats.

Limitations

2-103. The limitations of armored forces include the following:

- Weapons can cause significantly increased collateral damage and can penetrate multiple walls and even multiple structures.
- May not be able to depress main guns enough to engage close targets or elevate to engage targets in elevated positions; some munitions have a minimum arming distance (see appendix B for additional information).
- Degrades all-around situational awareness, because there is difficulty acquiring and identifying close-in threats without exposing the vehicle commander or having dismounted Soldiers direct armored crew.
- Vulnerable to antiarmor weapons, especially when fired from elevated positions.
- Large noise and exhaust signature.
- Heavy size and weight can damage roads or underground utilities just by traveling over them and should not exceed road and bridge weight classifications, especially in less developed areas.
- May be unable to enter narrow streets, alleyways, and tunnels.
  - The main gun can strike objects around vehicle or be unable to traverse if blocked by a wall or post.
  - The Stryker ICV cannot pivot steer, which limits its mobility in tight areas.
- Vulnerable to canalization.
- Limited mobility in dense urban terrain could make them susceptible to ambush.
- Increased sustainment requirements, especially for ammunition, fuel, and maintenance.
- Stryker ICVs lack the firepower and protection to engage in close-combat against enemy armored vehicles.
- BFVs are not suited for close combat with enemy main battle tanks.

INTEGRATION

2-104. Building combined teams of mounted and dismounted elements providing mutual support can maximize the capabilities of each force while mitigating their limitations. Structures tend to compartmentalize engagements by blocking line of sight, degrading communications, and restricting mobility between elements. As urban combat devolves into a series of small-unit engagements, any force in contact is going to need their required capabilities nearby if they are going to influence the fight. Providing responsive support will generally require integrating at least one platoon of four armored vehicles per light infantry company. This ensures there are always armored capabilities nearby without creating too much congestion in dense terrain or placing unrealistic demands on the supporting force. Armored forces are a necessity in UO, but there are caveats. In most cases, armored forces must be protected by Light Infantry and should not lead the combined arms team. Infantry and Engineers will lead while armored forces overwatch and destroy strong points.

Augmentation

2-105. The following paragraphs describe optimal augmentation for a company in each of the primary maneuver brigade types. These are just suggestions, and leaders should adapt them to fit the specific circumstances under which they will operate (see chapter 3, section II, for additional information). Keep span of control in mind when task-organizing to ensure that leaders are not overwhelmed in what will already be a chaotic battlefield. When task-organizing tank platoons over to infantry companies in an Infantry BCT or Stryker BCT, it is essential that all support elements such as, mechanics, support squad, fueler, Class V, lift asset, and recovery vehicle accompany the platoon.

Infantry Brigade Combat Team

2-106. Infantry BCTs currently lack any kind of organic armor support. The additional firepower of the weapons platoons is helpful in many situations, but destabilized fires from an unprotected platform are going to be of limited use against enemy strongpoints. A tank or mechanized infantry platoon from an armored BCT provides the best support for their infantry companies. Figure 2-4 is a task organization example of an Infantry BCT augmented with a combined arms battalion. Infantry organizations operating without armored vehicle support can lead to heavy casualties. Commanders can mitigate the risk of heavy casualties by task-organizing teams with armored vehicles, heavy direct fire weapons and engineers, supporting with closely integrated aviation, and fire support.

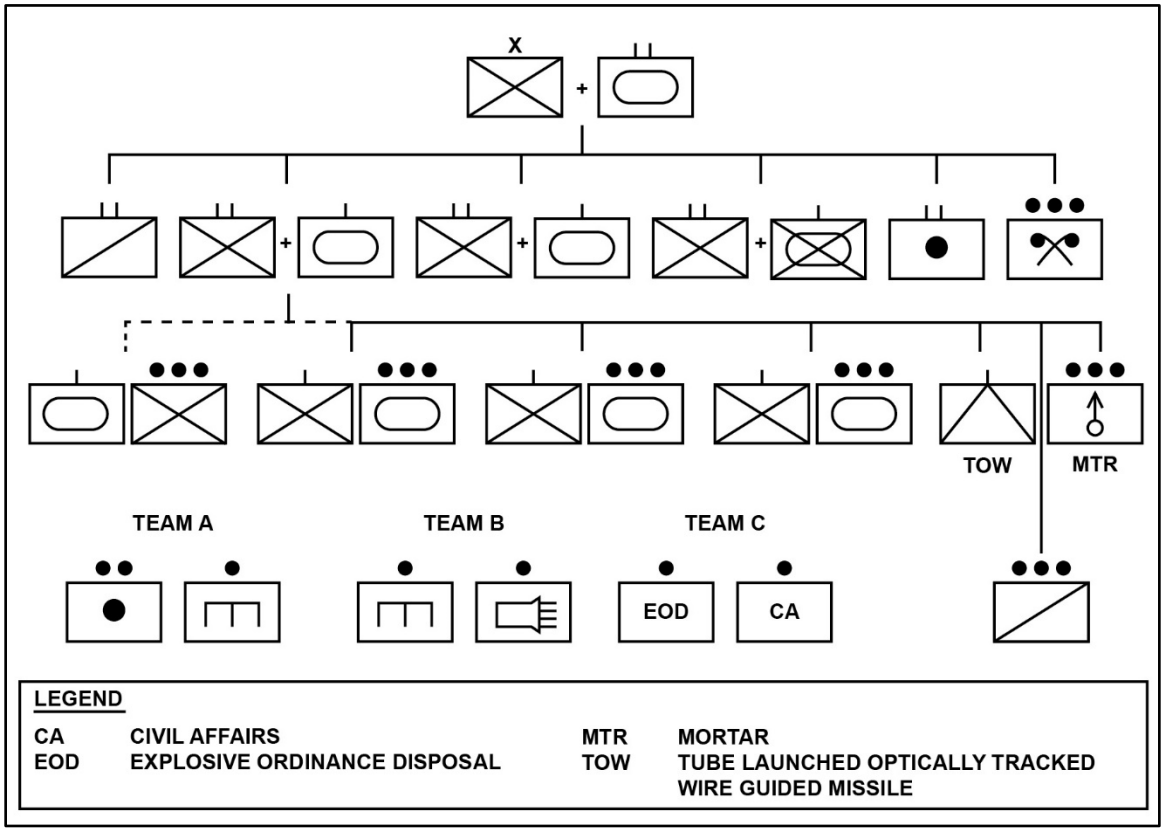

Figure 2-4. Combined arms task organization example

Stryker Brigade Combat Team

2-107. Stryker BCTs already incorporate infantry rifle platoons with organic armored vehicles making them a strong choice for urban combat. Their organic capabilities will suffice for most situations; however, they are not prepared for close engagements with enemy armor. The Stryker BCT also lacks the capability to conduct an exterior wall or building breach. A tank platoon from an armored BCT provides the best support for their infantry companies.

Armored Brigade Combat Team

2-108. Armored BCTs also incorporate dismounted infantry with organic armored vehicles. This makes them a strong choice for more rural areas, but they lack the numbers of infantry needed for dense urban combat. Augmenting a company team with an additional infantry platoon from an Infantry BCT or Stryker BCT creates a well-rounded force that can respond to almost any situation.

Company Organization

2-109. When augmenting an infantry company with an armored platoon, there are four basic ways to organize the company for urban combat.

Armored Platoon as a Maneuver Element

2-110. In this technique, the armored platoon leader maneuvers the platoon as an organic element in accordance with the company commander's intent. With this task organization, the platoon would likely provide support by fire for company attacks or overwatch the movement of infantry platoons. This allows the armored force to move through areas that are more open while the infantry platoons remain in restrictive terrain. This provides flexibility while requiring the least direct integration at lower echelons, but it may put the armored and infantry elements out of position to support one another. Effectively maneuvering the armored platoon becomes more challenging as the terrain becomes more restrictive. This technique is best when focused on a smaller urban area with more open terrain around it or when the armor threat is more likely to come from outside the area.

Armored Sections Under Infantry Platoon Control

2-111. In this technique, the armored platoon breaks into two sections under the control of infantry platoons. The company commander relinquishes direct control of the armored force to provide more responsive support to platoon engagements. This technique is very effective in maintaining the same rate of progress between armored forces and infantry, but it does not leave many options for the commander. It is best suited for attacks in dense terrain along a two-platoon front when contact with the enemy is expected.

Armored Sections Under Company and Platoon Control

2-112. In this technique, the armored platoon breaks into two sections, but the company commander only pushes one down to an infantry platoon while retaining the second as a separate maneuver element. This provides responsive support for the lead platoon while retaining flexibility for the commander. This technique is best for attacks in dense terrain along a narrow front when there is a risk of an enemy counterattack to the flanks.

Infantry Squads Under Armored Platoon Control

2-113. In this technique, the company team commander places one or two Infantry squads under the control of the armored force platoon leader. This ensures the armored platoon has close security, but it will slow its movement to that of the infantry. This technique provides a fourth maneuver platoon in a situation where security is more important than responsiveness.

ADDITIONAL CAPABILITIES

2-114. Urban terrain enhances the effectiveness of countermobility and survivability efforts while driving requirements for specialized mobility capabilities. Combat and horizontal construction engineers provide many of these capabilities and are essential for any urban operation. In addition to organizing engineer squads down to infantry companies, units should also consider supplementing infantry platoons and squads with urban breaching equipment if not already on-hand. This ensures they can maintain momentum and continue operations in most situations even when an engineer is not readily available. Vertical construction engineers can improve existing facilities for military use or even construct hardstand sites for longer operations. They can also provide subject matter experts to improve the effectiveness and accuracy of infrastructure assessments.

2-115. Military police units are generally better trained and equipped to manage dislocated civilian movement within the assigned area. The ability of attacking forces to isolate smaller groups of enemy Soldiers may increase the number of detainees, requiring additional military police support. While divisions should retain the task to manage the flow of dislocated citizens away from an area, brigades should request additional military police to supplement battalion operations. In addition, military police are capable of conducting crowd control.

2-116. Air assault aviation can move with maneuver and fires elements to a location while bypassing restrictive terrain, while attack aviation provides close combat support, and air cavalry squadrons conduct reconnaissance and security. These are great combat enablers, but commanders must weigh the options they provide against risks to the aircraft. Brigade headquarters should generally retain control of rotary-wing aircraft as they have the staff and systems to manage them but can provide direct support to a battalion or company for specific missions.

2-117. Though leaders should always look to minimize collateral damage, indirect fire support is often necessary to destroy an enemy in and on buildings while preserving combat power. Direct fire from towed artillery can also work for breaching and destroying protected positions, but with a significant cost in mobility and protection. Units should only attempt this when armored vehicles are not available or are unsuitable for some other reason. Outside of this, brigades should retain control of artillery at their level and provide direct support as needed throughout the operation. The brigade should request support from other indirect fire and fixed-wing aviation platforms based on threat capabilities. All echelons should have the appropriate training and equipment to designate targets for precision munitions.

2-118. The vast amount of information available within a city means that the intelligence capabilities resident within the brigade are normally not sufficient to meet collection requirements. In addition, the terrain itself severely reduces the effectiveness of the brigade's primary collection assets, such as scouts and UASs. The environment requires increased emphasis on HUMINT, signals intelligence (SIGINT), counterintelligence (CI), and open-source intelligence (OSINT)/publicly available information capabilities. As these assets are very limited within the brigade, staffs should request additional support from higher echelons. Effective collection may require tasking these assets down to individual companies to integrate with combat patrols.

2-119. To overcome the degrading effects of the urban environment on communications, units may need additional retransmission stations or even use different systems that would not normally be available at their echelons. Units will also require the means to communicate with unified action partners as standard military systems are likely to be incompatible.

2-120. Public affairs, military information support, and civil affairs elements provide critical capabilities across the range of military operations. Public affairs help ensure units portray relevant information accurately without compromising operational security. Military information support can directly influence civilian populations, local governments, and adversary forces. Civil affairs elements can help develop an understanding of the political environment and the different groups operating within. They can liaise with unified action partners to enable information sharing and unity of effort. They can also enable planning to ease the transition from offense and defense into stability. At a minimum, brigades should request additional support for their staffs to enable planning and coordination during offensive and defensive operations while divisions manage the information fight. During stability operations, brigades are more likely to need direct support and may even provide battalions with operational control of specialized teams.

2-121. Explosive ordnance disposal forces are uniquely trained and equipped to support maneuver units in an urban environment. The protection of critical assets targeted by enemy forces could require explosive ordnance disposal assets to be in the vicinity to reduce the intended destruction. Having explosive ordnance disposal forces readily available will enable the inspection and assessment of vulnerable bridges and buildings, to be used by friendly forces, for explosive ordnance. The use of the unique, remotely employed equipment issued to explosive ordnance disposal could assist reducing communication, surveillance, and reconnaissance issues.

2-122. For all task organization changes, unit orders must be clear regarding when changes take effect to ensure command relationships are clear and sustainment functions remain synchronized with operations.

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Chapter 3

Urban Offensive Operations

Offensive operations are operations to defeat or destroy enemy forces and gain control of terrain, resources, and population centers (ADP 3-0). In urban areas, the offense remains the decisive form of conventional warfare and the ultimate means commanders have of imposing their will on enemy forces. This chapter describes environmental impacts and execution techniques for offensive operations in urban areas. It describes how to employ dismounted and mounted elements as cohesive teams and introduces a sequence for executing an attack that emphasizes condition setting and isolating enemy forces to minimize risk to the force. Units should see FM 3-90 and FM 3-96 for a baseline of information about how brigades and their subordinate elements conduct offensive operations.

SECTION I – IMPACTS ON THE OFFENSE

3-1. The urban environment presents unique challenges to the attacker and opportunities to the defending enemy. Successful offensive UO rely on understanding the enemy and urban environment, shaping the conditions for the offense, and isolating the enemy from sources of support.

3-2. Reasons for conducting offensive UO include the following:

- Urban areas occupy decisive terrain or are between natural obstacles that do not permit bypass.
- Bypass of urban areas leaves lines of communication and critical assets in units' rear areas vulnerable to attack.
- Urban areas contain critical industrial or economic facilities.
- Urban areas contain critical transportation infrastructure such as ports, bridges, railways, and road networks that provide an advantage to the side that controls them.
- Urban areas have political importance that justifies its liberation or capture.
- Attacking an urban area could have a decisive psychological impact on the enemy or significantly motivate the friendly population within the city.
- Enemy forces that must be defeated elect to defend within urban areas.

3-3. Reasons for not conducting offensive UO include the following:

- Friendly objectives lay beyond the urban area, a bypass of the urban area exists, or speed or time is essential.
- An urban area exerts no substantial threat, or its threat can be contained.
- Sufficient force is not available to attack, clear, and then hold the urban area, or the attack is not logistically supportable.
- The force may not have the right mix of capabilities to conduct an effective urban attack, such as an armored formation that lacks adequate dismounted infantry.
- The urban area contains many noncombatants, hospitals, or wounded personnel.
- An urban area is declared an undefended city to prevent civilian casualties or to preserve cultural or historical sites.

Note. An undefended city, town, or village (also known as an open city), under the law of armed conflict, is a city that cannot be attacked. Once declared undefended or open, the military force controlling that city must immediately evacuate the undefended city and cannot distribute weapons to the city's inhabitants. (See FM 6-27 for more information.)

APPLYING CHARACTERISTICS OF THE OFFENSE

3-4. The characteristics of the offense focus on enabling commanders to gain and maintain the initiative. In general, the urban environment makes it more difficult to apply these characteristics to operations effectively.

AUDACITY

3-5. Audacity is a willingness to take bold risks (see ADP 3-90). Conducting an infiltration, vertical envelopment, or penetration to seize key terrain deep within a defended urban area are examples of audacious actions that can have a significant effect on the outcome of an urban battle. That said, urban terrain restricts mobility and makes it easier to exploit seams and gaps to separate and destroy small elements. This combined with heightened political consequences make it more difficult for commanders to accept increased risk. This can lead to tighter restrictions, indecision, and inaction. Commanders need to be comfortable enabling subordinate freedom of action and allowing them to take advantage of fleeting opportunities while also providing clear intent and the ability to reinforce where needed. Any action, including taking no action, is going to incur risk, so commanders need to make the best decisions they can with the information they have.

CONCENTRATION

3-6. Concentration is massing the effects of combat power in time and space at the decisive point to achieve a single purpose (see ADP 3-90). Dispersed forces can converge and concentrate combat power effects in nonlinear and noncontiguous areas of operation without being co-located. Units can concentrate effects by employing many different systems at the same time and place. Limited line of sight and narrow maneuver corridors restrict the number of direct fire weapon systems that a unit can employ against a single target. Target masking and collateral damage concerns also reduce options for indirect fires and aviation support. Units can use dismounted elements in adjacent buildings or on multiple floors to increase the volume of fire on an enemy location. Commanders may also make the decision to employ larger weapon systems despite the consequences, though there are times when precision can be more effective than concentration to achieve operational objectives.

SURPRISE

3-7. Surprise is an effect achieved by attacking the enemy at a time or place they do not expect or in a manner for which enemy forces did not prepare or expect (see ADP 3-90). Units achieve tactical surprise by attacking at an unexpected time or from an unexpected location. This is generally easier to achieve during the approach from outside the urban area as mobility restrictions within the city reduce options and slow progress. There can also be a vast number of potential observers to pass on information to the enemy. Smaller units tend to be more effective at achieving surprise in the urban area as they can move faster and have a reduced signature. Units can use methods such as air assault insertion, subterranean movement, and feints to surprise enemy forces, though these all come with their own additional risks. A unit can also achieve operational surprise by seizing a city before the enemy to force them to attack, but leaders at higher echelons generally make these kinds of decisions.

TEMPO

3-8. *Tempo* is the relative speed and rhythm of military operations over time with respect to the enemy (ADP 3-0). Tempo is about controlling the pace of the fight and reacting faster than the enemy rather than an objective measure. The density of urban terrain, the ways it restricts mobility, and the risks of overreaching lend to a slower, more deliberate pace that can allow the enemy to take advantage and seize the initiative. These effects increase the deeper into an urban area the unit moves and the longer the operation continues. Staffs should use synch matrixes that reflect time analysis. Commanders can mitigate the loss of tempo by introducing fresh combat power that was tasked to follow and assume or follow and support units. Units must balance the opposing requirements of rapid offensive movement with the need for securing their rear and building clearing. Building clearing requires tactical and operational patience. UO building clearing is not fast. Building clearing is a slow methodical process. Attempting to move through a building too fast may cause casualties. For example, it may take a supported platoon 40-60-minutes to clear a one-floor building with a basement. It may take 90-minutes to clear a one-floor building with no support and days to clear a multi-story building. Commanders must understand the impact on the higher unit commander’s expectations for tempo. While civilian requirements, working with unified action partners, and political influences detract from offensive focus, units can leverage these and other factors to impose multiple dilemmas for the enemy. Creating multiple problems for the enemy across as many domains and dimensions as possible can increase relative tempo with greater effect and less risk to the force than trying to speed through an urban attack.

URBAN OFFENSIVE CONSIDERATIONS

3-9. Common urban environmental characteristics can affect the units' ability to conduct offensive operations. The commander must consider these characteristics and their impacts while conducting large scale combat operations.

MOVEMENT AND MANEUVER

3-10. Characteristics of movement and maneuver include restricted mobility, light armor integrations, threat identification, munition effects, individual movement, fire team movement, concealment, increased fatigue, terrain destruction, attack aircraft, subterranean areas, increased combat power requirements, and strong points.

Restricted Mobility

3-11. Dense urban terrain restricts mobility even without additional threat effort. Buildings, walls, and other structures block mounted movement and restrict dismounts, canalizing forces on streets between them. Streets can be very narrow, especially in older cities that developed prior to the widespread use of automobiles, denying access to large combat vehicles. Many mounted and dismounted movement formations are not suitable, denying units tactical benefits in a complex three dimensional fight. Tall structures can hinder air maneuver as well. Establish interlocking sectors of fire during movement that account for buildings and rooftops. Navigating narrow mobility corridors can mask friendly fires while increasing the effectiveness of enemy machine guns and explosive weapons. Canalized movement through urban terrain greatly increases the effectiveness and likelihood of strikes by enemy mines and IEDs. Moving along multiple routes simultaneously can help, but the separate elements may be unable to support one another due to the physical barriers between them. Terrain varies and can be immediately different from block to block. This requires units to maintain enough combat power on each avenue of approach to endure and defeat potential enemy ambushes, as well as detect and clear explosive hazards and obstacles (see ATP 3-34.20 for information on countering explosive hazards). Leaders also need the means to adjust the plan during execution (detailed and clear operational graphics can greatly facilitate this). Bridges, overpasses, and tunnels provide the means to bypass obstacles that would not otherwise be available but serve as choke points for mounted and dismounted movement. Maintaining freedom of maneuver in offensive operations is critical, so units should incorporate mobility assets throughout the formation to ensure that all forces are capable of reducing obstacles and mitigating other hazards.

Light-Armor Integration

3-12. Integrating mounted and dismounted elements during movement allows each to mitigate the vulnerabilities of the other. The dismounted forces rely on the firepower and protection of armored combat vehicles to break enemy strongpoints, destroy enemy armor, and breach obstacles. The mounted element relies on dismounted support to protect against close threats and those engaging from high angles. Clearing buildings also requires a sizable, dismounted force. See the section on combined arms maneuver in this chapter for additional considerations that affect integration of mounted and dismounted elements.

Threat Identification

3-13. The density of terrain and the population in an urban area limits visibility and increases the chances of close-range meeting engagements with enemy forces. It also provides cover and concealment to defending forces, making it difficult to identify enemies before they initiate contact and allowing them to gain fire superiority. It also allows small groups to hold fire and remain hidden until they identify a high-priority target. Limited visibility to the flanks allows threat forces to maneuver around, isolate, and counterattack exposed flanks to defeat elements in detail. Buildings provide another dimension to the fight, forcing units to dedicate more attention above them and in some cases below them rather than just focusing on surface threats. Enemies could be on the outside or inside of any building or on any floor, to include below ground or the roof. They can also mix in with the population leaving only small indicators to separate them from civilian noncombatants.

Munition Effects

3-14. Rounds from heavy machine guns and larger caliber weapons can penetrate multiple walls. Even small arms penetrate most construction materials given a high enough volume of fire (see appendix B for additional information). Fire to suppress or destroy enemy within a building can cause great damage to structures and puts people within that building and others behind it at risk. This also applies to friendly elements that may be within the surface danger zone of the weapon. Leaders must understand the capabilities of their weapon systems, the positioning of their forces, and select the appropriate response based on the level of risk they are willing to assume (see DA Pam 385-63 for additional information on how to determine the surface danger zone for a weapon).

Individual Movement

3-15. Individual movement in urban areas focuses on reducing exposure to enemy fire by avoiding open areas, not silhouetting, and taking advantage of available cover. Canalized movement on streets between buildings exposes Soldiers to fire from many angles, and it can be difficult to identify the source. Enemies can also drop objects from above to hit or detonate near Soldiers on the ground. Soldiers should adjust their paths while moving to ensure they stay near cover, though not all materials protect equally well against munitions. For example, the engine block of a vehicle is far more effective at stopping bullets than the doors or trunk. Remember that bullets tend to ricochet off and travel along walls and streets, making even misses dangerous. Using the same example, kneeling by the front tire will be the best place to take cover behind most vehicles since there is less chance of a round traveling under the vehicle to strike the Soldier. Soldiers can also enter a building using a nearby door or window, though they may face additional threats inside (see TC 3-21.75 for additional information).

Fire Team Movement

3-16. Fire teams moving under fire or while bounding overwatch should generally use a diamond formation with the rear Soldier focused on threats above. Soldiers on a flank should scan windows, doors, and rooflines of buildings on the opposite side of the road in advance of the unit's movement. When stationary, one of the Soldiers should orient to the rear to ensure an enemy does not surprise the group with an attack from that direction. Soldiers should be on alert when approaching or passing basement windows, sewer grates, and utility hole covers at sidewalk level. Units moving within buildings use movement formations and techniques specific to the environment (see appendix C for additional information).

Concealment

3-17. U.S. Forces normally try to reduce exposure during movement and maneuver by conducting operations at night, but this is less effective in urban areas as the ambient light can be great enough to negate the advantage of night vision devices while also allowing enemy forces to detect movement. Forces should maximize movement within buildings, though this may require breaching at a greater cost in supplies, damage to structures, and loss of tempo. When forced to move outside of buildings, stay in shadows to make elements harder to see.

Increased Fatigue

3-18. Fighting in urban areas involves much more vertical movement for dismounted Soldiers than other environments. Urban combat typically requires scaling walls, crawling through windows and tunnels, and consistent movement up and down stairs. Carrying additional supplies to counter increased consumption and using body armor to reduce the effects of fire increases the physical demands on Soldiers. This makes it harder for Soldiers to maintain tempo, enabling enemies to reposition and respond with even more effective fire. Physical training combined with adequate food, additional water, and sleep can help prepare Soldiers for the rigors of urban combat, but leaders should have a plan to rotate fresh units into an extended fight to maintain momentum.

Terrain Destruction

3-19. The destruction from combat operations further degrades mobility. Buildings, bridges, and tunnels collapse. Rubble can block mounted movement on streets while providing an unstable surface for foot traffic. Broken water or sewer lines can flood sections of the city, while moving near exposed wiring and damaged power lines creates a risk of electrocution. Broken glass can puncture tires and boots. Glass, metal slivers, and other hazards can cause further damage to Soldiers that slip, fall, or employ individual movement techniques (see paragraph 3-39 for additional information). Though defenders can use the roads to gain a mobility advantage in urban engagements, this often does not carry over to attackers trying to defend a piece of ground they just seized due to the damage that occurred during the attack.

Attack Aircraft

3-20. Attack aircraft can bypass obstacles to enable rapid movement and envelopment of an enemy force; however, the environment creates additional challenges that planners must consider and mitigate (see chapter 6, section III for additional information).

Subterranean Areas

3-21. Defenders will likely use subterranean areas, including basements, subways, and sewers, for protection and concealed movement. Attackers should avoid entering subterranean areas unless necessary, preferring to instead to seal, guard, or otherwise bypass entrances; however, they will likely have to clear them eventually (see ATP 3-21.51 for additional information).

Increased Combat Power Requirements

3-22. Urban offensive maneuver requires a far greater correlation of forces than in other environments. The specifics vary based on the situation, but units can expect to need three to five times the normal (historical ratio) number of assigned forces before accounting for additional elements needed to manage the civilian population. Offensive UO quickly devolve into compartmented small units seizing objectives, challenging a unit's ability to effectively mass to achieve effects on company or battalion objectives. Maintaining tempo requires dispersing assets and capabilities across the force so that they are readily available when needed. Consolidation may seem more efficient, but this may not allow forces to exploit fleeting opportunities and exposes them to more risk while they wait for the right asset to resolve the current problem. Rotating units to mitigate fatigue will also increase the combat power requirements over time.

Note. Force ratios provided in this publication are a starting point for staff planning considerations. Force ratios should be determined after a lengthy and appropriate intelligence preparation of the operational environment.

Strong Points

3-23. The enemy will frequently prepare urban areas as strong points to gain favorable defensive advantages. In planning the offense, commanders must carefully consider whether they must clear, secure, or seize an enemy strong point, or whether they can simply bypass or reduce them with joint or precision fires. If the commander determines that clearing, securing, or seizing a strong point is necessary, it will require overwhelming force at the point of penetration. An assessment should be made to determine the level of protection afforded the strong point. Direct and indirect fires will be planned based on that assessment. The commander should plan for a high volume of supporting fires to suppress threat forces in depth and isolate the point of penetration while allocating precision munitions to specific known targets. Commanders must bring overwhelming force to bear on all enemy positions in overwatch of the planned point of penetration and also suppress other mutually supporting positions. Achieving a penetration, whether localized or on a broad front, requires assaulting from close positions to minimize exposure, and carefully planned direct fire control measures to prevent fratricide. Leaders must mass direct and indirect fires at the planned point of penetration while suppressing other enemy elements to deny them freedom of movement to reposition. Once a penetration is made, units rapidly reinforce it employ adequate forces to execute the assault quickly with the objective of securing the whole urban objective area during the initial assault. A night infiltration may be

required to gain entry into the strong point object area if it is not possible to suppress or obscure the defenders' weapons, or if concealed routes to the area are not available. During offensive operations air support is employed to support attacking units by reducing enemy strong points with precision-guided munitions.

INTELLIGENCE

3-24. During offensive UO, analysis often has a greater degree of operational consequence. The intelligence preparation of the operational environment process must provide a higher level of detail than would be required for offensive operations in a broader, less complex operational area. Effective includes the integration of information from a wide variety of sources. Staffs rely heavily on the amount of data associated with large urban environments, much of which is publicly available information. During the planning phase, commanders and staffs should consider translation capabilities and the integration of unclassified sources with classified sources of information to build the threat portion of the common operational picture. Publicly available information may provide the critical information needed to gain an enhanced understanding of the urban environment.

3-25. Conventional threat forces contend with the same opportunities and challenges as U.S. Forces. Units need to understand whether the enemy is a heavy armored force or lightly armored force or dismounted force, and because they can disperse inside buildings, reconnaissance efforts may need to focus on identifying obstacle efforts, route improvements, and evidence of fortification.

3-26. *Human intelligence* is the collection by a trained human intelligence collector of foreign information from people and multimedia to identify elements, intentions, composition, strength, dispositions, tactics, equipment, and capabilities (ADP 2-0). During offensive operations in urban environments, commanders should utilize HUMINT personnel to screen and debrief dislocated civilians and local residents as well as conduct field interrogations on detainees in order to satisfy commanders critical information requirements (see ATP 2-22.31).

3-27. *Signals intelligence* is intelligence derived from communications, electronic, and foreign instrumentation signals (JP 2-0). SIGINT provides a critical capability in understanding the threat in urban environments. A brigade's organic SIGINT capability may have limited capacity and range; however, all U.S. Army SIGINT elements are part of an enterprise that enables access and support from across the intelligence community. Military electromagnetic systems generally operate on different frequency bands from civilian, so units may be able to distinguish threat traffic even in congested space to achieve intelligence and EW objectives. Commanders must ensure that they understand what options are legally available to them based on their specific situations and mission. (See ATP 2-22.6 for more information on SIGINT.)

3-28. *Open-source intelligence* is publicly available information collected, exploited, and disseminated to address a specific requirement (JP 2-0). OSINT is a single source collection discipline that leverages national to tactical intelligence organizations to answer the commander's critical information requirements, enable command and control, and tip and cue other intelligence disciplines and organizations. OSINT is intelligence that is produced from publicly available information and is collected, exploited, and disseminated in a timely manner to an appropriate audience for the purpose of addressing a specific intelligence requirement (Public Law 109-163). To effectively conduct urban offensive operations, the Army needs to understand the environment, which includes three dimensions; physical, information, and human, and five domains; land, air, space, maritime, and cyberspace. OSINT can help provide this understanding. In the era of ubiquitous information, especially found in urban environments, intelligence can be derived from a myriad of open sources. For instance, through the mapping of geo-located tweets, forces can gain a picture of where incidents are occurring, what areas are access denied, and what type of aid is needed. Further, all this information can be received and updated in near real time. (See ATP 2-22.9-1 for more information on OSINT.)

3-29. *Geospatial intelligence* is the exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth. Geospatial intelligence consists of imagery, imagery intelligence, and geospatial information (JP 2-0). Geospatial intelligence (GEOINT) will support the commander's analysis of the operational variables including but not limited to analysis of urban center infrastructure usage, capabilities of the water, power, and sewer capabilities, public housing, emergency, and first-responder services available, identification of culture facilities and if they are being used for military, threat purposes, condition of lines of communication

and air/sea/land ports, and local radio and television providers. GEOINT supports the commander and staff assessment of civilian population disposition. GEOINT can assess the threat and natural obstacles, by type and dimension and provide information to plan bypass, breaching, or clearance operations support the commanders scheme of maneuver. GEOINT supports the staff planning by providing terrain analysis, identifying drop zones, helicopter landing zones, and developing three-dimensional fly-through products. GEOINT assets can focus on entry points to assist units in developing the threat situation, such as obstacles, ambush positions on rooftops, or movement of threat personnel and vehicles as friendly units' approach. UASs and Soldier Borne Sensors can focus on entry points to assist units in developing the threat situation, such as obstacles, ambush positions on rooftops, or movement of threat personnel and vehicles as friendly units' approach.

3-30. CI is not assigned below division and normally is not attached to BCTs. CI is assigned at corps and above level. Commanders may request CI support through Army and joint CI channels in a direct support, general support, or general support-reinforcing role. During offensive operations CI missions and collection activities in rear areas of operations may have a direct impact on operations by providing information on insurgent, terrorist, or other threat intelligence personnel, groups or networks hiding within the indigenous population of dense urban areas. These groups or networks will be nominated targets for capture or neutralization. If not identified and neutralized these threat elements will collect information concerning U.S. Forces operations, lines of communication, locations, routines, and capabilities for attack planning purposes. These threats elements will target lines of communications between rearward command and control headquarters and forward operating BCTs to degrade, disrupt, or deny operational synchronization. Threat elements will also target logistical supply chains between rearward support units and forward units by denying essential supplies to continue combat operations.

FIRES

3-31. Characteristics of fires include maneuver and fires integration, hampered target acquisition, masking and dead space, air-ground integration, reduced effects, increased collateral damage, use of precision fires, use of dud-producing munitions, congested electromagnetic spectrum, and targeting civilian communications.

Maneuver and Fires Integration

3-32. Echelonment of fires is a technique for integrating and synchronizing maneuver and fires. Echelonment of fires is the execution of a schedule of fires fired from the highest caliber to the lowest caliber weapon, based on risk estimate distances (see ATP 3-09.32) and weapons system range capabilities, as the maneuver force moves toward an objective. Echelonment of fires helps to ensure that ground forces are able to move to an objective without losing momentum, helps set the conditions for the direct fire fight, and reduces the risk of friendly casualties. Echelonment of fires is accomplished when the maneuver commander wishes to conduct preparation fires on an objective. For additional information on munition risk estimate distances refer to ATP 3-09.32, Multi-Service Tactics, Techniques, and Procedures for Joint Application of Firepower.

Hampered Target Acquisition

3-33. Urban terrain provides ample cover and concealment, and engagements typically occur at close range. This close proximity can put friendly forces danger close to friendly call for fire. Well-prepared enemy forces only leave cover for short periods, moving from position to position under cover. This can make it difficult to detect enemy forces and deliver effective fires in a timely manner. It can be difficult to provide an accurate size, activity, location, unit, and time, and equipment (SALUTE) report with 10-digit grid coordinates, when enemy forces occupy buildings. Engaging enemy forces on a rooftop also requires accounting for the height of the building to ensure munitions do not just impact at the base. Visibility-restricting weather, to include heavy smoke and rising dust further hinder target identification, laser designation, and guidance for aircraft.

Masking and Dead Space

3-34. The height and concentration of structures in dense urban areas cause significant masking and dead space. Buildings create dead space that typically requires the use of high angle indirect fires. This also increases the amount of airspace coordination to employ indirect fires. Careful positioning of artillery and

mortar systems can help mitigate some of this within a narrow deflection window. Employing artillery against targets between buildings requires having the right capabilities in the right locations with a very small margin of error. Organizing into sections at different locations can provide more options, though splitting leaves each element more vulnerable to attack. In many cases, mortars, close combat aviation, or close air support are going to be better choices, though these same urban canyons limit air-to-ground approach vectors. Attacking forces have the advantage of being able to place fires assets where they can best support the scheme of maneuver.

Air-Ground Integration

3-35. Aviators favor attacks along streets because it allows the pilot to maintain line of sight long enough to acquire targets and achieve desired effects. This increases accuracy and provides more maneuver space. As alluded to in the previous paragraph, this matches the preferred gun-target line for indirect fire engagements. This combined with UAS, and Soldier Borne Sensors employment, tall buildings, and other hazards creates a congested airspace that requires increased control and communication to mitigate. Pilots have a different perspective of the battlefield. This combined with the overload of visual cues that can exist within an urban area can make talking an aircraft onto a target challenging for a ground observer.

Reduced Effects

3-36. Fires can be very effective for destroying enemy positions on rooftops (after accounting for the building height), but they are far less capable of affecting targets within buildings or underground. This is especially true for multi-story mid- or high-rise buildings. The roof and intervening floors absorb force and shrapnel while protecting forces within. Though the joint force has munitions designed to penetrate buildings, bunkers, and underground structures, they tend to be expensive and in short supply. With or without them, the amount of firepower required to destroy the enemy often results in the structure's destruction, damage to the surrounding area, and a greatly increased ammunition consumption rate. Even after destroying the building, the enemy may be able to move to another to continue the engagement.

Increased Collateral Damage

3-37. Employing explosive munitions within an urban area has the potential to cause significant damage to structures and people adjacent to the target. Attacking forces do not get to choose where enemies place important assets. Enemies may place them in or near civilian concentrations or protected sites to create ethical dilemmas. This may cause commanders to limit or prohibit the use of certain systems or munitions in populated areas. Even illumination rounds can cause damage if the casing hits unprotected civilians or structures with weak roofs. Both illumination and smoke rounds can cause fires depending on the materials used in building construction.

Use of Precision Fires

3-38. Massed artillery causes damage over a wide area and is generally ineffective against enemy forces within reinforced structures. Commanders can reduce the area of potential damage by using guided munitions or weapons with low-explosive yields; however, buildings reduce the effectiveness of these weapons just like other fire support capabilities. Precision guided munitions are far more expensive than their unguided counterparts, and units in large-scale combat will likely have more target requirements than available precision munitions. This can cause commanders at higher echelons to hold release authority to ensure the capability is available when most needed. Specific munition types encounter additional challenges engaging urban targets. For example, munitions relying on laser target designation may be of limited use in urban areas as large expanses of polished, flat, reflective surfaces are common which degrade laser abilities. Engaging the top of a building requires positioning the laser high enough to mark the right location.

Use of Dud-Producing Munitions

3-39. Unexploded ordnance can be a more significant hazard within an urban area than other environments. Most munitions are less likely to detonate upon impact with hard surfaces at oblique angles. In addition to the restricted terrain limiting bypass options, it is more likely that a noncombatant will encounter the

munitions. If not properly disposed of, they can also provide insurgent and guerrilla forces additional materials for IEDs.

Congested Electromagnetic Spectrum

3-40. Just as civilian use of the electromagnetic spectrum can degrade military communications, it also makes locating and targeting enemy assets more challenging. Electromagnetic interference can have a negative effect on radar systems, though far less than active jamming. It is far more disruptive for systems that detect enemy emissions. The volume of emissions across a wide spectrum can make it difficult to distinguish those produced by enemy systems. The enemy can also use civilian systems to supplement their own, further complicating the problem (see ATP 3-12.3 for additional information).

Targeting Civilian Communications

3-41. Commanders should consider using electromagnetic effects against civilian communications networks in addition to enemy systems. This can help maintain surprise by restricting reports about friendly force movement. The shorter duration of offensive operations results in less overall impact on the civilian population, and enemy forces may be using civilian systems to supplement their own. This can also degrade the capabilities of unified action partners, so leaders should be aware of these effects as they determine the timing and duration of electromagnetic attacks. *Electromagnetic attacks* are the division of electromagnetic warfare involving the use of electromagnetic energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires (JP 3-85).

PROTECTION

3-42. Characteristics of protection include protecting armored vehicles, ricochets, concentrated effects, protective equipment, preventing fratricide, and counter-unmanned aircraft systems.

Protecting Armored Vehicles

3-43. Armored vehicles are critical for offensive operation for the protection they provide as well as their direct fire capability. They remain vulnerable despite their armor, especially to top down or bottom-up attacks. High-angle attacks may leave them without the means to return fire (see appendix B for additional information). Vehicles should operate in pairs, and mounted and dismounted elements must coordinate closely to ensure mutual protection. Units should also employ aerial reconnaissance to identify threats before exposing combat platforms. Smoke can make fire from buildings or along streets less effective, but it can be difficult to place since it only covers a small area. Urban canyons concentrate the effects, but winds also tend to be higher which dissipates smoke faster.

Ricochets

3-44. Not all materials perform equally when absorbing or deflecting munitions and the force of explosives. Shrapnel or bullets that reflects off steel girders or reinforced concrete walls might imbed itself in wood studs or pass-through drywall. Bullets that ricochet off hard surfaces tend to travel along those surfaces. Soldiers should avoid standing or moving next to walls or laying in the prone on a hard surface without some type of cover between them and the enemy.

Concentrated Effects

3-45. Leaders must carefully consider the strength of the explosive or penetrating power of the munition, the construction of the room or structure, and the locations of friendly forces and non-combatants. Short engagement ranges and enclosed spaces magnify the noise, pressure, and force of explosives as a significant portion of the effects reflect off hard surfaces. This concentrates the effects of even nonlethal, chemical, and offensive grenades. Urban canyons magnify the concussive effects of munitions and explosives on those within the line of sight. This also applies to dismounted infantry moving in close proximity to armored vehicles (see appendix B for additional information).

Protective Equipment

3-46. Units increase their survivability by ensuring that all Soldiers have protective equipment and are trained and disciplined in their use. While enemy forces are likely to have similar equipment, especially if supported by a peer-nation, civilians in the area are not. This means they will receive the full effects of any munitions or explosives employed in their vicinity. Standard protective equipment should include the following:

- Ballistic eye protection to reduce eye injury due to shrapnel.
  - Goggles help protect Soldiers traveling exposed in vehicles (such as gunners in vehicles not equipped with a remote weapon system) from sand, dust, and other irritants.
  - Eye protection must be compatible with optics and night vision devices to preserve capability.
- Blast pelvic protection, which protects the groin and femoral arteries.
- Hearing protection to reduce hearing injury due to loud sounds and pressure, because confined or subterranean spaces magnify sound and blast effects that can degrade or destroy hearing.
- Fire resistant gloves to reduce burns from explosions, flash fires, or handling hot materials.
- Fire resistant gloves also help prevent abrasions from activities like climbing walls or moving pieces of concrete and prevent cuts from broken glass.
- Knee and elbow pads to prevent injury from hard surfaces or broken glass.
  - Soldiers in urban combat regularly kneel or support their weapons on concrete, metal, or hard wood.
  - They are also likely to hit their elbows on door jams, windows, and walls.
- Fire detection and suppression equipment such as alarms and extinguishers and breathing apparatuses are advisable in subterranean areas.
- Breaching equipment such as battering rams, hooligan tools, axes, and ladders, which are important for attacks and can be used to extract other Soldiers or civilians from buildings.
- Crowd control equipment such as shields, facemasks, and batons.

Preventing Fratricide

3-47. Urban offensive operations regularly combine close range engagements with short exposure times, disorienting terrain, limited line of sight, and obscurants. Decentralized operations, close integration with allied or partner forces, and an overreliance on digital command and control systems (often with a delay in reporting) compounds the problem. These make fratricide highly likely without extensive mitigation efforts. Preventing fratricide in this environment starts with simple ground schemes of maneuver that account for battlefield geometry and deconflict the risks of converging fires. Direct and indirect fires must be planned with clear direct fire control measures and fire support coordination measures. Risk estimate distances are tools used by ground commanders to make risk decisions regarding the employment of close air support or other fires near friendly forces. Surface danger zones are another tool used by commanders to determine areas on the ground and in the air in which personnel and equipment may be in danger by ground weapons firing or demolition activities. Rehearsals are effective at creating shared understanding of unit relationships on the ground. In execution, units should frequently report or update their front-line traces and maintain contact with adjacent units. Operations centers are challenged to clear ground for fires and requesting units must be able to clear it in conjunction with a call for fires. Ultimately, Soldier discipline, and situational awareness are the most effective measures. Preventing fratricide in this environment takes great Soldier discipline, effective control measures, thoughtful positioning, and leaders that are situationally aware. Most urban structures provide at least some protection from munitions, but leaders should not assume that they stop everything. Some building materials, like glass, provide almost no protection and create additional hazards when damaged.

Counter-Unmanned Aircraft Systems

3-48. Adversaries will use commercial-off-the-shelf UAS to gain a tactical advantage over U.S. Forces. During UO commanders account for enemy capabilities and likely reconnaissance objectives as they develop their counter-UAS plan. Commanders and leaders implement techniques and procedures for countering enemy UAS based on their organic capabilities, attached capabilities, and the mission variables.

3-49. Commanders must ensure that their Soldiers are appropriately trained and equipped and that they understand counter-UAS. As best as possible, units should avoid being detected by enemy UAS by using

overhead cover and concealment, movement techniques, and deception. Additionally, leaders should identify Soldiers to act as observers (air guards) to look out for and detect enemy UAS. If an UAS is detected near a unit position, it is likely the unit is compromised and under enemy observation. Within constraints of ROE and weapons control status, units should attempt to engage and destroy the unmanned aircraft system using any organic means available, typically small arms fires or counter-UAS systems organic to the unit, while simultaneously displacing and taking other passive defensive measures (see ATP 3-01.81 for additional information).

SUSTAINMENT

3-50. Characteristics of sustainment include operational reach, vehicle recovery, and culmination.

Operational Reach

3-51. Sustainment cells are responsible for coordinating activities and systems that provide external support and services to ensure freedom of action, extend operational reach, and prolong endurance of supported units. The distance to sustainment nodes outside of the urban area increases as the engagement progresses. This can make sustaining offensive operations challenging. The challenge multiplies if the operation continues longer than expected or if the unit must transition into another offensive operation. Creating multiple, smaller nodes closer to the forward line of troops can help mitigate this, but it increases risk from enemy fires.

Vehicle Recovery

3-52. Damaged vehicles will quickly impede progress along narrow streets. Recovery assets may also be required to move enemy and civilian vehicles out of the way so that they can continue the operation.

Culmination

3-53. Urban offensive operations rapidly consume supplies and Soldier endurance. For example, a tank only gets about eight-hours of use on a full tank before needing to refuel, and they can consume ammunition even faster. Fuel consumption rates will depend on type of terrain, vehicle, and operational tempo. Leaders must track their unit's status and the enemy situation closely to ensure they do not overextend or culminate unexpectedly. Employing effective systems for resupply and rotating fresh Soldiers into the fight can extend operational reach considerably. Urban terrain enables transition to an effective hasty defense prior to culmination. This is always preferable to overextending and leaving forces exhausted and vulnerable to enemy counterattacks.

SECTION II – COMBINED ARMS MANEUVER

3-54. Chapter 2 provided options for task-organizing light infantry and armored forces to compensate for their individual weaknesses and take advantage of their strengths. This section describes how to employ these organizations as combined arms teams. Armored forces can refer to mounted formations equipped with Abrams main battle tanks, BFV, or Stryker ICV. Though these have their own characteristics that make them more or less suited for specific situations, they all possess the ability to provide stabilized fires from a protected platform, a critical capability that addresses a key weakness of light infantry formations.

EMPLOYMENT ROLES

3-55. Light infantry units can serve in the following roles:

- Clear, seize, and secure structures or spaces within structures.
- Disrupt enemy along avenues of approach.
- Provide local security for armored vehicles.
- Engage with noncombatants.
- Control or move noncombatants, as necessary.
- Movement and maneuver unimpeded throughout the urban environment regardless of the level of trafficability.

3-56. Armored formations can serve in the following roles within the capabilities of the platform:

- Overwatch large open areas.
- Destroy enemy in fortified positions.
- Destroy enemy armored vehicles.
- Block enemy avenues of approach.
- Evacuate of casualties and detainees.
- Deliver precision main gun and small arms fires while protected under armor.
- Integrate with Infantry to provide mobile protected firepower.

3-57. Both elements can perform the following tasks as required:

- Overwatch obstacles.
- Breach walls and obstacles.
- Suppress enemy in fortified positions.
- Call for and adjust indirect fire.

EMPLOYMENT CONSIDERATIONS

3-58. UO require light infantry and armored formations to integrate and fight in ways that may differ from the norm. Ensure that leaders from all elements are present for planning to ensure effective employment of the formations given their relevant capabilities and limitations. Combined rehearsals will help to mitigate differences in procedures and expectations.

EMPLOY ARMORED VEHICLES AS SECTIONS

3-59. Employing armored vehicles as sections ensures that the two vehicles can support one another. It also helps ensure that the element has the leaders required to support the mission and control fires. Single vehicles can operate in support of infantry, but it is preferable to keep them in groups of two or more.

MAINTAIN DISTANCE FROM ARMORED VEHICLES

3-60. The space around an armored vehicle can be very hazardous for unprotected forces. Firing can produce secondary projectiles that can hit Soldiers to the front, backblast to the rear, and overpressure that can affect anyone nearby. Soldiers operating near armored vehicles in an urban environment must wear eye and ear protection. Soldiers should be alert to the sound of armored vehicles shifting gears or suddenly revving the engine, as that will be their indication that the vehicle is about to move. Do not seek cover behind an armored vehicle without having first gained the attention of the vehicle commander. Nearby personnel risk the vehicle crushing them if it must move quickly or receiving effects from ricochets and the explosive effects of reactive armor, active protection systems, and enemy munitions (see appendix B for additional information).

PUT DISMOUNTED INFANTRY IN THE LEAD

3-61. Armored vehicles have limited situational awareness and angles of fire, have their movements severely restricted by urban terrain, and are vulnerable to attacks from above, below, and the rear. Maneuvering with infantry in the lead and the vehicle section in overwatch allows the infantry to initially identify and engage threats. The infantry can then call the vehicles forward to engage targets as required. This requires the vehicles to be close enough to respond to situations without stalling the progress of the attack.

CONTINUOUS COMMUNICATION

3-62. Communication between leaders on the ground and those in the armored vehicles must be clear and continuous. The mounted leaders rely on reports from the dismounted elements to mitigate their lack of situational awareness to ensure they are in the right location at the right time to have decisive effects on the enemy without putting the dismounted forces or themselves at unnecessary risk. They must also have clear verbal and visual signals for initiating, shifting, and ceasing fires. In some cases, it may be necessary to dismount and move forward with the infantry to assess the situation and determine the best course of action. Dismounted infantry can speak with a tank commander by use of the external telephone on the right rear of the hull. They can also climb aboard the tank to speak with the commander by way of the right rear sprocket to avoid the weapons on the turret. Do not use the phone or climb up on the tank without having first confirmed that the tank commander is aware.

MAKE USE OF COVER AND CONCEALMENT

3-63. Just because armored vehicles have protection against many types of munitions does not mean that they should advertise their presence and move in the open any more than is necessary. They should still move close to buildings and use available cover and concealment to minimize opportunities for the enemy to engage. Infantry should move through buildings where possible for the same reason. Walls will also provide some protection from the effects of the vehicle's fires. This will make it more difficult to maintain communication and positional awareness, so leaders will need to work to mitigate this.

MAINTAIN DEDICATED SECURITY ELEMENTS

3-64. Structures can enable enemy antiarmor elements to move undetected to firing positions close to stationary vehicles. Personnel within the vehicles can find themselves engaged without the ability to determine the direction of fire, much less effectively respond. Infantry that are clearing rooms are often not in position to identify and engage threats outside the building. Designate and maintain security elements for vehicles that will remain focused outside of buildings and scan for any emerging threats. These elements will move with the vehicles but must ensure they do not travel so close that they receive weapon effects.

SECTION III – SEQUENCE OF AN URBAN ATTACK

3-65. An *attack* is a type of offensive operation that destroys or defeats enemy forces, seizes terrain, or secures terrain (FM 3-90). An effective attack requires overcoming enemy capabilities enhanced by the defensive advantages of the terrain while minimizing collateral damage. Key events for urban battles and engagements tend to follow a similar sequence. This can apply to a large operation to seize control of a major city or the clearance of a single room. The following steps are not prescriptive, but it provides a way that units can arrange critical events and tasks in a linear fashion.

PRIOR TO THE OPERATION

3-66. Urban terrain provides great advantages to the defender, so an attacking force should make every effort to achieve their objectives without committing to a city battle. Options can include defeating the enemy on more favorable ground, preventing movement into the city, or bypassing the urban area. The following actions assume there is a sizable urban area near the enemy force.

DEFEAT DEFENDING ARMY IN THE FIELD

3-67. The easiest way to avoid fighting in a city is to defeat the enemy on more favorable ground. This may require a turning movement or deception to draw enemy forces into a position where the unit can destroy them.

PREVENT ENEMY MOVEMENT INTO THE CITY

3-68. A defender facing a superior attacking force may choose to retrograde into a city to preserve combat power and reduce the advantages of the attacker. The remnants of a defeated enemy force may try to retreat into the city to consolidate and reorganize, remaining a threat to ongoing operations. Units must have a plan to prevent the enemy's escape. They can use direct and indirect fires to fix enemy forces. They can also maneuver a single force and attack aviation around the enemy main body to block key avenues of approach into the city.

BYPASS THE CITY

3-69. Even if enemy forces are in the city and proving resistant to efforts to draw them away, the attacker may be able to bypass the city if the city holds no major operational objectives and the attacker can prevent the enemy force from disrupting future operations. This often requires leaving a force behind to contain the enemy, but this may not be necessary if the enemy is combat ineffective or if friendly elements are not dependent upon a ground line of communication to sustain operations.

STEP I—FIND

3-70. First, the attacking force conducts reconnaissance to gain and maintain contact with the enemy. The commander positions maneuver forces and information collection assets to maintain observation of enemy reactions to maneuver on the objective. Urban terrain provides many vantage points for observation, however; because of the nature of urban terrain, surveillance elements may have to use multiple vantage points to observe the complete breadth and depth of any one point of attack. Reconnaissance may only be able to find subtle indicators of enemy forces defending from inside structures. Information collection focuses on locations the enemy may use to reposition forces, commit reserves, and counterattack. The commander may infiltrate or insert reconnaissance and security forces to observe the objective and routes. As the BCT attacks, reconnaissance and security forces report enemy actions.

CONDUCT APPROACH

3-71. Upon deciding to conduct an attack, the unit moves to a point near the attack objective. Cities, especially major ones, generally serve as transportation hubs with established lines of communication flowing to and through them. Large roads and highways can enable rapid ground movement, though they can also restrict options for movement formations. Units should take the following actions to shape the fight during this approach.

INFORMATION COLLECTION

3-72. Effective UO require commanders to understand the specific characteristics of their assigned areas. Units should initiate and request information collection as soon as feasible and update unit-level estimates and assessments continuously. Understanding the terrain, local population, and enemy are critical for any operation; however, expanding this to include the urban area's infrastructure, civil systems, and population may suggest intermediate objectives to achieve operational objectives and enable units to focus efforts.

ESTABLISH COMMUNICATION WITH ANY FRIENDLY FORCES WITHIN THE URBAN AREA

3-73. There will often be elements within the city that are supportive of the U.S. military and its actions. These can be U.S. or allied special operations forces, remnants of a defeated military, a homegrown insurgency, or even just normal citizens that are dissatisfied with the enemy. These elements can be great sources of information. They can also help set conditions for the attack by consolidating supplies, passing messages to the local population, preparing to seize key terrain, or even serving as additional means to conduct direct action against enemy forces. If nothing else, commanders will want to ensure that these elements are safe from the effects from any offensive actions the unit directs against the enemy and that they do not impede combat operations thru impromptu celebrations or well-intentioned efforts to participate.

INTERDICT ENEMY LINES OF COMMUNICATION

3-74. Commanders should try to reduce the resources available to the defending force in the city and disrupt their preparations. They should also continue to prevent the movement of additional enemy forces into the city until the main body can get into position. Cavalry forces are especially suited for this, especially when provided with indirect fire and air support. These forces will need to ensure that the enemy is not able to cut them off on the far side of the urban area. Encirclement of the objective area is generally preferred, but this may not be feasible given the number of routes and methods available to move and communicate. The goal is to effectively isolate the enemy to degrade their capabilities over time.

DESTROY KEY ASSETS TO DEGRADE ENEMY CAPABILITIES

3-75. Units can employ long-range precision fires, aviation fires, electromagnetic attacks, or supportive elements within the city to destroy or disable enemy assets to disrupt defensive preparations and deprive the enemy of critical capabilities. This will likely require support from EAB as the brigade has limited organic long-range capabilities. Employing insurgent, guerrilla, or special operations forces in this way exposes them to greater risk of detection and possible destruction.

Establish Rear and Support Areas and Reinforce Own Lines of Communication

3-76. Urban assaults consume more supplies and produce more casualties than is typical of similar operations in other environments. Units need to build combat power in preparation for the attack and ensure they can maintain flows to sustain operations. Units should look for ways to leverage existing roads, rail, and waterways to facilitate sustainment operations. They must also secure their support areas against enemy strikes.

Negotiate to Avoid Assault

3-77. Presented with overwhelming combat power, an enemy might choose to surrender or negotiate for better terms rather than face their own destruction and that of the city around them. Units can facilitate this through effective information operations. Negotiations should continue throughout the operation to achieve objectives with minimal destruction and loss of life. Leaders should be clear on the limits of their own authority to negotiate and ensure that subordinate leaders understand theirs. Negotiations must be deferred to a friendly force commander with the appropriate authority to make that decision.

STEP II—FIX

3-78. Fix the enemy. The BCT fixes the enemy to prevent the enemy from maneuvering to reinforce units targeted for destruction. The commander carefully considers which enemy elements to fix and targets only the elements that can affect the point of attack.

Isolate

3-79. Upon reaching the urban objective, commanders will need to set conditions to enable a successful attack. Units will shape the fight and control the initiative by degrading enemy capabilities, positioning assets, and continuing to refine their understanding of the situation. Cut off the enemy's ability to communicate with the use of the electromagnetic spectrum. Units will select the best terrain and urban structures that provide the ability to place suppressive fire on the objective. The BCT will use fires to suppress enemy suspected command and control centers, fire support systems, and reserve. The commander will execute direct fires on supporting and rear positions to isolate the objective. Armored forces are optimal for executing isolation operations because they possess the speed, agility, firepower, and protection necessary to successfully shape the urban area. In a screen or guard the Cavalry squadron provides essential capabilities to isolate and disrupt or defeat the enemy outside the urban area.

Deny Enemy Resupply and Reinforcement

3-80. Total isolation of a modern city may not be possible, but units should still restrict the flow of supplies, reinforcements, and information to the enemy as much as possible. In addition to standard means of sustainment, commanders must also consider the effects of the urban infrastructure. Conventional military forces are generally able to sustain themselves and are not dependent upon civilian services; however, they may use civilian resources to supplement, especially if denied access to military resupply. Enemy units drawing on the city's resources may be more difficult to isolate through conventional means, but this also provides opportunities that the unit can exploit. Units should look for ways to deny access to power, fuel, food, water, and telecommunication systems. Understand that some of these take time to be effective, and this will likely have an equal or greater effect on any civilians that remain in the area. This is generally more feasible on a small scale, such as a single building or neighborhood, rather than cutting access for an entire city for an extended time.

3-81. Noncombatants within the urban area will continue to need food, water, medicine, and other supplies throughout the operation. Disrupting the flows of other systems can also have significant effects on the city and its population that increase and become harder to repair over time. That said, anything flowing into the city becomes another potential source of support for the enemy. Even if a unit is able to complete a full encirclement of the objective area, commanders will still need to make deliberate decisions regarding what they allow to flow in and out.

3-82. Commanders may choose to leave a route for the enemy to withdraw either to allow them to escape or to destroy them on ground that is more favorable. The enemy can use this withdrawal route to reinforce its forces so this is a possible risk that the commander must consider. Either way, this avoids having to attack

the enemy in their prepared positions. Units must ensure that this withdrawal forces the enemy to leave the urban area and does not allow them to resettle in a different part of the city.

SUPPORT RECONNAISSANCE WITH SURVEILLANCE TO CONFIRM ENEMY POSITIONS

3-83. Support ground reconnaissance elements with aerial capabilities. UASs can get closer to help locate enemy fighting positions without exposing manned aircraft to fire. Military communications generally use different methods and frequencies than civilian. SIGINT capabilities may be able to distinguish the transmissions and locate specific targets. An enemy force relying on or supplementing their communications architecture with civilian systems may be more vulnerable to signal intercept.

SEPARATE NONCOMBATANTS

3-84. Commanders should explore ways to get civilians to leave the assigned area. These can include messages on television, radio, public address systems, and leaflets. Keep in mind differences in language, culture, and literacy when selecting the appropriate media. Units should not limit themselves to one medium as using multiple at the same time can be more effective. Incorporate local government, security forces, and nongovernment agencies where possible. Informing the population about an upcoming operation sacrifices surprise, but it can make identifying threats easier while reducing potential civilian casualties.

3-85. For a large-scale attack, messaging will normally be a division responsibility facilitated by its brigades. For a smaller operation, such as a company raid, this will likely be a brigade or battalion responsibility. Physically moving noncombatants out of the area without disrupting operations can be challenging. Units must have a plan to direct civilian movement safely through forward lines and away from engagements. Additional responsibilities for managing and supporting displaced persons reside at EAB.

DISRUPT ENEMY SYSTEMS

3-86. Employing direct and indirect fires to disrupt enemy systems is generally going to be less effective in urban areas as buildings provide cover that mitigates or reduces the effects of most munitions. Units can still destroy exposed equipment like antennas, target assets that are in transit between locations, or employ munitions that can penetrate structures. Denying access to civilian services can support disruption efforts, especially for threats that rely on civilian systems to supplement their own capabilities (such as for power, communications, or information collection).

LEVERAGE CIVILIAN INFRASTRUCTURE TO SUPPORT REQUIREMENTS

3-87. Using civilian roads, rail, and waterways to move forces and sustain operations is not the only way to use civilian infrastructure and services to enable operations. Buildings provide cover for U.S. Forces just as they do for the threat. They may also provide clean water, reliable power, and additional communications options, especially for smaller units operating away from their normal sources of support. Civilian communications systems may also be the best way to disseminate information messages to parties within the objective area.

3-88. Many modern cities include multiple camera networks that units can use to gain real-time information about enemy positions and actions. This can be a great resource, but generally requires access to a control center of some kind. Also, different systems generally do not communicate with each other (for example, traffic cameras, automatic teller machines, and the security systems of different buildings), so units will need to identify the right locations to access the systems that will support their requirements.

3-89. Control nodes for the various city systems will likely be within the city itself. During a battle for control, this greatly limits an outside attacker's ability to exploit them prior to the initial penetration into the city and seizure of subsequent objectives.

CREATE INFORMATION EFFECTS THAT DEGRADE ENEMY RESISTANCE AND INFLUENCE CIVILIAN SUPPORT

3-90. Information operations should highlight the strength of the friendly force, weakness of the enemy position, and the futility of resistance. Commanders may want to encourage the civilian population to not support the enemy, especially if the enemy is occupying a friendly city. This creates additional dilemmas for the enemy commander but can place the supportive portion of the population at increased risk.

STEP III—FINISH

3-91. Finish the enemy. The commander initiates an assault, and the main body deploys rapidly to the vicinity of the line of contact or breach. The commander will use a single or combination of defeat mechanisms when developing the operational approach (see chapter 2, section II for additional information). The BCT maneuvers at a tempo the enemy force cannot match. They do this to overwhelm the enemy security force before it can react effectively or reinforce.

ASSAULT

3-92. Enemies may employ a combination of forward defensive lines to disrupt attacking forces moving towards the city as well as deeper lines that integrate with city structures. Commanders should anticipate where the force is likely to make contact and visualize how to develop the situation towards an attack under favorable conditions. Use this to determine the task organization and formation that best retains freedom of action on contact and supports the concept of the operation against known or anticipated enemy forces.

3-93. The primary form of maneuver for an urban assault is the penetration. Turning movements are the most preferred but are highly situational. Frontal attacks are highly destructive and only employed when the force does not desire to capture the city intact. Infiltrations can support an attack but are unlikely to be successful on their own. They can also leave forces exposed and cut off from support within the enemy perimeter. Most urban defenses will be a perimeter defense of some kind, so there is not an assailable flank for an envelopment to exploit. Vertical envelopments are possible, but they have the same problems as an infiltration. In the end, the main effort of an urban attack will normally be the penetration of the enemy defensive lines followed by a decisive exploitation within their rear areas.

DETERMINE THE POINT(S) OF PENETRATION

3-94. *Point of penetration* is the location, identified on the ground, where the commanders concentrates their efforts to seize a foothold on the far side objective (ATP 3-90.4). The *point of breach* is the location at an obstacle where the creation of a lane is being attempted. (ATP 3 - 90.4). The commander conducting a breach will establish a point of penetration that supports the seizure of the far side objective. In planning the penetration and breach, the commander considers the following:

- Concentrate efforts at the enemy's weakest point to seize a foothold on the far side objective.
- Determine the optimal point of penetration and then identify the best available point of breach that supports the continued attack.
- Reposition point of penetration or take additional measures to mitigate risk when the penetration points prove to be sub-optimal.
- Consider size of the overall breach area and the number of required lanes to ensure it will support the assaulting elements tempo.
- Plan for multiple breach points to prevent the enemy from repositioning forces on penetrating forces.

3-95. A narrow point of penetration focuses effort, though it may allow the enemy too much freedom of maneuver to reposition and attack the flanks of the assault force. The terrain may also restrict the attacker's ability to concentrate effects to the point where a majority of the force's combat power is unable to influence the fight. Attacking over a wide front can bring more forces to bear, but it slows the tempo and allows the terrain to have a greater disruptive effect. This can break the assault into multiple smaller penetrations occurring in close proximity, creating additional challenges for fire control and prioritization. Conducting breaches at multiple mutually supported points that are widely separated splits effort, but it presents the enemy with multiple dilemmas and may identify weaker points in the defensive lines. As a reminder, multiple breach points must be supported by all forces required and mutually support one another. Multiple breach forces can also allow the attacker to take advantage of having a larger force when the terrain prevents them from concentrating on a single front. A narrow penetration focuses effort, though it may allow the enemy too much freedom of maneuver to reposition and attack the flanks of the assault force. The terrain may also restrict the attacker's ability to concentrate effects to the point where a majority of the force's combat power is unable to influence the fight. Attacking over a wide front can bring more forces to bear, but it slows the tempo and allows the terrain to have a greater disruptive effect.

3-96. When determining the approach, commanders will often need to prioritize between moving along high-speed avenues of approach to increase tempo and maximize effects or avoiding likely enemy engagement

areas. Moving away from the main roads and open areas generally provides more cover and concealment and may identify ways to bypass primary enemy defenses. It can also be very disruptive and disorienting for maneuvering forces with contact more likely to occur at close ranges. In the end, the commander must assess the relative capabilities of the respective forces and how the terrain will affect them to choose the course of action that puts the force in the best position to succeed.

Deceive Enemy Regarding the Location and Timing of the Attack

3-97. Breaching operations against a prepared enemy defense are always high-risk operations. The defensive advantages of the urban terrain only increase this risk. Commanders should look for ways to employ tactical deception to draw enemy forces away from the breach site and reduce this risk. An example would be to apply initial pressure across a wide front. This can achieve deception when the commander intends to breach and penetrate. This method will also allow the commander to find previously unnoticed weak points in the defense and help to fix and/or deny the enemy's ability to quickly reinforce where the attack happens. When conducting multiple breaches, commanders should look for non-standard opportunities to gain mobility such as demolishing a house or knocking down a wall rather than consuming additional breach assets on enemy obstacle efforts.

Fix Enemy Forces to Prevent Reinforcement

3-98. The urban terrain facilitates the undetected movement of small groups of dismounted Soldiers, but it restricts the movement of vehicles and large formations. Commanders should look for ways to hinder enemy reinforcements further through fires, ambushes, situational obstacles, and disrupting communications.

Breach Perimeter

3-99. Breaching the enemy perimeter requires the unit to get a significant force on the far side of the defensive lines. Units should look for ways to bypass enemy engagement areas and build combat power without direct contact; however, getting through the defense may require reducing countermobility obstacles under fire. Urban breaching employs the same fundamentals and combined arms integration as breaching operations in any other environment, but with special considerations. Breaching in urban terrain also consists of creating holes in walls to enable dismounted movement through buildings. Mission ROE may restrict suppression of suspected enemy positions, or the types of munitions used, requiring the use of more precise munitions and systems. Commanders also need to understand how the urban terrain will affect obscurants to ensure they have maximum effect on the enemy without hindering friendly actions (see chapter 6, section VI, and appendix B for additional information).

Establish a Foothold on the Far Side of the Breach to Sustain Operations

3-100. Once through the breach, the force will need to establish a position that is large enough to allow them to consolidate, reorganize, build combat power within a covered position, and defeat any potential enemy counterattack. The anchor of this foothold will likely be a building or a cluster of buildings; therefore, identify one that provides adequate access and protection for mounted and dismounted elements as they consolidate and resupply (see appendix C for additional information). The enemy may place traps within structures and buildings to inflict massive casualties on unwary forces.

Continue to Breach Until Penetration is Successful

3-101. The density of modern cities facilitates defenses in depth, so enemy resistance is unlikely to cease following the initial penetration. Expect to breach multiple times before achieving a breakthrough. Commanders may find success employing multiple breach points and shifting priority of effort to support success, especially if the enemy does not have the combat power to prevent penetration on multiple fronts. The enemy will have the advantage of interior lines, but units can mitigate this through fires and continued deception efforts.

STEP IV—FOLLOW THROUGH

3-102. The last consideration when executing an attack is follow through. Units have four options after seizing their objectives. They can exploit success and continue, consolidate, and reorganize, build combat

power for a subsequent attack, or terminate their attack and withdraw. Normally, the BCT maintains contact and attempts to exploit its success.

EXPLOITATION

3-103. Once through the enemy defensive lines, forces must maintain the tempo to fragment the defense before the enemy can reorganize; otherwise, they will need to repeat previous steps until they achieve decisive gains or culminate. This is still preferable to having forces overextend or rush into enemy kill zones, so leaders must maintain control throughout the process.

SEIZE ESSENTIAL OBJECTIVES

3-104. Urban terrain is too dense and complex for units to secure and control the way they can in other environments. Instead, they may have to seize non-contiguous key and decisive terrain that enables them to gain positional advantage over the enemy, control city systems, and prevent the loss significant sites.

Dominant Terrain

3-105. As with other environments, there are locations within urban areas that provide dominant observation, cover and concealment, and better fields of fire to facilitate defense and the maneuver of friendly forces. These can be a natural features or artificial structures. Controlling these locations enables commanders to fracture the enemy defense and mass overwhelming combat power against enemy positions.

Infrastructure Control Nodes

3-106. Understanding the city's systems will allow commanders to identify those key nodes that allow the unit to control or at least heavily influence the systems. Units can leverage them to gain a tactical advantage, deny their use to the enemy, or preserve them for the population.

Transportation Hubs

3-107. These affect the flow of people and goods in, out, and within the urban area. In addition to enabling unit control over movement, they can be critical for sustaining operations over extended periods. Units should look for those pieces of key terrain that will enable them to establish and secure lines of communication.

Media Centers

3-108. These enable units to influence the flow of information within the urban area. They can be essential for communicating messages to a wide audience or preventing the enemy from doing the same.

Government Headquarters

3-109. Government headquarters are symbols of authority, so controlling them can have a psychological effect on the population and the enemy. Their positions also tend to facilitate influence and oversight over the most important parts of the city. Enemy leaders may base their own operations out of these buildings for these same reasons. Securing them can facilitate the reestablishment of civilian control and return to normalcy.

Important Cultural Sites

3-110. These may not provide tactical advantage, but their destruction can have significant negative psychological effects on the populace and unified action partners.

DESTROY ENEMY INTERIOR LINES

3-111. As forces seize key terrain within the city, they must continue to fragment the defense into separate unsupported positions. Efforts should prioritize destroying or capturing enemy command nodes, leaders, and supply stores. The enemy will likely try to trade space to inflict additional casualties and buy the time needed to consolidate and reorganize. As the unit moves further into a city, the terrain becomes denser, lines of communication become longer, and flanks can become more vulnerable to attack. Conversely, the defending

unit's AO becomes smaller, with shorter lines of communication, and defending flanks may become easier. Units may find that combat power requirements increase greatly, and the pace of operations slows, allowing the enemy to reestablish the defense. Combat also tends to become more destructive as forces must expend greater firepower to achieve smaller gains. Committing the unit's strongest and most capable forces early may cause them to be combat ineffective when needed most.

CREATE INFORMATION EFFECTS THAT DEFEAT THE ENEMY'S CREDIBILITY AND CONFIDENCE

3-112. Information operations should highlight the failure of the enemy to stop the attack while showing the successes of friendly forces. Enemy soldiers should feel that defeat is inevitable and continued resistance is useless. Messages should also convince the enemy that surrender is not dishonorable, and they will retain their dignity. Enemy efforts will try to minimize any gains and highlight civilian casualties and infrastructure destruction.

CONSOLIDATION AND REORGANIZATION

3-113. Urban attacks normally devolve into small units seizing intermediate objectives, consolidating, reorganizing as necessary, and then handing off to continue the assault on the next objective. Units may have to repeat this many times before meeting their endstate. Every time friendly forces attack into an area; steps are taken to consolidate. Units will clear, inspect, and emplace forces to hold against enemy counterattack. Preparation, synchronization, and smooth execution are essential to prevent unnecessary delays that can slow the tempo of the attack and allow the enemy to recover. Consolidation is to organize and strengthen a captured position to use it against the enemy (FM 3-90). Units assess their combat power and determine if they are achieving their objectives. Units consolidate to ensure they maintain their capability and do not lose what they have gained. *Reorganization* is all measures taken by the commander to maintain unit combat effectiveness or return it to a specified level of combat capability (ATP 3-94.4). Units cross-level internal resources in a degraded unit to restore or increase combat effectiveness. Reorganization is an option when the operating tempo is such that the risk for removing a unit from the operation risks the mission.

3-114. Units consolidate throughout the operation, which may take hours or days, not just following an offensive operation. Units must consolidate following an offensive operation in order to prepare themselves for subsequent operations. At the start of consolidation, units should form into a hasty defensive posture. Though the defensive advantages of the terrain can aid in repelling a counterattack, the enemy will have had more time to study the area and may have plans to mitigate those advantages. There are also a few specific hazards that units should look for. The first is to verify that previous operations did not compromise the structural stability of any buildings in or around the area. They should evacuate personnel from any potentially compromised structure until a knowledgeable individual can conduct a more thorough assessment. Second, units should ensure that any occupied structures are free from explosive devices. Rigging structures to detonate after an attacking force enters has been a common tactic in several recent conflicts. Third, units should check for subterranean entrances or other routes that an enemy could use to infiltrate undetected.

3-115. Following an attack, leaders review their efforts to determine if the attack was successful. The status of some objectives will be obvious, but some, especially those focused on the population, may be harder to assess. Based on the situation, some planned branches and sequels may be viable while others are not. Urban combat is physically and mentally draining and rapidly consumes resources. Leaders assess their units to determine what actions they need to take before continuing operations.

3-116. As specific missions often require specific capabilities, units will normally need to reorganize to release elements that are not required for the next mission and link up with those that are. Units should account for increased supply expenditures and potentially greater casualties than normal when planning for the transition. Units should implement their consequence management plans to deal with civilian casualties or property damage. These should clearly articulate roles and responsibilities for treating civilian casualties and extinguishing fires to reduce further problems.

3-117. Units should also assess collateral damage from the operation. This can help inform consequence management actions while enabling the unit to get ahead of any false narratives. Having civil affairs, public affairs, and psychological operations personnel on the ground at this time can be very helpful. All Soldiers

should be able to explain what the unit is prepared to do to for the population and where to go for detailed answers and support.

3-118. Given adequate time, units should attempt to exploit a successful attack by conducting a thorough search of areas the enemy occupied and questioning citizens in the area. This can take far more time in an urban area than in other environments (see chapter 6 and ATP 3-90.15 for additional information). It is generally better for the attacking force to conduct the search or at least facilitate it to benefit from their knowledge of their actions and those of the enemy. Units seizing intermediate objectives in support of a larger attack are unlikely to be able to do more than a cursory examination of the area before they must move to the next objective, but it may be worth coming back to once the attack is complete. If the attacking force is unable to conduct a thorough site assessment due to a follow-on mission or risk of imminent enemy attack, commanders should have a dedicated force prepared to step in. Assessing the effectiveness of an attack can be difficult on site, and units may not know the true impacts until after exploitation of materials seized at the site is complete. Avoid leaving a site without searching it unless necessary.

3-119. Commanders should plan for a thorough debrief for all Soldiers involved in the operation once in a more secure location. This allows everyone to review events while they are still fresh and can draw out things that only a few or even a single Soldier noticed. This debrief aids in maintaining a historical record of events, can identify problems the unit can fix to improve future operation, and provides details that analysts can use to inform future operations. Noting a new capability or unusual technique that an enemy employed, or an individual's suspicious behavior can become very important later.

CONSOLIDATE GAINS

3-120. *Consolidate gains* are activities to make enduring any temporary operational success and to set the conditions for a sustainable security environment, allowing for a transition of control to other legitimate authorities (ADP 3-0). As the attack advances, friendly forces apply the multidomain imperative to continually consolidate their gains, establish control over the urban area, and prepare to transition. This requires units to maintain the initiative against active and potential threats rather than immediately changing focus to the next operation.

DEFEAT ORGANIZED RESISTANCE AND DISRUPT POPULATION SUPPORT TO ENEMY

3-121. Successful fragmentation of the defense will leave unorganized groups of enemy forces that may continue to fight. The unit must defeat these pockets of resistance before they can consolidate and again threaten the success of the operation. The enemy may also try to destroy portions of the city as they retrograde to reduce its value to the attacker.

CONTROL CITY AND PREVENT TRANSITION TO INSURGENCY

3-122. Asserting control and restoring order to the urban area is critical to preventing further degradation of city systems and popular support. Hostile groups may try to consolidate personnel and weapons to facilitate attacks or start riots. Establishing checkpoints to search vehicles and personnel, implementing curfews, and banning large gatherings can help prevent these. Units should also be aware of what people are saying on social media platforms to anticipate problems and defuse situations. Unit leaders must engage with local leaders to explain measures taken to control the populace.

3-123. Preventing unnecessary civilian casualties and property damage is critical at this point to restore a sense of normalcy. Commanders require the means to communicate to the large majority of the people to provide information, issue instructions, and prevent costly misunderstandings. Units must treat people with dignity and respect even as clashes with resisting forces continue.

FACILITATE TRANSITION OF FOLLOW-ON FORCES TO STABILITY OPERATIONS

3-124. Following a major urban battle, EAB should have a plan to rotate the attacking force with another element before attempting stability operations. The attacking force will be optimized for combat, and its Soldiers and leaders will need time to make the physical and mental shifts necessary to operate among civilians and build stability. It is also likely that there will be tensions between the civilian population and the units that just destroyed large portions of their home, even if ultimately for their benefit. The attacking

force should facilitate this transition before the shock of the event has faded and the population has time to build resentment and opposition.

SECTION IV – CONSIDERATIONS FOR SPECIFIC OPERATION TYPES

3-125. Urban environmental characteristics can affect units in ways that are specific to the type of offensive operations. The commander must consider these characteristics and their impacts when conducting large scale combat operations.

MOVEMENT TO CONTACT

3-126. A *movement to contact* is a type of offensive operation designed to establish or regain contact to develop the situation. (FM 3-90). Conducting a standard movement to contact is dangerous in an urban area as it can be difficult for a ground unit to identify an enemy force before the enemy decisively engages them in a kill zone. In most cases, units should use their reconnaissance and surveillance capabilities to locate the enemy force and conduct a deliberate attack.

3-127. Units conduct movements to contact in urban areas just as in other environments, though perhaps less aggressively. Dense terrain can cause a unit to move through an enemy defensive position without ever seeing them. It also limits available movement formations while making it difficult for elements to support each other. Dismounted elements move with their supporting armored vehicles while continuing to scan in all directions. Planning should focus on developing branch plans and sequels and determining the decision points that will cause the unit to execute those contingencies. The staff should be aware of any critical infrastructure and anticipate population effects on the operation.

3-128. Movement to contact rehearsals place much more emphasis on branch plans and sequels than other operations. Leaders must understand their actions on contact, and what they should do based on the circumstances. They must also build enough flexibility into the plan to ensure everyone can react to unexpected events. Clear mission graphics that leaders can use to redirect and reorient their forces within the urban area become critical to success. Following a successful attack, the unit continues the movement to contact if additional enemy forces remain or it has not reached the limit of advance. It may have to consolidate and reorganize to continue operations.

VARIATIONS OF MOVEMENT TO CONTACT

3-129. Variations of the movement to contact are search and attack and cordon and search. Both are more common in urban areas than the standard variation and have risks and advantages to the environment.

SEARCH AND ATTACK

3-130. *Search and attack* is a variation of a movement to contact where a friendly force conducts coordinated attacks to defeat a distributed enemy force (FM 3-90). The reconnaissance and fixing forces share most of the same risks and considerations as the standard movement to contact. They are at increased risk because the forces involved are relatively smaller and the finishing force generally has to travel further to provide support than the main body of a movement to contact. FM 3-90 recommends only employing this technique against small, dispersed forces. Conducting this in an urban area requires an even greater correlation of forces to overcome the enemy's defensive advantages.

CORDON AND SEARCH

3-131. *Cordon and search* is a variation of movement to contact where a friendly force isolates and searches a target area (FM 3-90). The cordon and search incorporates an isolation force to prevent enemy withdrawal or outside disruption of the clearing force. It is more common in urban areas than other environments, particularly during stability operations. Dense urban areas restrict line of sight for the cordon, requiring additional combat power to prevent escape. The cordon may also have to clear buildings around the objective first to reach good overwatch locations and deny routes to the enemy.

ATTACK

3-132. The attack is the most common offensive operation that units will conduct in an urban environment. The following paragraphs describe a way to focus attack planning, preparation, and execution to mitigate the terrain's defense advantages.

PLANNING AND PREPARATION

3-133. The previous section described the sequence of an urban attack in detail, but there are more points that units should consider prior to conducting an attack. The commander will consider a combination of defeat mechanisms during course of action development (see chapter 2, section II for additional information). During mission analysis, commanders must come to an understanding of the level of permissiveness, population support, enemy capabilities, and determine level of intensity (see chapter 1, section II for additional information). This understanding will inform the development of the courses of action and the final orders. Provided good intelligence, the planning required for a deliberate attack allows forces to work through targeting requirements and processes to get approval prior to the start of the operation. This reduces staff workload during execution and greatly increases fire effectiveness while maintaining an acceptable level of collateral damage. Hasty attacks and movements to contact do not generally benefit from this, making it difficult for units conducting those operations to receive responsive fires. Preplanning fires also enables forces to place fires assets where they can avoid structure-masking effects and employ cyber and electromagnetic capabilities more effectively.

3-134. The commander will assign close, deep, and rear areas as part of the operational framework and terrain management at every echelon. As a reminder, higher headquarters remains responsible for any area that cannot be covered by a subordinate unit. In the urban environment the deep area may not extend further than the edge of a built-up area. In this case, staff must coordinate with their higher headquarters for fire support coordination and maneuver control measures such as a limit of advance and a coordinated fire line to synchronize its deep operations. This will give the commander greater flexibility to focus on close and rear operations.

3-135. As urban terrain initially favors the defender, a turning movement is often preferable to other forms of maneuver. Rather than attacking into an enemy's prepared defensive positions, the turning movement allows the friendly force to destroy the enemy on more favorable ground while exploiting the defensive advantages of the terrain. This requires a thorough understanding of the enemy force as the commander must determine what key terrain is so important to the enemy that they would risk destruction by attacking. This generally involves denying a resource that the enemy requires and cannot get elsewhere, such as power, water, fuel, or ammunition. An effective isolation may be able to achieve the same effect.

3-136. Units attempting a turning movement should not fix the enemy in position. In this case, the commander wants the enemy force to leave its battle positions and move into the friendly engagement area before fixing it. After the initial seizure of the key terrain, execution will follow the sequence of a defense with a prepared counterattack. Another exception occurs when the attacking force tries to force the enemy to withdraw. This can enable a pursuit of the enemy force outside the city where the attackers have favorable ground and less concern for collateral damage. As stated above, attackers must be careful to force the enemy out of the urban area completely and not allow them to resettle in a different location.

3-137. Though the density of people and lights used in urban areas makes night operations less advantageous than in other environments, there are still good reasons to plan attacks at night. Less road traffic makes it more likely forces will be able to move without civilian disruption. Employing aerial assets at night makes them far less visible and vulnerable to ground-based attack. If attempting to capture specific people, they are more likely to be at their home bases at night than during the day. Sleeping enemies will also be slower to respond to attacks.

3-138. Attack rehearsals focus on synchronization of movement, maneuver, and supporting actions. They must also consider how civilians will respond to events to minimize their impact. Clear and detailed mission graphics are critical for the attack as they allow commanders to maintain control as forces adapt to the changing situation. Positioning is critical to enable the attacking force to concentrate effects, prevent enemy escape, and prevent fratricide. Plans must mitigate terrain limitations on routes and movement formations while not providing the enemy opportunities to isolate and destroy small elements. Dismounted elements

move under the overwatch of their supporting armored vehicles while continuing to scan in all directions. As a reminder, commanders and staffs must plan branches and sequels to the operation in anticipation of transitions.

EXECUTION

3-139. Whether planned or not, large urban attacks become a series of small attacks as units struggle to secure the next room, building, or street. This causes the operation to progress very slowly from the perspective of higher echelons while feeling frantic for small unit leaders and Soldiers. This effect increases along with the combat power requirements as elements push deeper into the urban area. Leaders must remain patient while looking for opportunities to achieve decisive effects on the enemy. They must also plan for reinforcements to build combat power at key points and rotate forces to maintain forward progress.

3-140. Units should continue to employ ground reconnaissance elements in front of the main body while remaining aware of their limitations in dense urban terrain. Elements should maintain slow and controlled movement, maximizing the use of cover and minimizing exposure time. Units need to be prepared for contact against any unit, including one well within the main body, as the enemy may choose to hold fire until they locate a valuable target. This assumes the friendly force is bypassing buildings rather than searching them. Searching every building is an option, but generally only feasible for smaller buildings over a relatively short duration. Trying to clear every building within a modern city without being able to focus effort on a specific enemy location greatly slows progress, is extremely tiring for the force, and increases challenges in maintaining control, putting clearing elements at increased risk. Commanders should consider the cordon and search variation described above to help mitigate these issues.

3-141. Limited line of sight can make it impossible to fix enemy forces with direct fires alone. Direct and indirect fire suppression is often not enough to prevent elements from repositioning or withdrawing. Urban terrain provides many covered and concealed routes that units can exploit to avoid destruction. The simplest is to exit the backside of a building, but this method can also include openings into adjacent structures or subterranean tunnels. Units conducting enemy-focused attacks must account for these to prevent having to fight the same enemy forces repeatedly. Aerial assets can identify and destroy enemy forces moving on the far sides of structures but may struggle distinguishing unconventional threats from civilians. This also exposes them to great risk and may mask other direct and indirect fires. Breaking the larger objective into smaller sections and effectively using the terrain can allow a force to isolate small enemy elements and defeat them in detail.

3-142. Commanders should attempt to remove civilians from the objective area, if possible, but may be able to focus their efforts on smaller areas for more limited attacks. For a small unit attack against a known enemy position, commanders may choose not to announce their intentions or use certain reconnaissance assets that are more prone to compromise to maintain surprise. The urban terrain enables concealed movement of small forces, so enemies may have repositioned between initial detection and the start of the attack.

3-143. Leaders should always attempt to destroy enemies or force them to withdraw or surrender without exposing their own forces, but at some point, units will need to enter and clear individual buildings to eliminate remaining enemy resistance. This dangerous task requires concentrating many dismounted Soldiers in a small area and using shock and violence of action to overwhelm enemy defenses. Leaders should use all available capabilities to set conditions and enable the success of the assaulting force (see appendix C for additional information). When possible, leaders should continue to exploit the urban terrain to isolate smaller enemy elements to defeat them in detail with less risk to the force.

VARIATIONS OF THE ATTACK

3-144. Variations of the attack are ambush, counterattack, demonstration, feint, raid, and spoiling attack. Explanations of four of these variations immediately follow; see chapter 6 for feint and demonstration information. Specific characteristics of the environment can make these more or less suitable in an urban area. The environment also imposes special considerations for commanders planning to employ one or more of these variations.

Ambush

3-145. An *ambush* is a variation of attack from concealed positions against a moving or temporarily halted enemy (FM 3-90). Small unit ambushes can be very effective in urban areas assuming the force can anticipate the routes enemies will take. Anti-armor ambushes can be effective, but they are often negated by the urban terrain because they rely on standoff and the longer ranges of close combat missile systems. However, short range anti-tank systems can be used from elevated firing positions. It takes very little effort to establish a well-fortified position that is difficult for enemy forces to identify prior to initiating contact. It does somewhat rely on a permissive or neutral population as a non-permissive is more likely to report the ambush location to the enemy. This can also leave the ambush element vulnerable to isolation and destruction. They should bring enough people to monitor the flanks and inform the element of a pending counterattack. The ambush element needs at least one secured escape route to avoid capture.

Counterattack

3-146. A *counterattack* is a variation of attack by a defending force against an attacking enemy force (FM 3-90). A properly timed counterattack can deny a penetration before the enemy can reinforce and exploit, provide the final shock that defeats a culminating enemy attack, and possibly force a withdrawal. This can be difficult to achieve in an urban engagement as the terrain will constrain the mobility of a large force while aiding enemy efforts to establish a hasty defense. Commanders can mitigate these challenges by preparing for the counterattack early. This includes designating a counterattack force during planning, identifying a clear maneuver route, rehearsing their actions, and denying the enemy good defensive positions near the primary engagement area. The counterattack should consist of mounted elements supported by aviation assets. Preparing and rehearsing potential counterattack routes can help mitigate the mobility restrictions that limit other types of urban attacks, but this still leaves urban counterattacks less flexible than in other environments.

Raid

3-147. A *raid* is an operation to temporarily seize an area to secure information, confuse an adversary, capture personnel or equipment or destroy a capability culminating with a planned withdrawal (JP 3-0). Raids are very common in urban areas. Against a conventional force, units may conduct raids to destroy a smaller force operating away from the main body or to destroy specific capabilities or resources to prevent enemies from using them. In support of a counterinsurgency, raids can allow forces to destroy or capture enemy leaders, supply stockpiles, and production facilities. Units may find it difficult to achieve surprise moving through populated areas due to both ground mobility challenges and potential observers. An air assault can help units avoid ground traffic but expose aircraft to fire and leave elements very vulnerable to isolation. Effective raids also rely on precise intelligence. Units can completely miss their target if they are off by one building or even one room in the same building.

Spoiling Attack

3-148. A *spoiling attack* is a variation of an attack employed against an enemy preparing for an attack (FM 3-90). Spoiling attacks can be difficult to achieve in dense urban terrain using larger forces as they tend to rely on speed and surprise to be effective. Smaller forces can be very effective, provided they have a planned escape route and do not allow the enemy to isolate and destroy them. A spoiling attack originating from an urban area against a force on the outside can also work, but it may be difficult to hide the buildup of combat power prior to the attack. The enemy or even the normal flow of traffic could also trap the force outside the city by blocking return routes. In the event friendly forces identify enemy forces preparing for an attack, they should immediately attack it with indirect or joint fires whether supported by ground elements or not.

EXPLOITATION

3-149. An *exploitation* is a type of offensive operation that usually follows a successful attack and is designed to disorganize the enemy in depth (ADP 3-90). Exploitations can be harder to achieve in urban areas than in other terrain as the defensive advantages allow even unorganized groups to pose a serious threat. Even if the enemy force starts to disintegrate, it is generally better to continue the advance in a controlled and methodical

way. It may give the enemy a chance to regroup, but it reduces the chances of forces overextending and exposing themselves to ambushes. Phase IV of the attack sequence above describes some of the tasks and priorities of a force attempting an exploitation.

PURSUIT

3-150. A *pursuit* is a type of offensive operation to catch or cut off a disorganized hostile force attempting to escape, with the aim of destroying it (FM 3-90). Commanders should not conduct pursuits within an urban area as they are very difficult and very dangerous to conduct. They are much more likely to occur if able to force an enemy to flee the city, at which time the urban environment is no longer a factor. This is preferred in most cases, and commanders should ensure they have indirect fires, attack aviation, and armored formations in position to destroy withdrawing enemy forces.

SECTION V – OFFENSIVE OPERATIONS TECHNIQUES

3-151. The BCT conducts similar offensive operations in an urban environment as it would on open terrain. Techniques that may be more applicable during urban offensive operations are discussed in the following paragraphs. These techniques are applicable to all forms of offensive maneuver and would be determined by METT-TC (I).

SEARCH AND ATTACK

3-152. This technique is used when enemy forces are operating as small, dispersed elements, and the unit cannot target them by any methods other than a physical search. Units may also use a search and attack when the task is to deny enemy forces the ability to move within a given area. Primarily, dismounted infantry forces conduct a search and attack. Tank, mechanized infantry, and Stryker-equipped forces often support dismounted infantry performing this task.

3-153. The BCT divides the AO into smaller areas and coordinates the movement of battalions through the BCT AO (see figure 3-1). The enemy is found and fixed during isolation and finished during the assault. During a mission of this type, the urban environment makes it difficult for conventional infantry forces to find, fix, and finish the enemy. For example, movement of units may become canalized due to streets and urban canyons created by tall buildings. The application of firepower may become highly restricted based on the ROE. The use of HUMINT in this type of action becomes increasingly vital and can be essential during the find portion of the mission.

3-154. The advantage of this technique is that it will require the enemy to fight in multiple directions as friendly forces isolate the area and conduct detailed searches. Another advantage is that urban clearance operations and detailed building searches increase maneuver space and flexibility. If conducting UO during stability operations, commanders should engage local leaders to attain a semi-permissive environment. Otherwise, movement through assigned sectors will take on an added level of difficulty with the civilians. This technique may prove difficult to command and control and provide mutual support of the maneuvering force. Additionally, it might prove difficult to provide sustainment.

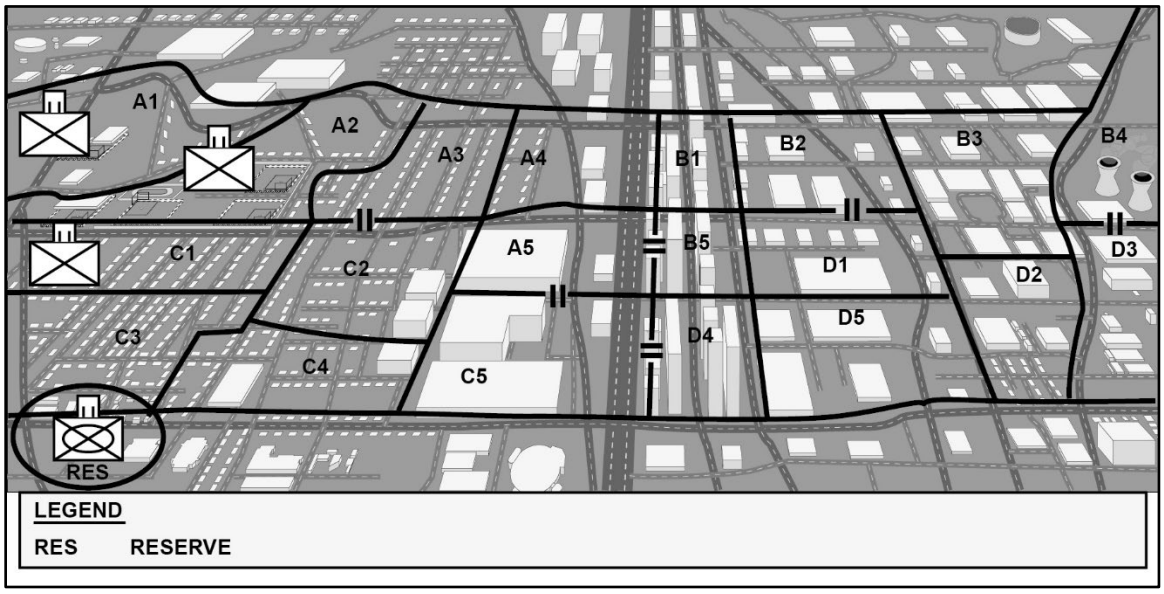

Figure 3-1. Search and attack technique

ATTACK ON A SINGLE AXIS

3-155. If the BCT must mass combat power to conduct a deliberate attack against an enemy strongpoint, an attack on a single axis may be considered. This technique uses a series of sequential operations and would be used when the axis of advance is not well defended by the enemy. Tank, mechanized infantry, and Stryker-equipped forces often support dismounted infantry performing this task.

3-156. The BCT attacks on a single axis to secure Objective Gold (see figure 3-2 on page 76). In the example shown, a battalion task force (TF) conducts a supporting attack to seize Objective 22 and pass a second battalion TF forward. The second battalion TF attacks as the BCT main effort to seize and clear Objective 21 with an on-order mission to seize Objective 23. A third battalion TF follows in reserve. In this example, the BCT would normally receive assistance in isolating the objective.

3-157. This technique is based on condition-setting before movement from one phase of the operation to the next. Planning considerations are required to keep the enemy from withdrawing. Friendly forces should fix the enemy forces to prevent them from withdrawing or repositioning to attack the flanks. This technique facilitates command and control, limits combat power to the front, and concentrates combat power to the critical point. The attacking force's flexibility to maneuver is limited. However, the attacking force offers the enemy a concentrated and easily targeted single entity.

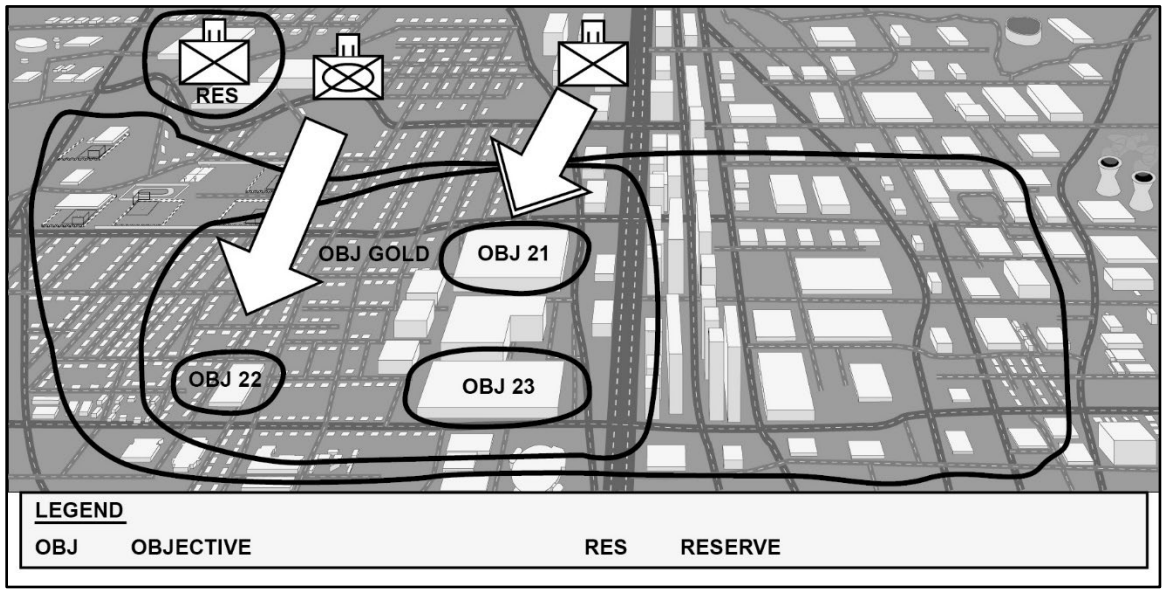

Figure 3-2. Attack on a single axis

ATTACK ON MULTIPLE AXES

3-158. If enemy defenses are more robust and the commander decides to force the enemy to fight in multiple directions, an attack on multiple axes can be considered. The brigade conducts an attack on Objective Gold using multiple axes (see figure 3-3). In this example, a battalion TF (air assault) conducts an air assault on Objective C and then conducts a supporting attack to seize Objective D. A second battalion TF conducts a supporting attack to seize objective B. A third battalion TF attacks as the BCTs main effort to seize and clear Objective A. The supporting attacks isolate Objective A. Synchronization is crucial to ensure the massing of effects at the critical points and the destruction of smaller elements separated by the structures in the urban area. Multiple axes enable commanders to plan for simultaneous or sequential operations but complicates the operation and requires detailed planning for direct fire coordination measures and fire support coordination measures.

3-159. This technique provides increased distribution of combat power and requires the enemy to fight in multiple directions. Additionally, this technique provides increased maneuver space and flexibility. However, it is more difficult to command and control and provide sustainment.

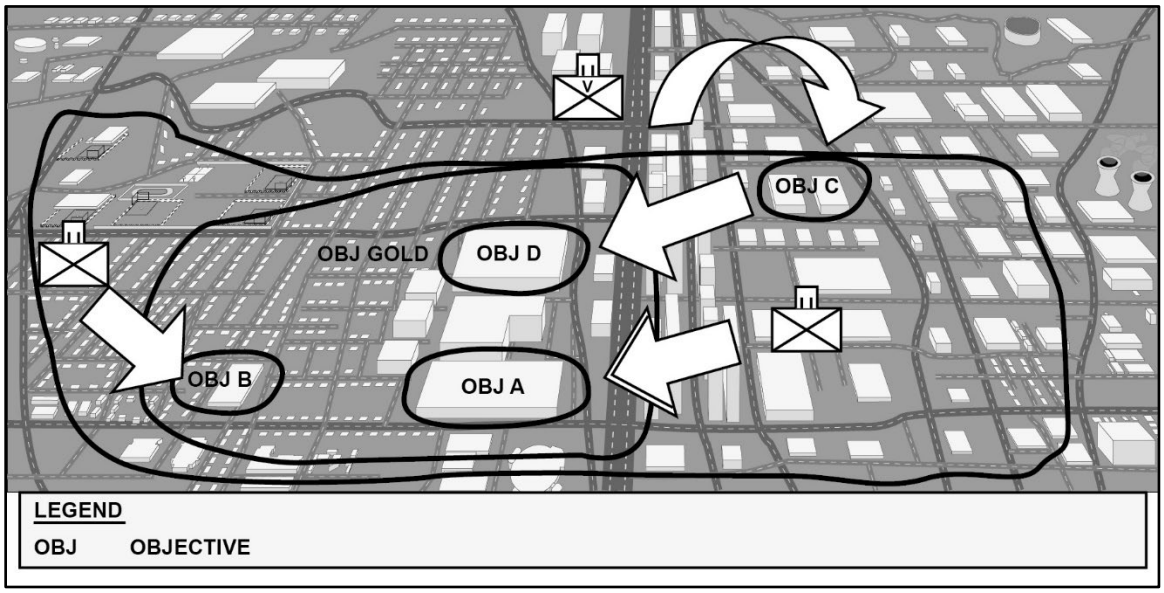

Figure 3-3. Attack on multiple axes

CORDON AND ATTACK

3-160. The BCT may need to physically isolate a large portion of an urban objective. Commanders may determine the enemy can be forced out of their positions and out into more open areas where they can be engaged by direct and indirect fires. In this case, the cordon and attack technique may be considered. A cordon is a type of isolation. Cordon is a tactical task given to a unit to prevent withdrawal from or reinforcement of a position. Cordon implies seizing or controlling key terrain and or mounted and dismounted avenues of approach.

3-161. The BCT attacks to seize and clear Objective Eagle using a cordon and attack technique (see figure 3-4 on page 78). One TF (four company teams) cordons Objective Eagle by occupying battle positions. The cordon may also be accomplished using ambushes, blocking positions, observation posts, and patrols. The TF seizes and clears objective eagle and serves as the BCT reserve. Indirect fires and other combat multipliers may also defeat the enemy when this technique is used and minimize or preclude close combat.

3-162. Battle positions are oriented to place effects on the enemy leaving Objective Eagle and prevent withdrawal from the objective area (see figure 3-4 on page 78). METT-TC (I) determines how the battle positions are oriented and what the mission end-state. Additional direct fire control measures, such as target reference points, and engagement areas, as well as indirect fire control measures can focus effects and assist in canalizing the enemy into desired areas.

3-163. The cordon requires substantial combat power which it consolidates to provide mutual support to the maneuver forces. Sequencing the cordon can be difficult. Coordinating the cordon can pose challenges, as it may require commitment of considerable combat power. Once the cordon is effectively established, the attacking force maintains the initiative and monitors the enemy to determine the optimal time for conduct an attack. An effective cordon enables the commander to partition a large area into smaller sections.

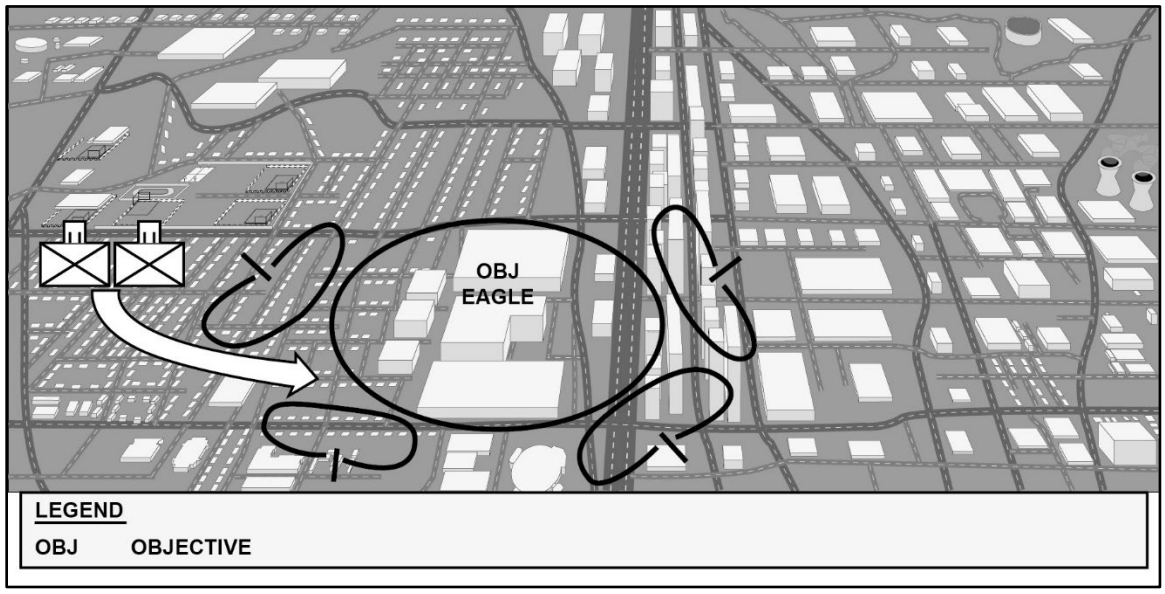

Figure 3-4. Cordon and attack

MULTIPLE NODAL ATTACKS

3-164. The nodal attack is used when a BCT can achieve mission success by attacking to seize, destroy, or deny enemy key nodes, whether governmental, military, key capabilities. The task to attack multiple nodes, either simultaneously or sequentially, may be assigned to the BCT. This mission is characterized by rapid attacks followed by defensive operations. The enemy situation and terrain must permit the BCT to divide its forces and seize key nodes. Multiple attacks such as this require precise maneuver and supporting fires. This mission may be given to a BCT before an anticipated stability operation, or to isolate an urban area for other units that are going to conduct offensive operations inside the urban area.

3-165. The BCT conducts multiple nodal attacks (see figure 3-5). This technique is used to deny the enemy the use of key infrastructure. Use of this technique may also require designated rapid response elements in reserve in the event that enemy forces mass and quickly overwhelm an attacking battalion. The duration of this attack should not exceed the BCT's self-sustainment capability.

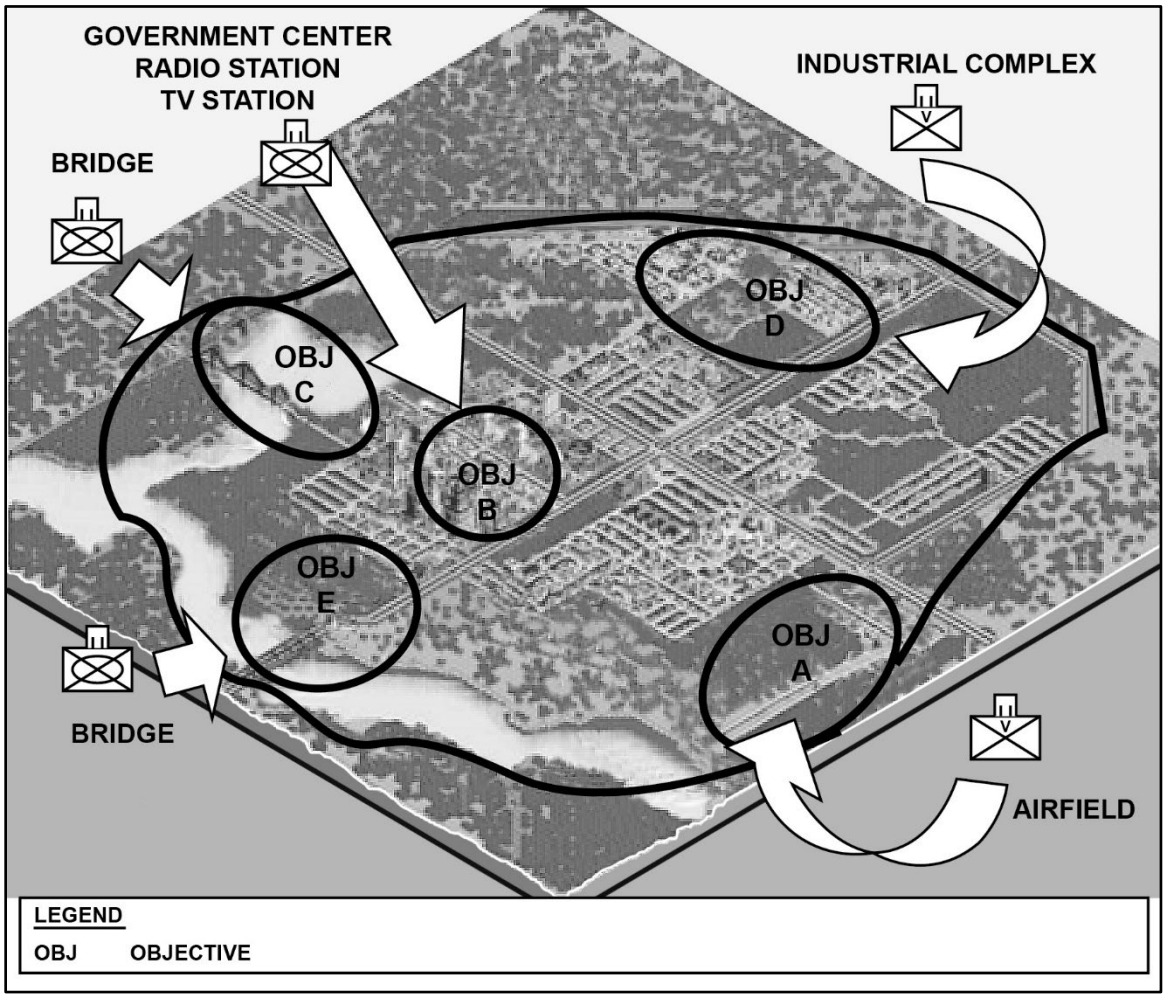

Figure 3-5. Multiple nodal attacks

3-166. This technique presents multiple threats and increases the maneuver space and flexibility of the attacking force. This technique requires rapid simultaneous movement and exposes any of those elements equally to defeat. In addition, this technique requires a larger reserve to reinforce any of these elements. Use of this technique may prove difficult to command and control and provide mutual support of the maneuvering force, and sustainment. It may also prove difficult to sequence.

BITE AND HOLD

3-167. The bite and hold technique is used when the BCT is presented with a dense multilayered complex enemy defense. Rather than planning a decisive attack to defeat enemy forces, the commander makes an assessment and elects to conduct a strong local attack to seize objectives of a reduced scope. The concept is to mass a highly favorable correlation of forces on a narrow frontage, while deliberating limiting planned gains. Once seized, the commander immediately consolidates gains and establishes defensive positions to defend against an enemy counterattack and retain the terrain. The commander may then choose to use this technique multiple times in succession to rupture enemy defensive efforts or cause untenable attrition.

3-168. Use of this technique may require a designated rapid response element in reserve if enemy forces mass and quickly overwhelm an attacking battalion. The attacking force should plan for resources for the support of multiple breach points. Multiple breaches in multiple locations can shape the battlefield and force the enemy to take high casualties.

3-169. This technique allows the attacking echelon to retain combat power and concentrate forces while massing effects on a decisive point. The tempo of the onward movement is modified as required to defeat enemy forces and ensure synchronization. The technique enables the attacker to maintain initiative by using the advantage of terrain. The attacker sacrifices speed for initiative and tempo, limits gains, and does not plan for exploitation.

CLEARANCE TECHNIQUES

3-170. The three types of clearance techniques are: targeted clearance, full clearance, and limited clearance. When commanders direct the use of specific clearance techniques, they have the tools necessary to manage risk, control tempo across adjacent subordinate elements, and ensure a common understanding of expectations. These clearance techniques serve as planning considerations to prepare units for maneuvering in urban terrain and can be employed by commanders during most UO. When employed properly, clearance techniques assist units in maintaining tempo and reducing casualties. Additional considerations include the following:

- Clearing operations are combat-power intensive.
- Commanders must carefully analyze how much force is available, understand how far that force can clear before culminating, and allocate sufficient force to ensure security of the clearing force as it advances in zone.
- Depending on the technique, advancing units may operate decentralized or in close proximity:
  - Units maintain 360-degree security, both horizontally and vertically.
  - When units are decentralized, they are responsible for the full 360-degrees surrounding them.
- Each assigned axis of advance should be large enough to allow the unit to ensure covered and concealed routes and sufficient space to maneuver at their echelon.
- Higher command elements retain control of unassigned space and continue to support the clearance operation.
- Units must plan fires, including joint fires in support of clearance operations.
- Fires may directly support the operation or serve as tactical deception to enable the clearing element's movement.
- The longer the clearance, the more combat power is required.
- The deeper the clearing force advances, the more combat power is required to secure the advancing force's flanks and retain cleared terrain.
- Units may attack on a broad front to achieve a shallow depth or on a narrow front to achieve more depth and doing more without augmentation may lead to an early culmination.
- Consider tasking subordinate units with a follow and assume or follow and support role.
- Position anti-tank weapons, combat vehicles or crew-served weapons in positions of advantage with long range fields of fire, oriented on appropriate enemy target arrays.
- Consider employing reconnaissance and security forces to screen vulnerable flanks.
- Engineers may assist by providing mobility and countermobility assets.
- The bypass policy should be clearly understood by all commanders and if friendly units bypass enemy, their positions should be recorded and passed up the chain of command.

Note. Commanders must realize that any clearing technique besides a full clearance allows enemy forces the opportunity to reposition, counterattack an exposed flank, or otherwise present a dynamic threat to the clearing force. Clearing forces must be closely tied in with adjacent forces and, when they are decentralized, have an observation plan in place for unassigned spaces.

TARGETED CLEARANCE

3-171. A commander uses a targeted clearance to set conditions for subsequent operations. The commander may choose a targeted clearance as an opportunity to act immediately to regain the initiative or increase the operational tempo while buying time for deliberate preparation by other forces. For example, when the outer periphery of a town or other urban terrain is lightly defended, the commander may immediately conduct a targeted clearance of known or suspected enemy positions or key terrain to seize a foothold and set conditions for a subsequent clearance of more strongly defended terrain further into the city. Another example of a

targeted clearance could involve rapid movement to, and clearance of, specifically targeted essential structures or capabilities, including government buildings, security, public transportation, or media infrastructure. Using this technique, a battalion TF moves by squad, platoon or company using the cover afforded by back alleys, buildings, or subterranean terrain, to seize terrain necessary to control the zone. The friendly forces might seize key street junctions or terrain features to fix or isolate enemy positions, or the high terrain necessary to overwatch a subsequent unit's clearance in zone, or to cover their passage through the zone en route to a subsequent objective. In a targeted clearance, the commander assumes risk by employing decentralized forces to set conditions or regain the initiative, while affording time for other elements to prepare in detail. Additional considerations for a targeted clearance include the following:

- Elements clearing targeted points should move rapidly on narrow axes, while maximizing local security in 360 degrees, including subsurface, surface, supersurface (internal and external).
- The clearing force should maximize cover and concealment in route selection to avoid contact prior to arriving at the targeted points.
- If possible, a targeted clearance is conducted in darkness or other limited visibility.
- The clearing force may employ supporting fires, whether directly, or as tactical deception, to enable their movement.
- Depending on the plan for subsequent operations, there may be a higher risk from converging friendly forces in a targeted clearance, and commanders should plan for both direct fires and the passage of subsequent friendly forces in detail.
- The maneuver force must be prepared to respond to a changing enemy situation by establishing a hasty defense to retain terrain or conduct a hasty attack to seize and clear unanticipated objectives.
- The maneuver force should include a larger reserve than usual.
- The use of available aerial and ground sensors should be considered to enhance security.

FULL CLEARANCE

3-172. The full clearance advances on a broad front, with adjacent units closely tied in. While the full clearance entails clearing everything (buildings, subterranean facilities), it does not mean simply advancing on line. The full clearance maximizes combat power by simultaneously applying force against enemy elements across the breadth of the zone. The advancing force may advance on multiple axes simultaneously but must tie in closely and ensure sufficient combat power is allocated to securing the flanks of the larger force as it advances. To minimize enemy forces' ability to plan, the clearing force, or subordinate elements, should consider shifting the direction of attack periodically. This requires close coordination between elements, particularly of direct fires. The full clearance, conducted on multiple axes, provides the commander with numerous options. For example, the clearance operation can be directed to have one element remain stationary while a second element conducts a right or left turn to complete encirclement. The overall intent is to avoid a linear assault and to confuse the enemy with the purpose of forcing the enemy to expose their flanks and isolate their forces. Ideally, this will force enemy withdrawal.

3-173. The full clearance reduces operational tempo significantly and it can consume substantial combat power; however, it increases the level of security to the overall force by the level of detail in clearance and ensuring no enemy forces are bypassed. Additional considerations for a full clearance include the following:

- Clearing forces must ensure they coordinate for the effects of direct fires as they advance in any direction other than straight ahead.
- The full clearance allows enemy forces to withdraw or reposition but should prevent the enemy from being bypassed and deny other opportunities to get in the friendly force's rear.
- Maintaining effective adjacent unit coordination allows the friendly force commander to minimize combat power requirements behind the clearing force as it advances.
- Maintaining effective adjacent unit coordination also allows advancing forces to focus their security efforts on their front and immediate surroundings rather than the depth of their axis of advance.
- Even when varying the direction of attack, units should ensure close adjacent unit coordination to prevent exploitable gaps from emerging.
- The friendly force commander must be prepared to respond to emerging civilian problems as it assumes control of civilians remaining in cleared areas.
- When possible, the full clearance should be conducted on an axis oblique to the street, reducing exposure in open spaces.

- During a full clearance, friendly forces still adhere to the basics of security in movement, which include moving through buildings, maximizing cover and concealment.
- Commander must understand and underwrite the associated loss of tempo and have the appropriate dialog with the higher commander.

LIMITED CLEARANCE

3-174. In the limited clearance, the clearing force moves rapidly through a zone, clearing a limited sub-set of the total structures and subterranean spaces. Although the higher commander may direct the clearance of some targets, leaders within the clearing force will primarily use their judgement and assessment of the threat to determine which structures or other points to clear. This may include some identified in planning and the preponderance at the discretion of the tactical leaders in execution.

3-175. A limited clearance should permit maximum flexibility and initiative while supporting the commander's intent. Using the limited clearance technique, the clearance force moves quickly through the zone, advancing from one phase line to the next, while keeping generally tied in with other forces. The force may use multiple axes of advance, as well as maneuvering through any dimension of the urban terrain. This technique works in both close terrain such as adjacent city blocks, or in dispersed and non-contiguous areas. The limited clearance will require sufficient mobility to move quickly through the depth of a larger zone of attack. Movement between planned or ad hoc objective areas should be coordinated with adjacent units and can be either surface, subsurface, super-surface, or a combination. The maneuver unit must have sufficient firepower and protection to maintain 360-degree security of itself both while it advances, and while it conducts clearance operations. In a limited clearance, the commander assumes risk in the level of security but may generate a higher overall tempo. Additional considerations during a limited clearance include the following:

- Clearance forces advancing in zone may become decentralized and require an increased emphasis on 360-degree security.
- The maneuver force must be alert to the potential for enemy forces to be bypassed, or otherwise use their freedom of movement to get behind clearing forces.
- Because friendly forces may be dispersed, adjacent forces and higher headquarters must be prepared to rapidly coordinate for cross-boundary fires, or temporary boundary changes.
- A limited clearance is similar to a movement to contact, and a force in contact with enemy forces may transition to a hasty attack or bypass that threat.
- Units should employ UASs and Soldier Borne Sensors to assist in developing the threat situation, such as obstacles, ambush positions on rooftops, or movement of threat personnel and vehicles as friendly units approach.

Tempo and Risk

3-176. These clearance techniques can build upon each other based on a necessary tempo, identified risk, and mission variables. When the commander makes decisions about a clearance technique, they must also make decisions about the balance of acceptable risk and tempo. The more detailed a clearance operation becomes, the slower the tempo. As clearance operations become more detailed, it becomes more essential that adjacent units closely coordinate and synchronize their efforts. When adjacent units' efforts are desynchronized through differing tempos, it poses risk to the unit in terms of bypassed enemy forces or providing enemy forces with freedom of movement ahead of, between, or behind advancing friendly forces.

Clearance Technique Considerations

3-177. Clearance techniques relate directly to the level of detail in a clearance. For example, the commander may use a limited clearance to set conditions within certain urban terrain for a subsequent operation. In this example the commander might direct a subordinate element to conduct a limited clearance to a designated phase line to set conditions for another unit to later conduct a targeted or full clearance either within the same zone, or beyond the designated phase line to a limit of advance. To ensure the unit's advance in zone remains synchronized, all units should use the same clearance technique.

SECTION VI – TRANSITIONS

3-178. Higher commanders determine how transitions happen, and subordinate commanders need to be prepared to support that transition when it happens. Commanders ensure smooth transitions by identifying their desired end states and planning for follow-on operations early. They should always assess the feasibility of relinquishing control of all or parts of the urban area to civil government, local law enforcement, or some other entity even during the conduct of offensive operations. Whether a building, neighborhood, or an entire city, commanders should have a plan to transition control to someone rather than leaving disorder and a potential power vacuum. When combat forces leave, someone is going to take control through legitimate, illegitimate, or even violent means. Leaving an area without a planned transition can create problems that may require additional operations and commitment of resources to resolve. A quick and effective transition can free combat power while maintaining order and improving civilian disposition towards military forces.

3-179. When planning, commanders should develop sequels for likely transitions and develop an understanding of the indicators which will show when the transition happens. The unit then actively monitors, and battle tracks those indictors and when recognizing them, immediately implements the transition and direct necessary actions by subordinates in accordance with the plan. Tactical operations centers and commanders manage transitions.

TRANSITION TO DEFENSE

3-180. Even a successful offensive operation will conclude with subordinate units arrayed in hasty defensive positions on or beyond the assigned objectives. If the offensive operation fails, units must be prepared to defend in place, or move to defensible terrain in the vicinity. In either case, this will likely occur as part of consolidation. An effective plan to transition to the defense should enable that transition to rapidly occur, whether in the planned positions or in unplanned positions. The transition to defense starts with the hasty defense units establish during consolidation. The transition plan should identify the limits of the defense and list unit priorities of work to minimize wasted time and effort. Understand that there will be additional tasks required to prepare an urban defense and some tasks will have increased importance. The complexity of the terrain creates many gaps and dead space that can allow enemy forces to move undetected through. Units should take advantage of building rubble and other terrain features to maximize their defensive strength with minimal engineer support. They should also coordinate with adjacent units to identify seams and take action to prevent enemy forces from exploiting them. Units need to be ready to manage the civilian population as they are likely to leave their hide positions to assess the damage and request assistance during any lull in the fighting. Commanders must consider how to minimize civilian interference in ongoing operations while protecting them from future hostile actions in accordance with law of armed conflict.

TRANSITION TO STABILITY

3-181. Maneuver formations transitioning into stability operations often also transition from being the supported force to a supporting role. The previous engagement likely resulted in significant damage and there may be remnants of the enemy forces still in the area, so commanders should focus on meeting the immediate essential service and civil security needs of the population in coordination with any existing local government and nongovernment organizations.

3-182. The transition to stability can occur in one part of a city while offensive and defensive operations are ongoing in others. Units in a specific area may transition back and forth between offensive, defensive, and stability tasks over the course of an operation. This changing of focus, ROE, and expectations can be very difficult for Soldiers to understand and keep up with, creating additional leadership challenges for commanders as they try to communicate their intent. Leaders must take very active roles to improve Soldier understanding, mitigate their frustrations, and ensure they adapt and act in ways appropriate for the situation. When possible, do not have the same Soldiers conducting stability operations in an area that they have recently conducted a major offensive or defensive operation, especially if it resulted in significant property damage and loss of life.

TRANSITION TO ATTACK

3-183. If the enemy force was not rapidly defeated, commanders have options: transition to a hasty attack or deliberate attack. For example, the unit may recognize that the enemy has displaced into the urban terrain, is collapsing, or conditions are such for a simple hasty attack to seize the next block. In any case, commanders make every effort to retain the initiative by conducting violent and resolute attacks to prevent enemy forces from countering them. Simultaneously, units maintain momentum by synchronizing the actions of friendly maneuver, functional and multifunctional support, and sustainment elements. The decision to conduct a hasty or deliberate operation is based on the commander's current knowledge of the enemy situation and assessment of whether the assets available (to include time) and the means to coordinate and synchronize those assets are adequate to accomplish the mission.

Chapter 4
Urban Defensive Operations

A *defensive operation* is an operation to defeat an enemy attack, gain time, economize forces, and develop conditions favorable for offensive or stability operations (ADP 3-0). Urban terrain emphasizes the inherent strengths of the defense, enabling small units to hold against forces many times their size. This chapter describes environmental and threat impacts and execution techniques for defensive operations in urban areas. It describes considerations for engagement area development and sequencing the defense to provide continuous disruption and defense in depth. Units should see FM 3-90 and FM 3-96 for a baseline of information about how brigades and their subordinate elements conduct defensive operations.

SECTION I – IMPACTS ON THE DEFENSE

4-1. Successful urban defensive operations rely on understanding the urban environment, anticipating enemy actions, and maximizing preparation time. They are rarely decisive, so leaders must still transition to offensive operations to impose their will on the enemy.

4-2. Reasons for defending urban areas include the following:

- Urban areas dominate avenues of approach.
- Urban areas contain critical industrial or economic complexes that must be protected.
- Urban areas contain critical transportation infrastructure such as bridges, railways, and road networks that provide an advantage to the side that controls them.
- Urban areas have political, historical, or cultural significance, which justifies its defense.
- Retention of the urban area affects critical enemy operations in the surrounding area.
- It preserves combat power against a larger attacking force, such as the use of dense infrastructure; allows defender added security, protection, and concealment.

4-3. Reasons for not defending urban areas include the following:

- Urban areas do not support the defensive plan by being too far forward or back in a unit's assigned area or are not near an enemy's expected avenue of approach.
- Nearby terrain is not defended and allows the enemy to bypass the urban area.
- The dangers from fire or toxic contamination from sites like refineries or chemical plants outweighs the defensive benefits.
- Nearby terrain dominates the urban area.
- The presence of large numbers of noncombatants, hospitals, or wounded personnel.
- An urban area is declared an undefended city to prevent civilian casualties or to preserve cultural or historical sites.

APPLYING CHARACTERISTICS OF THE DEFENSE

4-4. The characteristics of the defense focus on shaping the battlefield prior to the enemy's arrival. The urban environment provides many options for commanders to apply these characteristics while enhancing their effects on the enemy.

DISRUPTION

4-5. Defending forces seek to disrupt attacks by employing actions that desynchronize an enemy force's preparations and maneuver. Dense urban terrain is naturally disruptive to military formations, compartmentalizing movement along urban canyons and restricting the ability of elements to support each other. It also provides options for deliberate and hasty countermobility obstacles to restrict movement further. Defenders can employ these obstacles with direct and indirect fires, EW attack, and aerial strikes to destroy

reconnaissance forces, slow movement, separate echelons, and otherwise prevent the enemy from synchronizing its attack.

FLEXIBILITY

4-6. Defensive operations require flexible plans that anticipate enemy actions and allocates resources accordingly. A flexible defensive plan includes identifying attacking forces' main effort and maneuvering uncommitted forces to attack their flank. Because urban terrain enables small elements to move under cover and concealment, it necessitates the use of alternate, supplementary, and subsequent positions to enable unit to adapt to the changing situation. The depth in positions facilitates flexibility. Individual positions also require less work to provide protection from direct and indirect fires.

MANEUVER

4-7. Maneuver allows a defending force to achieve and exploit a position of advantage over an enemy force. Defensive plans should account for the ability to identify attacking forces' main efforts and then maneuver uncommitted forces to attack their flank. Urban terrain hampers large unit maneuver but can enable smaller units to maneuver under cover and potentially undetected. Attacking forces become more vulnerable to counterattacks against their flanks the deeper they penetrate into the urban area. As the terrain compartmentalizes the attacking force, defenders should exploit opportunities to isolate and destroy smaller elements.

MASS AND CONCENTRATION

4-8. Defending forces seek to produce overwhelming combat power at specific locations to defeat enemy attacks and support their objectives. Dense urban terrain limits vehicle placement and line of sight, restricting a unit’s ability to mass effects except in specific locations. Units can overcome this by stacking weapon systems vertically on multiple floors of buildings and maximizing countermobility capabilities to guide enemy forces into prepared engagement areas. The attacker’s inability to concentrate reduces the need for defenders to mass fires at any particular location.

OPERATIONS IN DEPTH

4-9. *Operations in depth* is the simultaneous application of combat power throughout an area of operations (ADP 3-90). Defending forces achieve this by engaging targets deep in the enemy rear using supporting and joint fires to disrupt and separate enemy echelons while employing organic direct and indirect fires close to destroy attacking forces. Urban terrain facilitates this by naturally disrupting enemy formations, but it can also make tracking attacking elements more challenging. Urban terrain can make small elements very dangerous to attacking forces. It also enables those elements to escape and engage again from subsequent positions. This facilitates establishing multiple lines of defense while preserving the combat power of forward elements.

PREPARATION

4-10. Defending units prepare their areas before attacking enemy forces arrive, or they establish the defense behind a force performing a security operation. Urban areas provide many options for defenders while also requiring them to mitigate harm to civilians. Civilian considerations can make it more difficult for defenders to prioritize preparation efforts in the face of an advancing enemy force while also enhancing the effectiveness of their preparation efforts.

SECURITY

4-11. Security operations prevent enemy intelligence, surveillance, and reconnaissance assets from determining friendly locations, strengths, and weaknesses. They also provide early warning and continuously disrupt enemy attacks. Commanders secure their forces through the performance of security, protection, information operations, and cyberspace and EW tasks. Commanders must also establish local security, which should clear built-up areas to deny enemy close-in surveillance. Urban terrain aids security operations by concealing forces and disrupting enemy actions. It can hinder security operations by restricting visibility and allowing small elements to move close to friendly forces undetected, especially if they dress like locals. Observation posts and other security positions typically transmit reports on the radio and in doing so create

a targetable signature. Commanders should look at alternate means to report and routinely displace security positions. A supportive local population can reduce the risk to individual units by providing information about threat activities. Units should still operate under the assumption that enemy forces are also receiving reports about any overt friendly activity.

URBAN DEFENSIVE CONSIDERATIONS

4-12. Common urban environmental characteristics can affect the units' ability to conduct defensive operations. The commander must consider these characteristics and their impacts when conducting large-scale combat operations.

MOVEMENT AND MANEUVER

4-13. Characteristics of movement and maneuver include mobility, countermobility, and offensive strongpoint.

Mobility

4-14. Urban terrain naturally hinders movement and maneuver, but defenders can clear routes and rehearse actions before the engagement to mitigate many of the challenges. When defending in depth and to engage enemies in areas forward of the position, if possible, use subterranean or other unobservable terrain to move forward. Reconnaissance may also reveal subterranean routes or routes through structures that an attacker would not know about. Engineers can facilitate by reducing obstacles, bridging gaps, breaching interior, and exterior walls, and creating firing ports.

Countermobility

4-15. Dense urban terrain restricts mobility without additional effort, but integrating obstacles can further canalize enemy forces, impede their movements, and disrupt their attacks. Chapter 6 discusses options to integrate obstacles in support of countermobility efforts, including deliberately rubbling structures. Rubbling can open fields of fire and deny enemy protection in addition to impeding mobility. It can also disclose the location of the unit defense, damage relationships with the local population, and hinder reconstruction efforts. Commanders should consider whether rubbling makes sense given the situation influencing their particular defenses.

Offensive Strongpoint

4-16. In some cases, a unit may want to maneuver to a location within the urban area and strongpoint it to encourage the enemy to attack them. This can draw the enemy out and allows the unit to fight on terrain of their choosing while maximizing the defensive advantages of the terrain. It also cuts the unit off from reinforcement and resupply, making it a very dangerous tactic.

INTELLIGENCE

4-17. During defensive UO, specific threats in urban environments can be problematic. The urban terrain may have a variety of elements, including but not limited to conventional and special operations forces, paramilitary forces, elements of resistance groups, corrupt public officials, activist groups, non-governmental organizations, proxy forces, elements of terrorist organizations, common criminals, and organized criminal organizations. Additionally, adding another layer of complexity is the physical characteristics of the terrain – the ability of threats to operate from multiple avenues of approach, including above, below, or from within the urban environment. Threats may also have unrestricted access to the cyberspace domain and the urban infrastructure to support achieving tactical and strategic objectives. Intelligence analysts must provide adequate information enabling Soldiers to distinguish threats from neutral actors and combatants from noncombatants. This ability to distinguish threats from neutral actors often requires extensive cultural and regional expertise.

4-18. During defensive operations in urban environments, commanders should employ HUMINT to screen and debrief internally dislocated civilians and local residents as well as conduct field interrogations on detainees in order to satisfy commanders critical information requirements (see ATP 2-22.31).

4-19. SIGINT elements can identify indications and warnings of enemy actions. The appearance, change, or lack of signals in the electromagnetic spectrum can be analyzed with other intelligence indicators and information to assess an enemy course of action.

4-20. During urban defensive operations, OSINT may provide the commander with relevant information in near real time regarding threats, atmospherics, impediments to movement, sensitive cultural terrain, or key influencers. Assessing publicly available information can provide warnings of immediate threats to units in an AO.

4-21. During defensive UO, GEOINT focuses primarily on threat force locations, compositions and dispositions, as well a key aspect of the urban terrain, to identify enemy strength, prevent surprise, and increase the commander's ability to respond to threats. GEOINT can play a vital role in identifying areas of concern that maneuver units may want to avoid. GEOINT can assist in route analysis, three-dimensional modeling of the urban landscape to identify lines of sight that may impact systems, and the conduct of information collection coverage. GEOINT can also provide extremely accurate coordinates for targeting purposes that may otherwise be difficult to achieve by other means, such as by ground forces. In a defensive role, overhead assets can provide commanders situational awareness of structural challenges, entrances and exits to underground tunnels, and vantage points that will prove integral successful operations. GEOINT plays an important role in confirming intelligence when cross cued with other information collection means, allowing for more accurate information and ultimately better decision-making by Commanders.

4-22. CI is assigned to corps and above. Division and BCT commanders request CI support from the corps CI and HUMINT section. During urban defensive operations, CI missions and collection activities may be used to detect and identify insurgent, terrorist, or other threat intelligence personnel, groups or networks hiding within the indigenous population of dense urban areas. These threat personnel may have been initially bypassed during offensive operations and secured during consolidation of gains. Once identified threat personnel can be nominated for capture or neutralization. If not identified and neutralized these threat elements may have the capability to conduct reconnaissance and surveillance of U.S. Forces. Urban imbedded threat elements will collect information concerning U.S. operational activities, lines of communication, locations, routines, and capabilities for attack planning purposes which may force U.S. Forces into a defense posture.

FIRES

4-23. Placement of artillery assets is critically important to their employment in support of the defense. Simply being in range is not enough as structures mask fires and create dead space that enables enemy maneuver. Friendly indirect fire systems will be subject to counterbattery and should not be positioned in places where the unit wouldn't want to see counterbattery impact. Commanders must follow the law of armed conflict and protect locations such as, hospitals, schools, churches, and mosques, from attacks. Dense cities tend to have few open spaces suitable for use as artillery firing points, and the ones available are vulnerable to attack. Defenders must position their assets, so they have clear firing lines into engagement areas. This may restrict fires against enemy forces that attack from unexpected directions. Positioning artillery outside urban areas increases the range, generally resulting in lower firing angles and increased masking, leaving them vulnerable because the enemy can maneuver around the city to attack forces in the rear. As the brigade will focus on actions within the city, any fires assets positioned outside city should remain under the command of the higher echelon or another brigade for improved control and security.

4-24. Mortars are generally easier to employ with the urban area than artillery. The high firing angle facilitates engagements on top of buildings or inside urban canyons, but at shorter ranges than artillery. Dismounted systems are easier to move through buildings and along narrow streets to reach optimal positions and evade return fire.

4-25. Since most indirect fires will be high angle, units must coordinate airspace. Planners must integrate and deconflict aviation and indirect fires. Especially when planned fires exceed and aircraft operate below published coordinating altitudes. Commanders and staff may want to use northings or eastings instead of altitude to deconflict airspace because of the height of buildings. Aviators favor attacks along streets because it allows the aircraft to acquire targets and fire at longer ranges. This increases accuracy but also matches the preferred gun-target line for indirect fire engagements. UASs employment and other hazards creates a congested airspace that requires increased control and communication to mitigate.

4-26. Units can also designate targets for missiles and guided bombs to overcome masking restrictions, though rotary-wing assets flying over urban areas are vulnerable to enemy antiair systems and direct fire. Refueling and rearming them can prove challenging as well. Enemy antiair systems can deny air avenues of approach from outside the city while a forward arming and refueling point within is certain to become a priority target for enemy fires.

PROTECTION

4-27. Urban terrain naturally provides concealment from enemy reconnaissance efforts and cover from their direct and indirect fires. The dense concentration of buildings in urban areas provides many strongpoints with mutually supporting fighting positions that need minimal effort and resources to be survivable. While many construction materials provide great protection from munitions, not all of them do and most can even increase the effects of the munition by projecting shrapnel in all directions. Review the information provided in appendices A and B to determine if a wall provides suitable protection from the types of munitions enemy forces are likely to employ. The buildings themselves create shadows that can help conceal positions. Local support can also be a form of protection that deters threat action. The increased survivability afforded by the urban terrain applies to all sides in a conflict, and any force should strive to take advantage of it. While structures can provide excellent protection from enemy fires, they also serve to limit fields of view and restrict the maneuver of reinforcements. This can leave forces vulnerable to envelopment and isolation.

4-28. It is a challenge to dig traditional vehicle fighting positions in the urban environment. It takes extensive engineer effort and materials that may not always be available. Usually, U.S. Forces are reliant on other means that urban areas provide. Units can breach building walls to create fighting positions or use structures like garages, multi-level parking lots, and open-sided pavilions without modification. Terrain density even makes vehicles under canopies and tarps less noticeable, though standard camouflage netting is generally less effective.

4-29. The law of armed conflict protects certain locations, including hospitals, schools, churches, and mosques, from attacks as long as they are used for their intended protected purpose. These facilities should not be used for offensive or defensive purposes.

4-30. Prepared concrete barriers, such as concrete protective barriers and walls, can be very effective for survivability. They are especially useful when the force cannot meet the intent by staying within a building, such as establishing a tactical checkpoint or access control point along a road or protecting infrastructure that is not contained within a building. Fillable barriers are less useful given the lack of suitable fill material. It is possible to use rocks and rubble, but this creates a less stable barrier that is more likely to deflect than absorb fire.

4-31. Modern capabilities can allow for persistent overhead surveillance of defensive positions. Forces should always assume they are under observation and take steps to ensure they always move under cover and concealment. Units can create openings in walls (often called mouse holes) as needed to move to adjacent rooms or buildings. Stretch tarps, sheets, or other material across gaps between structures to mask movements. Identify and use underground passages. Use decoys or other means to deceive the enemy regarding the locations of forces, CPs, and key weapons. Even reinforced concrete buildings will not save an element or capability once the enemy decides to mass fires on that location. Elements should remain hidden until enemy forces are too close to employ large munitions, and then move quickly following the engagement. When defending in depth, elements should consider remaining hidden until enemy forces are too close to employ large munitions, and then quickly displacing to subsequent positions following an engagement.

4-32. The complex and confusing nature of the terrain and people increase the chances of an isolating incident. It is important that all Soldiers are provided detailed isolated Soldier guidance in the event they become isolated. Unit rehearsals should include actions during an isolating incident to ensure the best chances of recovering the Soldier or Soldiers while still accomplishing operational objectives. All Soldiers should be aware of locations or groups within the city from which they can expect to receive aid as well as those they should avoid.

4-33. Defending forces can use the urban terrain to conceal information collection capabilities while still collecting on enemy elements outside the urban area. Within the urban area, defending forces generally have better situational awareness due to improved communication and preparation. They will still likely struggle

to keep track of small enemy forces and provide accurate battle damage assessments. Using remote cameras, unmanned vehicles, trip flares, or improvised devices can help to alert units about enemy movements outside their field of view. Surprise can top the balance of power in almost any engagement, so units must ensure that they can achieve surprise while denying it to the enemy.

4-34. Given the static nature of the defensive, emissions are subject to collection and targeting. Threat forces can monitor friendly emissions along the electromagnetic spectrum. Emissions monitoring can assist the enemy in developing a comprehensive understanding of friendly locations that can be targeted with precision fires. *Electromagnetic protection* is the division of electromagnetic warfare involving actions taken to protect personnel, facilities, and equipment from any effects of friendly or enemy use of the electromagnetic spectrum that degrade, neutralize, or destroy friendly combat capability (JP 3-85). For example, electromagnetic protection includes actions taken by the commander to ensure friendly use of the electromagnetic spectrum, such as frequency agility in a radio or variable pulse repetition frequency in radar. The commander avoids confusing electromagnetic protection with self-protection. However, electromagnetic protection protects from the effects of electromagnetic attack (friendly and enemy) and electromagnetic interference, while defensive electromagnetic attack primarily protects against lethal attacks by denying enemy use of the electromagnetic spectrum to guide or trigger weapons. *Emission control* is the selective and controlled use of electromagnetic, acoustic, or other emitters to optimize command and control capabilities while minimizing, for operations security: a. detection by enemy sensors, b. mutual interference among friendly systems, and/or c. enemy interference with the ability to execute a military deception plan (JP 3-85). Units should use proactive techniques to avoid jamming, including minimizing radio transmissions. Minimizing transmissions is the most basic technique to avoid enemy jamming and direction finding. Radio transmissions should never exceed six seconds in duration.

4-35. In large-scale combat operations against near-peer competitors, the enemy is expected to use electronic warfare capabilities to detect, intercept, deny, degrade, disrupt, destroy, or manipulate friendly communications, command and control, and intelligence capabilities. These considerations for planning are designed to help commanders develop standard procedures for their unit's unique suite of emitters using an appropriate mix of the practices such as—

- Minimizing length and frequency of radio transmissions.
- Using appropriate power settings.
- Planning radio messages.
- Establishing and enforcing a primary, alternate, contingency, and emergency communication plan.
- Using brevity codes and proword execution matrixes.
- Training while employing radio silence.
- Using encrypted GPS.
- Training on land navigation (without GPS).
- Executing survivability moves.
- Masking with camouflage netting.
- Preventing detectable signatures such as trash from being seen by UAS.
- Varying time and routes of logistic convoys.
- Understanding the impact of terrain composition on emissions.
- Recognizing communications jamming (reporting criteria).
- Recognizing GPS jamming (reporting criteria).
- Recognizing radar jamming (reporting criteria).
- Recognizing satellite jamming (reporting criteria).

SUSTAINMENT

4-36. Urban defenders are highly vulnerable to isolation and encirclement. This requires combat forces to maintain adequate supply storage with them inside the city. This can also make it very difficult to resupply from outside. Units may still be able to resupply by air if the enemy cuts ground lines of communication, but this really depends upon the enemy’s air defense and interdiction capabilities. Friendly forces may also find it easier to maintain a sea line of communication depending on the situation.

4-37. The same issues that make resupply more challenging also affect evacuation of casualties and detainees. Units can use similar mitigation measures, but should also plan for adequate facilities, supplies, and trained

personnel to maintain them on site for extended periods. Due to the complexity of navigation in an urban environment, units should consider a scheme of evacuation in which units always bring casualties from casualty collection points (CCPs) to Role 1 facilities and are not reliant on evacuation assets moving forward to find CCPs.

4-38. Units should position supplies, such as ammunition, water, food, fuel, medical supplies, and firefighting equipment, in or near fighting positions to facilitate rapid resupply and mitigate fire hazards. Placing caches and pre-stock at primary, supplemental, and alternate battle positions allow elements to sustain themselves while not overburdening Soldiers as they move from location to location. Given the chaos of urban warfare and the complexity of urban terrain, units will want to place recognizable symbols or objects on the outside of a building so that friendly forces can instantly recognize where a particular cache is located. These same symbols or objects must not be easily recognizable to the enemy so they cannot determine what these symbols or objects mean. This will require a greater amount of supplies on-hand. To limit the possibilities of destruction, enemy capture, or tampering, ensure caches are hidden in isolated locations by such methods as burial, concealment, and/or submersion, to support isolated personnel in their battle positions.

4-39. As with communication, units may be able to use civilian services and infrastructure to supplement their sustainment capabilities. This primarily affects power generation and water distribution, but also food, fuel, medical supplies, and nonstandard repair parts. This takes careful consideration as the civilian population may not support sharing their resources, and the infrastructure may be vulnerable to sabotage. On the contrary, sharing limited supplies with civilians may improve attitudes and produce goodwill.

SECTION II – ENGAGEMENT AREA DEVELOPMENT

4-40. An *engagement area* is an area where the commander intends to contain and destroy an enemy force with the massed effects of all available weapons and supporting systems (ADP 3-90). Identifying the right locations for engagement areas and integrating capabilities to defeat enemy forces within them is critical for any defense. This section describes urban considerations that affect the seven steps of engagement area development and provides techniques for maximizing defensive capabilities.

IDENTIFY LIKELY ENEMY AVENUES OF APPROACH

4-41. Defensive planners must account for the enemy's approach to the city as well as movements within. Structures within urban areas create narrow movement corridors, forcing the enemy to either constrain themselves to narrow columns or spread the force to move along multiple corridors simultaneously. Lane width, the number of lanes, and street pattern all affect the relative size of corridors and how quickly enemies can move forces through them (wide, straight roads allow for more rapid passage than narrow, winding roads). Dense urban areas will likely only have a few high-speed avenues of approach. They may also have streets that are impassable for large vehicles (see appendix A for additional information). In addition to streets, planners should consider enemy use of building interiors, waterways, and subterranean routes.

DETERMINE LIKELY ENEMY SCHEMES OF MANEUVER

4-42. An attacking enemy faces the same challenges as U.S. Forces, so they will need to develop a plan to mitigate these challenges and maximize their capabilities. Planners should consider the points from the previous chapter when developing their enemy scheme of maneuver as many will apply directly. As the characteristics of specific enemy capabilities will differ, planners must adjust to account for how the terrain will restrict the mobility and tempo of enemy mechanized, motorized, and dismounted forces and anticipate how enemy commanders will mitigate these effects. An effective assessment should identify routes the enemy will attempt to follow as well as areas they will try to avoid. As part of estimating the enemy's scheme of maneuver, friendly forces must also develop an understanding of where threat forces can maximize the use of aviation assets and other capabilities in support of their attack.

IDENTIFY WHERE TO KILL THE ENEMY

4-43. Engagement area selection is important. Analysis of the terrain and the likely enemy scheme of maneuver combined with personal reconnaissance provides an understanding of optimal places to mass effective fires on enemy forces. For example, a narrow bridge that provides an opportunity for enfilading

fires, an exposed street corner, a blown-out wall allowing observation inside a building, an open traffic circle, or a low wall that forces threat forces to slow or turn their movement. Commanders identify those areas that will allow them to destroy the attacking enemy, and then designate them as the engagement area. The presence of buildings that limit line of sight, hamper mobility, and block the effects of munitions serve to reduce standoff and limit ability to mass effects. Dense urban areas may only have a few locations that allow forces to maximize the effects of their weapon systems, but enemy forces will resist moving into an obvious engagement area. Developing multiple smaller engagement areas as part of a defense in depth will normally be more effective than committing everything to a single large one. These smaller engagement areas must support one another as part of an integrated defense to prevent the enemy from exploiting the seams between units.

4-44. The defending commander should be clear whether the mission endstate requires the unit to prevent enemy entry into the urban area, control of the urban area, or access to certain sites. Example of sites that might require the prevention of enemy action or occupation is a cellular communications tower or access to a critical infrastructure node that controls a water and wastewater treatment plant, or a bridge deemed critical for sustainment forces. In most cases, the defender should try to disrupt enemy forces on their approach to the city; however, knowing whether the unit can permit the enemy to enter the urban area can strongly influence the defensive scheme and placement of defensive positions. Defending forward of the city provides better protection for the city's population and infrastructure but does not allow the defender to take advantage of the urban terrain. Urban terrain provides cover and concealment and favors the integration of a delay to disrupt and reduce enemy combat power. Commanders must balance this against the risks of fighting within the city and allowing the enemy to secure a foothold.

PLAN AND INTEGRATE OBSTACLES

4-45. The primary purposes of obstacles in an urban environment are to deny or limit enemy access to areas, shape the battlefield, and force them to move to those places U.S. Forces can engage with direct fires. The dense concentration of buildings in urban areas restricts mobility without any additional preparation, but defenders should always look for ways to maximize countermobility efforts. Because they can tie into existing structures, even limited engineer effort can significantly enhance the combat power of small forces (see chapter 6, section V for additional information). Urban terrain provides significant opportunities to achieve obstacle effects while requiring less resources than similar efforts in other environments. Units should take advantage of this to disrupt the enemy in depth and create false signatures that make actual engagement areas harder to identify. Commanders and staff will need to understand the challenge of covering all obstacles with observers due to the high number of roads that the unit cut off with obstacles. Commanders must assess if cutting off the roadways with antitank ditches or other obstacles is worth the risk.

4-46. Units should make heavy use of close-in protective obstacles like concrete barriers and tactical wire in support of squad and platoon positions. Additionally, they should fortify all structures involved in the defense, denying access to doors, windows, stairwells, or other means of gaining access. Not only does this shape the engagement areas at the lower echelons, but also enhances survivability for those elements defending within structures. Concrete reinforced with rebar provides better protection and is more durable than sandbags or wood. Prepared concrete barriers, such as prefabricated barriers and walls, can be very effective for countermobility and survivability, especially when tied into existing structures. Using rocks or rubble with fillable barriers is better suited to countermobility than survivability as the deflected fire is less likely to injure friendly elements.

4-47. Though planning and integrating indirect fires is a critical part of any defense, this is much more difficult in urban areas. (See FM 3-09 for additional information.) Planning challenges include the following:

- Structures mask fires, protecting enemy forces except where the unit has a clear gun-target line:
  - Commanders must position systems where they can have the greatest effect on the most important targets without exposing them to unnecessary risk.
  - This can still make certain engagement area options unsupportable.
- Indirect fires can restrict the employment of rotary-wing, unmanned aerial, and, depending on the maximum ordinate of the rounds, fixed-wing assets, so units adjust to maximize capabilities of available systems and deconflict vertically, horizontally, and temporally.
- Engaging enemy on upper floors or roofs requires additional coordination to ensure the intended effects are being achieved and possible collateral damage estimates considerations are met.

- Buildings absorb the effects of munitions and can provide the enemy with fortified hasty fighting positions near the engagement area.
- Impaired line of sight reduces engagement ranges, which can put Soldiers within risk estimate distances at the start of an engagement.
- Minimizing collateral damage can have a major effect on the types of systems and munitions that commanders choose, or ROE authorizes them to employ.
- Commanders must understand the current operation's high pay-off target list, target selection standards, and leverage their organic fire support element to ensure pre-planned and dynamic targets are being serviced in accordance with the brigade commander's intent.
- To ensure timely fires, care must be given to the development of both technical and tactical triggers so that missions get shot in an appropriate amount of time.
- Commanders must plan to use their mortars first to be the most responsive and not overburden the field artillery guns.

4-48. Defenders gain the same benefits from preplanned fires as described in chapter 3 for a unit conducting a deliberate attack. They can further facilitate their fires plans by influencing civilians to leave targeted areas or securing protected areas to keep enemy forces clear of them. Fires will have reduced effects against enemy in buildings, so fire plans should focus on unprotected enemy elements moving along roads or other spaces between structures. Initiating with indirect rather than direct fires can allow forces to maximize their effects before the enemy has a chance to move to covered positions.

EMPLACE WEAPON SYSTEMS

4-49. Commanders place weapon systems where they can engage enemy forces throughout the depth of the engagement area, but specifically where the enemy is likely to stop, or mass based on the countermobility plan. It does no good to fix the enemy in a location that masks direct and indirect fires. This limits locations for firing points, especially for mounted systems (dismounted Soldiers have additional options). It may also require repositioning obstacles to build an integrated defense.

4-50. Unlike most terrain, the structures that dominate urban areas enable forces to place dismounted weapon systems vertically rather than just horizontally using upper floor windows, balconies, and roofs. Vertical emplacement allows defenders to concentrate fire despite a limited field of view, and it can also make it harder for enemy forces to locate specific firing points. Armored vehicles are also more vulnerable to attacks from above, so positioning antiarmor teams on higher floors increases the effectiveness of their weapons while reducing enemy ability to return fire. Be careful about massing forces in the same structure as its destruction puts them all at risk. Also review appendix B for information about interior blast effects before placing antiarmor or antiair weapon systems within a building or other structure.

4-51. Units attempting to dig fighting positions face the same challenges described above for emplacing obstacles. When constructing fighting positions in urban areas, it is generally better to build up than down or use available structures. Establishing a fighting position in a building can be very effective as it already provides a great deal of protection that Soldiers can improve by using barrier materials to narrow the aperture or by creating loopholes to observe and fire through. Soldiers should position themselves deeper into the building so that weapon barrels and muzzle blasts do not project close to or beyond the edge of the window to reduce chances of detection. Soldiers can also hang lace curtains or cheesecloth to provide additional concealment while still allowing them to see through windows. Most building apertures have a very narrow field of fire laterally and vertically, but units can add more positions to ensure interlocked fires and use the time saved in constructing primary fighting positions to reinforce supplemental and alternate positions.

4-52. As urban engagement areas tend to be small with limited line of sight, defending forces risk having the enemy bypass or envelop their fighting positions. To counter this, units should identify alternate and supplementary fighting positions that allow them to adapt to enemy movements. Open passageways in walls as required to facilitate rapid movement to alternate positions within a structure or to escape to a different one. As passageways are made in walls, special attention must be taken to not remove load bearing walls Rehearse triggers and movements between positions to ensure elements can transition smoothly.

4-53. A deliberate fighting position is one built or improved to allow the Soldier to engage a particular area, avenue of approach, or enemy position while reducing the exposure to return fire. Every deliberate fighting

position should have an alternate position of a different type to avoid establishing a pattern. The farther back into a structure a Soldier is, the better the protection and the smaller the weapon signature. However, the sector of fire is more limited. Examples of deliberate positions in urban terrain are described below.

BARRICADED WINDOWS OR DOORS

4-54. The natural firing port provided by windows and doors can be improved by barricading the window or door and leaving a small hole for the Soldier's use. Materials from the interior walls of the building or any other available material may be used for barricading. Barricade all ground-floor doors and windows unless they are critical for friendly movement. Additionally, barricade a sufficient number of upper-floor windows to create vertical depth and to prevent the enemy from easily identifying the overall unit position.

4-55. Avoid barricading only the windows and doors that are to be firing ports. It is better to leave two or three firing ports in each door and window. This allows Soldiers to use the other firing ports for secondary or supplementary fighting positions and increases the enemy's difficulty in locating the actual fighting positions. Firing from the bottom of the window or door gives the Soldier the advantage of the adjoining walls and makes the firing port less obvious to the enemy.

FORTIFIED LOOPHOLES

4-56. Creating a fortified loophole involves cutting or blowing a small hole into the wall that allows the Soldier to observe and engage targets in the sector of fire. Use sandbags to reinforce the walls below, around, and above the loophole. If the position is on the second floor or higher, place two layers of sandbags on the floor under the Soldier to protect from an explosion on a lower floor. Construct a wall of sandbags, rubble, furniture, and so on to the rear of the position to protect the Soldier from explosions in the room. A table, bedstead, or other available material can provide overhead cover for the position to prevent injury from falling debris or explosions above the position.

4-57. Hide the loophole through camouflage by knocking other holes in the wall and by removing various pieces of nearby siding. Varying their height and location makes them hard to pinpoint and identify. Dummy loopholes knocked off shingles, or holes cut that are not intended to be used as firing positions aid in the deception. Loopholes located behind shrubbery, under doorjambs, and under the eaves of a building are also hard to detect.

4-58. Because of the angled firing position associated with loopholes, prepare alternate and supplementary positions using the same loophole (see figure 4-1). This procedure allows the individual to shift their fire onto an area that was not previously covered by small-arms fire.

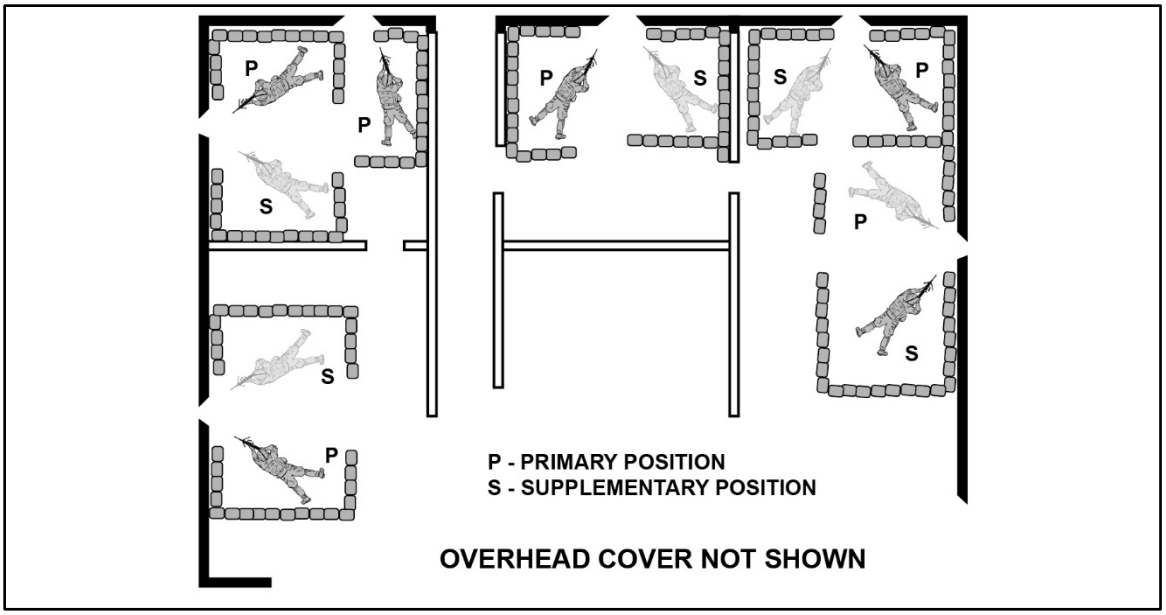

Figure 4-1. Loopholes with primary and supplementary positions

ROOFTOP POSITIONS

4-59. A rooftop position is usually reserved for snipers as the distance and angle of fire can limit its value as a standard position. A chimney or other protruding structure provides a base from which a position can be prepared. Remove part of the roofing material to allow for firing around the chimney. Stand on beams or a platform with only head and shoulders above the roof and partially protected by the chimney. Placing sandbags on the sides of the position protect the sniper's flanks.

4-60. If the roof has no protruding structure to provide protection, prepare positions from underneath the enemy side of the roof. Reinforce the position with sandbags and remove a small piece of roofing material or gable siding material to allow target engagement. The missing piece of material should be the only outward sign a position exists. Remove other pieces of material to deceive the actual location. The Soldier should be invisible from outside the building, and muzzle flash should be hidden from view.

4-61. Overhead cover for a rooftop position is a challenge. It is usually best to create the position within the attic and then use the roof itself for overhead cover. Typically, this still requires additional structural reinforcement. If on top of the roof, an area can be built up on the reverse slope for overhead cover. Recognition should be made that a rooftop position is fully exposed to both indirect fires and aerial fires.

MACHINE GUN POSITIONS

4-62. The machine gun can be emplaced almost anywhere. In the attack, windows and doors offer ready-made firing ports, especially for hasty fighting positions. For the defense, and when available in the offense, fortified loopholes that allow the machine gun to be placed on a solid floor are normally preferred positions. Regardless of the openings used, machine guns are best employed inside a building, taking full advantage of interior shadows (see figure 4-2 on page 96).

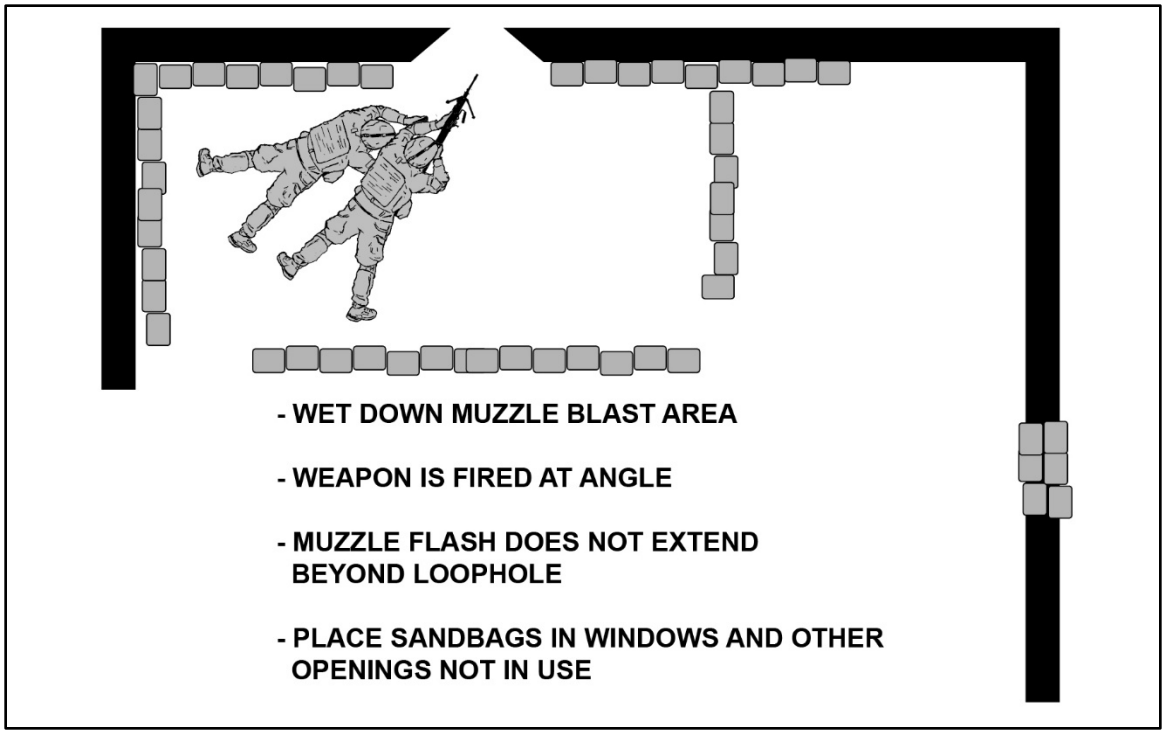

Figure 4-2. Use of a loophole with a machine gun

ANTIARMOR POSITIONS

4-63. Antiarmor weapons produce backblast and explosive pressure. Gunners must maintain awareness of the angle of fire, the size of the opening, and nearby debris and loose objects. Some antiarmor weapons are less effective at firing angles greater than 20 degrees, while some require an ample opening of at least 10 feet

by 15 feet. The antiarmor position must allow for the escape of the backblast and be capable of handling the pressure. (See appendix B for more information.)

4-64. Positions outside of buildings, especially at corners, among rubbled areas, or using destroyed vehicles, readily meet these criteria but may leave the weapon exposed. For a position inside a building, position the weapon to allow the backblast to escape out. This can often be accomplished by creating a large opening in a rear wall or by positioning the weapon to fire out one corner window while the backblast escapes out the adjacent corner window.

4-65. Another technique is to use a rooftop position as an antiarmor position. Firing from the roof allows for the engagement on the top of an armored vehicle, where its most vulnerable. In all instances, the structure, especially the ceiling, must be sturdy enough to handle the explosive pressure. Once a safe position is identified, fortify, and camouflage the same as a barricaded window position.

REHEARSE THE EXECUTION OF OPERATIONS IN THE ENGAGEMENT AREA

4-66. Defense rehearsals focus on event synchronization and responding to contingencies. They must also consider how civilians will respond to events to minimize their impact. Clear and detailed mission graphics are critical for the defense as they allow commanders to maintain control as forces to adapt to the changing situation. Commanders should conduct full-dress rehearsals (day and night) when possible while remaining aware of possible observation by enemy assets. Rehearsing displacement criteria and the movements of mobile forces on their actual movement routes is often critical to success. Enlist the aid of local security forces to help remove civilians from around likely engagement areas. This helps to protect the population while improving operational security and opening options for employing lethal fires.

SECTION III – SEQUENCE OF AN URBAN DEFENSE

4-67. An effective urban defense requires maximizing the defensive advantages of the terrain to protect the force while disrupting and disintegrating the enemy attack. Though the defender should minimize collateral damage, these kinds of engagements can be highly destructive. The defender should try to defeat the attacker away from the urban area, if possible, especially if protecting the people and preserving infrastructure is an operational priority. The following steps are not prescriptive, but it provides a way that units can arrange critical events and tasks in a linear fashion.

PRIOR TO THE OPERATION

4-68. Urban terrain provides initial advantages to the defender, but this comes at a cost. Defenders should make every effort to achieve their objectives without committing to a city battle. The following actions assume there is a sizable urban area near the friendly force.

DEFEAT/ATTRIT ATTACKING ARMY IN THE FIELD

4-69. The easiest way to avoid fighting in a city is to defeat the enemy away from the civilian population. Assuming friendly forces do not have the combat power to mount a successful attack, they could defend elsewhere or consolidate with another force. This may require establishing the defense on less advantageous ground. If unable to defeat the enemy outright in the field, it may be feasible to attrit them before moving into the urban area to give the forces the advantage in force ratio.

RETROGRADE AWAY FROM CITY

4-70. Preventing damage to the city may be so important that the defending commander chooses to give ground and encourage the attacking force to follow, thereby bypassing the urban area. This can prevent damage within the city, but it can also leave the city unprotected and open to the enemy if that is their goal.

CONSOLIDATE WITHIN THE URBAN AREA

4-71. Commanders need to determine what assets and enablers they leave outside the city and what they will consolidate within. Assets and enablers outside the urban area may be more vulnerable to capture or destruction, especially if the enemy force can maneuver around the city. Artillery is normally less effective

and more restricted when fired from within the city, but this may be necessary to protect it. Units should place sustainment assets and supplies where they can best support the defense. Higher echelon commanders should consider placing supporting assets outside the urban area under the command of a different organization or echelon with clearly articulated support relationships. This allows the unit defending within to focus on the maneuver and positioning of capabilities within the boundaries of the urban area.

Integrate Friendly Forces Into The Defense

4-72. In addition to military forces from other services, allies, and partners, urban areas often have their own security forces as well as other elements that may be willing to support a common defense. Commanders will have to assess their capabilities and motivations to determine the best way to unify effort without creating weaknesses that the enemy can exploit. While some forces can occupy battle positions or even control their own sector within the defense, others may be better suited to defensive preparation, site security, population management, casualty treatment, or facilitating resupply.

Preserve Combat Power

4-73. Attackers will attempt to destroy critical defensive capabilities prior to conducting an assault. They will employ reconnaissance assets to identify visual, thermal, and electromagnetic signatures for targeting by artillery, rockets, missiles, and bombs. Defenders must preserve their combat power through effective positioning, using cover and concealment, and otherwise reducing signatures. Look for ways to exploit subterranean areas and routes. Moving assets can also make them harder to target, but only if the moves are undetected. Commanders should look for ways to use structures and overhead concealment like tarps and covered walkways to facilitate concealed movements. Commanders should also employ active methods to deceive the enemy regarding the composition and disposition of defending forces, such as using decoys and remoting antennas to position them away from CPs. Understand that enemy forces may also use feints or other deception to provoke a reaction and expose previously masked targets.

Negotiate With Enemy Forces

4-74. Presented with overwhelming combat power, units may be able to negotiate with enemy forces to gain enough time for a relief force to intervene. They can also press for safe passage for noncombatants out of the area. Negotiations should continue throughout the operation to achieve objectives with minimal destruction and loss of life. Leaders should be clear on the limits of their own authority to negotiate and ensure that subordinate leaders understand theirs.

STEP I—FIND

4-75. Find occurs when friendly security forces make initial enemy contact. The security force does not wait for the arrival of the enemy. They take an active role as part of the information collection activities to find the enemy and understand their location, disposition, strength, course of action, and report back to the commander.

Conduct Security Operations

4-76. During the defense, effective security requires the establishment of a security area, the employment of patrols and observation posts, the use of manned and UASs and sensors, and the use of the terrain (cover and concealment). Every echelon has a requirement to provide security at their level, regardless of external security forces. It is essential that defending units deny terrain to the enemy through security patrols and positioning early warning devices in buildings that overlook friendly positions because of the ease with which small units can approach static defensive forces through urban terrain. Security operations, counterreconnaissance, survivability operations, military deception, information-related capabilities, and cyber electromagnetic activities (specifically EW) counter enemy intelligence, surveillance, and reconnaissance from determining friendly locations, strengths, and weaknesses.

Gain and Maintain Contact

4-77. Gaining and maintaining contact with the enemy is vital to the success of the defense. Defending forces should endeavor to make initial contact with the smallest element possible, and consider all available means – manned, unmanned, or electromagnetic at their disposal. Defending forces must gain and maintain contact

with the enemy to observe, assess, and interpret enemy reactions and the ensuing opportunities or threats to friendly forces, populations, or the mission. As the enemy's attack begins, the BCT's initial goals are to identify committed enemy units' positions and capabilities, determine the enemy's intent and direction of attack, and gain time to react. The sources of this information include reconnaissance and security forces, surveillance assets, intelligence operations, and supporting echelons above the BCT.

STEP II—FIX

4-78. The commander has several options to fix an attacking enemy force. The commander can design shaping operations, such as securing the flanks and denying the enemy access to their probable point of penetration, to fix the enemy and allow friendly forces to execute decisive maneuver elsewhere. Battle positions, combat outposts, and strong points can deny enemy movement to or through a given location. In an urban environment, the fixing force can be the reconnaissance squadron augmented with combat forces, but it is typically a maneuver battalion that has the combat power and ability to maneuver to control enemy movement through the friendly defensive perimeter.

DISRUPT ATTACK PREPARATIONS

4-79. As the enemy force tries to set conditions to enable a successful attack, defenders should continue to improve their defense while preserving combat power and disrupting attack preparations. The attacker will attempt to isolate the objective by controlling ground lines of communication and preventing reinforcement. Defenders should look for opportunities to disrupt attack preparations. Options include indirect or aircraft fires, small-unit ambushes, or spoiling attacks. Key targets include command and control systems, consolidated supplies, reconnaissance and surveillance capabilities (including radars), and breaching assets. Keep in mind that the enemy may be trying to draw out a critical capability for destruction, so commanders must understand the risks of both action and inaction.

DISRUPT ATTACKERS' APPROACH

4-80. As the attacking force approaches, defenders integrate their defense, improve their positions, and shape the coming fight. On each enemy avenue of approach, the commander determines where to destroy the enemy. The commander arrays forces allocated to that avenue of approach to establish an engagement area using obstacles and fires.

4-81. When it is possible, defenders should employ security forces between the urban area and the enemy to maximize their long-range detection and engagement capabilities. Cavalry formations lose much of their effectiveness when constrained by urban terrain, so getting them outside the city allows them to maximize their capabilities. Conditions permitting, Soldier Borne Sensors should move ahead and adjacent to maneuver units to provide surveillance and route reconnaissance to extend early warning. Commanders should also employ UASs, rotary- and fixed-wing aviation and indirect fires to maximize effects on the enemy while collateral damage is less of a concern. Units may wish to assign guides to facilitate a rearward passage of lines through the restrictive terrain.

DISRUPT ENEMY MOVEMENTS AND FORMATIONS

4-82. Forces should disrupt the enemy throughout the depth of the defense. Once within the urban area, the terrain will naturally affect large formations, but units should continue to employ direct and indirect fires, cyber and electromagnetic attacks, and countermobility obstacles to maximize the impact. The primary focus of disruption efforts should be separating echelons so that individual enemy elements fight without support from adjacent units or higher echelon capabilities. Disruption should allow the enemy to travel along their anticipated routes while limiting other options to ensure they move while disorganized into the engagement area.

4-83. Incorporating a delay into the area defense can be very effective. The urban terrain enables small units to surprise enemy forces, inflict casualties within an engagement area, and then use covered and concealed routes to move to subsequent positions before the enemy can mount an effective response. This reduces enemy combat power and forces them to be more cautious, slowing their forward progress. The terrain can also cause defenders to lose track of enemy elements, so use positioning, observation posts, and camera systems to mitigate this.

EMPLOYMENT OF OBSTACLES AND BLOCKING FORCES

4-84. The urban terrain and defense lend itself to disrupting the enemy's attack. Units use obstacles to fix, turn, block, or disrupt to limit the enemy force's options. Obstacles should be overwatched and covered with fire to prevent enemy breaching operations. Properly executed obstacles result from top-down planning and bottom-up refinement combined with an active effort to emplace sited-in specific obstacles. Blocking forces can also affect enemy movement. A blocking force may achieve its mission from a variety of positions depending on the mission variables. Forces ordered to block will have to hold a specific area and deny enemy an avenue of approach. Commanders should assess the risk of the blocking force being surrounded and cut off. Units should plan for this possibility and have a contingency plan, such as a strong point or subterranean exfiltration route.

4-85. The use of man-made structures, rubble, situational obstacles, and fires causes the enemy to be compartmentalized and inhibits their ability to mass fires and forces against defenders. Buildings, sewers, and some streets provide covered and concealed routes and can be rubbled to provide obstacles. Obstacles placed at intersections in tunnels are excellent ambush sites and turn the subterranean passages into a deadly maze. Soldiers can quickly construct these obstacles using fencing, barbed or concertina wire, rubble, furniture, and parts of abandoned vehicles interspersed with command-detonated explosives or mines. Locate obstacles at critical intersections in the passage network to trap attackers in a kill zone while allowing defenders freedom of movement. The unit combines fires, obstacles, unexpected defensive positions, and counterattacks at all levels. Repositioning forces, aggressive protection measures, employment of roadblocks, ambushes, and checkpoints; and performing cyber/electromagnetic activities combine to disrupt the attack.

4-86. In the urban environment, the defender can increase the man-made and natural obstacles found in the urban terrain. Obstacles can be natural, man-made (existing), tactical, and protective (reinforcing) or a combination of all of them. Obstacles in urban areas can have more effect than those in open terrain since bypass often requires entering and transiting buildings or radical changes to selected routes. Narrow avenues of approach and existing structures allow for easy obstacle integration, but urban areas can also offer many accessible bypasses which defenders must take into consideration. Structurally significant buildings in an urban area can create major obstacles to maneuver. These obstacles canalize maneuver into streets without any preparation by the defense. Blocking streets with obstacles can further restrict the maneuver options of the attacking force. These areas then become kill zones for well-positioned defense forces.

STEP III—FINISH

4-87. In the defense the commander's goal is to prevent the enemy's further advance using a combination of fires from prepared positions, obstacles, and mobile reserve forces. To accomplish this, the commander masses effects by maneuvering forces to focus direct and indirect fires at critical points to counter the enemy's attack. Once the enemy commits to an assault, the focus of the defender becomes defeating the attack and preventing penetration of the primary defensive lines; however, the defending commander must not lose sight of follow-on or otherwise uncommitted enemy maneuver forces. The defender can establish multiple defensive lines and use the terrain to protect security forces and other elements as they fall back.

MASS EFFECTS

4-88. The BCT achieves success by massing the effects of obstacles and fires to defeat the enemy forward of a designated area, often in conjunction with a higher echelon's counterattack. The BCT and maneuver battalions shape and decide the battle by massing (focusing, distributing, and shifting) the effects of combat power (direct fire, indirect fires, and obstacles). Effects should be synchronized in time and space. They should be rapid and unexpected to break the enemy's offensive tempo and disrupt the attack.

4-89. The commander employs reconnaissance and security forces (typically the reconnaissance squadron) to shift the effects of fires and maneuver forces so that they are continually refocused to achieve disruptive, destructive, and decisive effects upon the enemy's attack. Using engagement areas are vital to massing effects in an urban defense. Engagement areas should be identified early in the preparation phase and assigned to a combined arms element that has the combat power to defeat the anticipated enemy force.

FINISH ENEMY FORCES IN ENGAGEMENT AREAS AND DESTROY THEM

4-90. In the defense, the decisive point is the main battle area. Rather than large avenues of approach and engagement areas, the urban main battle area can have several smaller and in-depth engagement areas that focus on narrower avenues of approach. These afford the defender more flexibility in repositioning and defeating the attacker through a series of engagements to slow and then stop their attack. Forces should employ all of their capabilities to fix the enemy in their engagement areas. This helps ensure that the enemy cannot isolate forces and sets conditions for their destruction. Forces should employ electromagnetic attacks to prevent calls for higher echelon support and accurate reporting regarding the friendly disposition. Once forces have fixed the enemy in the engagement area, they employ fire and maneuver to destroy them or force a withdrawal or surrender. Once the attack has culminated, the urban terrain lends itself to multiple counterattack options for the commander. Commanders should capitalize on previous disruption efforts to defeat enemy forces while disorganized and separated from higher echelons.

4-91. Following a successful defense, defenders should be ready to transition to the offense and complete the destruction of the enemy force. A critical purpose of the defense is to retain terrain and create conditions for a counteroffensive that regains the initiative. The defense does this by causing the enemy unacceptable losses short of any decisive objectives. In some cases, the situation may not allow the defender to take advantage of a culminating attack. This can result in a stalemate with both forces left in contact with each other.

RESERVE FORCES

4-92. The reserve must be an uncommitted force available at the decisive moment during the operation. The commander positions the reserve to respond quickly to unanticipated missions. The reserve's size and position are based on accurate knowledge about the enemy and whether the terrain can accommodate multiple enemy courses of action. When the unit has accurate knowledge about the enemy and the enemy's maneuver options are limited, the unit can maintain a smaller reserve. If knowledge about the enemy is limited and the terrain allows the enemy multiple courses of action, then the unit needs a larger reserve positioned deeper into the AO. (See FM 3-90 for additional information.)

4-93. The BCT commander can assign the reserve a wide variety of tasks, but it must be prepared to perform any mission. The commander can use the reserve to reinforce fires, add depth, seize the initiative, or destroy enemy forces. The reserve gives the commander the flexibility to exploit success or to deal with tactical setbacks. The reserve may be committed to restore or reinforce the defense by blocking an enemy penetration, reinforcing fires into an engagement area, or conducting a counterattack against the flank or rear. If designated, the reserve should be mobile, well forward, and prepared to become the assault element. Due to the complexity of urban terrain, the reserve force must rehearse movement from their assembly areas to all likely locations for employment.

STEP IV—FOLLOW THROUGH

4-94. In a successful defense, the enemy's attack is defeated, and the defensive plan must address missions following successful operations. During follow through, time is critical. Unless the commander has a large, uncommitted reserve prepared to quickly exploit or reverse the situation, the commander must reset the defense as well as maintain contact with the enemy. The staff must begin planning for future offensive operations as they develop defensive plans. The commander and staff must develop maneuver plans, control measures, obstacle restrictions, and sustainment plans that enable the BCT to quickly transition to follow-on offensive missions or to pass follow-on forces.

COUNTERATTACK TO DEFEAT ENEMY PENETRATIONS

4-95. Defenders should have a counterattack force prepared to defeat enemy penetrations. A properly timed counterattack can be devastating, but dense terrain will make it harder to execute effectively (see chapter 3 for additional information). Counterattacks have two applications. Counterattacks retain the initiative and separate forces. Defending commanders use every opportunity to transition to the offense, even if only temporarily. As attackers' losses increase, the initiative shifts to the defenders. These situations are favorable for counterattacks. However, opportunities for counterattacks in the urban environment are brief. Therefore, timing is critical. Commanders should understand the effects of the urban environment on time and distance relationships. Otherwise, the timing of the attack may be stalled, and the operation desynchronized.

Defenders should strike swiftly when the attackers reach their decisive point. Surprise and speed enable counterattacking forces to seize the initiative and overwhelm the attackers. Counterattack plans to support the defense and to place the unit on the offense are key to retaining the initiative. Counterattack routes must be reconnoitered, improved, secured, and rehearsed.

4-96. Units do not allow attacking enemy forces to consolidate on any newly obtained objective unless it fits in their operational concepts for the defense. In urban terrain, units conduct local counterattacks with the smallest available resources to prevent enemy forces from consolidating. A small group of determined Soldiers in a prepared defensive position can defeat a numerically superior force. Urban subterranean passages provide covered and concealed routes to move reinforcements and launch counterattacks. Units coordinate and synchronize their counterattacks with the effects of all their elements of combat power, such as their supporting fire support systems. Defending forces should contain enemy penetrations when they are unable to repel enemy forces. The BCT will then coordinate with higher headquarters to send a larger counterattacking force. As the objective of the counterattack is reached, the BCT consolidates, continues extensive reorganization, and begins preparation to resume the offense. To prevent fratricide, the unit must appreciate the complexity and planning requirements for passing forces rearward and forward during counterattack coordination.

CONSOLIDATION AND REORGANIZATION

4-97. Consolidation is to organize and strengthen a captured position to use it against the enemy. Units assess their combat power and determine if they are achieving their objectives. Units consolidate to ensure they maintain their capability and do not lose what they have gained. Units cross-level internal resources in a degraded unit to restore or increase combat effectiveness. Reorganization is an option when the operating tempo is such that the risk for removing a unit from the operation risks the mission. In the urban environment, consolidation efforts include counterattacks to clear buildings, and the re-establishment and control of buildings. Additional urban consolidation efforts include the repositioning of forces, re-establishment of roadblocks, defensive positions, security positions, and obstacles (situational obstacles and scatterable mines).

4-98. The conduct of a defense is likely to result in an already consolidated main body with small elements scattered throughout the depth of the assigned area. Another likely possibility is that the main body has been pushed back to subsequent positions. Commanders must have plans to eliminate pockets of enemy resistance while recovering friendly elements for reconstitution. A defending unit may have limited time to reform the defense prior to the next enemy attack or exploit an opportunity against a weakened enemy. All elements need to know where to link up and what the trigger is to initiate movement. Commanders can facilitate the transition by staging supplies and equipment for the next operation near unit battle positions, though this potentially exposes them to destruction or capture. Security forces are often the most heavily affected by a successful defense, but they are also the first elements needed to start setting conditions for the next operation.

4-99. Following a successful defense, even if only a temporary pause while the enemy consolidates, commanders need to understand their situations so that they can make informed decisions regarding the next actions for their units. Initial assessments focus on the enemy's ability to continue to attack and the unit's readiness to continue the defense or transition to the offense. Subsequent assessments may cover status of the terrain, civilians, and infrastructure. Collateral damage assessments can help inform consequence management actions while enabling the unit to get ahead of any false narratives. Units should implement their consequence management plans to deal with civilian casualties or property damage. These should clearly articulate roles and responsibilities for treating civilian casualties and reducing fires to prevent further problems. Having civil affairs, public affairs, and psychological operations personnel on the ground at this time can be very helpful. All Soldiers should be able to explain what the unit is prepared to do to for the population and where to go for detailed answers and support.

4-100. Commanders should plan for a thorough debrief for all Soldiers involved in the operation once the area is secure. This allows everyone to review events while they are still fresh and can draw out things that only a few or even a single Soldier noticed. This debrief aids in maintaining a historical record of events, can identify problems the unit can fix to improve future operation, and provides details that analysts can use to inform future operations. Noting an individual’s suspicious behavior or an unusual technique that an enemy employed can become very important later.

SITUATION UNIQUE TO THE CONDUCT OF THE DEFENSE

4-101. In other defensive situations, subordinate units may be directed to conduct unique defensive operations. Subordinate units when encircled can continue to defend or conduct a breakout from the encirclement. This action may be planned or forced by the enemy.

4-102. A commander may find it necessary to conduct a breakout. A *breakout* is an operation conducted by an encircled force to regain freedom of movement or contact with friendly units (ADP 3-90). It is a counterattack that penetrates the enemy's lines to enable the friendly force to escape. These high-risk operations require specific conditions for success. Breakouts are most effective when the enemy has attempted to encircle too large an area or has left a weakness within its lines.

4-103. The greatest challenge with a breakout is getting all of the encircled forces through the breach before the enemy is able to reposition and close it. If unsuccessful, this splits the force and leaves smaller elements exposed on both sides of the enemy perimeter. Urban terrain aids this by facilitating concealed movement to the point of penetration. It also disrupts and slows movement within the urban area, potentially giving the enemy an opportunity to respond. On a small scale, units can accomplish the same effect using underground passages or other routes the enemy has not identified or secured. This can allow a unit to escape the encirclement without contact with the enemy.

SECTION IV – CONSIDERATIONS FOR SPECIFIC OPERATION TYPES

4-104. Urban environmental characteristics can affect units in ways that are specific to the type of defensive operations. The commander must consider these characteristics and their impacts when conducting large scale combat operations.

AREA DEFENSE

4-105. An *area defense* is a type of defensive operation that concentrates on denying enemy forces access to designated terrain for a specific time rather than destroying the enemy outright (ADP 3-90). An area defense may combine static and mobile actions to accomplish the mission. Dense urban terrain provides protection for static forces and conceals small unit movement. Commanders conducting an area defense should maximize both advantages to achieve the greatest effects on the enemy force.

4-106. Retaining decisive terrain may require the commander to employ forces in noncontiguous areas of operation even when a consolidated force is preferable. This further exposes forces to isolation and defeat in detail, but commanders can help mitigate this by improving survivability positions and employing small, mobile forces to reinforce or counterattack as needed.

4-107. As urban attacks tend be slower and more methodical than attacks in other environments, defenses also unfold more slowly. Individual engagements take longer to resolve and moving units take longer to get in position. At the same time, reports about enemy movements can be sporadic and confusing. Defenders lose track of individual enemy elements only for them to appear later in unexpected locations necessitating multiple layers of security. Subordinate leaders must remain disciplined in their actions and their reporting to communicate a clear picture of events.

VARIATIONS OF THE AREA DEFENSE

4-108. Variations of the area defense attack are linear obstacle, perimeter, and reverse slope. Specific characteristics of the environment can make these more or less suitable in an urban area. The environment also imposes special considerations for commanders planning to employ one or more of these variations.

DEFENSE OF A LINEAR OBSTACLE

4-109. Units conduct linear defenses when the terrain or the presence of adjacent units only allows the enemy to attack from a single direct (the front). Units normally establish them along or behind a linear obstacle and prevent the enemy from breaching or otherwise crossing the obstacle to access the area behind the defense. Conducting a linear defense of an urban area is generally only effective when there are natural obstacles on the flanks preventing the enemy from enveloping the position. Examples can include cities located within a mountain valley or on the bend of a river. This can also work by having strong forces on the flanks, but the enemy would be more likely to abandon the attack or focus effort on one of the flanking forces.

PERIMETER DEFENSE

4-110. Units employ a perimeter defense when the terrain does not effectively restrict the enemy's ability to maneuver around the defending force. A perimeter defense does not expose an assailable flank to the enemy but forces the unit to consolidate into a small area while leaving them vulnerable to encirclement or bypass. Perimeter defenses are common in urban areas since cities tend to be more restrictive than the terrain around them. They also prevent envelopment of the defending force while enabling it to exploit interior lines of communication. This requires more combat power than a linear or reverse slope defense, but forces can mitigate this by employing supplemental fighting positions and maintaining a larger reserve force to reinforce along the enemy's main axis of attack. The defensive advantages of the terrain allow even a small force to facilitate repositioning by delaying the enemy attack. Within a large city, the combat power requirements of controlling key terrain may necessitate multiple noncontiguous perimeter defenses. Urban structures facilitate the development of strongpoints to secure key terrain or anchor the larger defense.

REVERSE SLOPE DEFENSE

4-111. Units organize a reverse slope defense on the portion of a terrain feature or slope with a topographical crest that masks the main defensive positions from enemy observation and direct fire (see FM 3-90). They

focus on denying enemy forces the topographical crest that reduces the effects of indirect fire and draws the battle into small-arms range. This is useful for achieving surprise or when enemy weapon systems outrange those of the defender. Units may be able to employ this variation within an urban area if the underlying natural terrain supports it. Most urban terrain is relatively flat which provides few opportunities to employ a reverse slope defense. Because structures limit visibility in dense urban areas, units can achieve a similar effect with a standard linear or perimeter defense by incorporating a line of buildings across the far side of an open engagement area. The buildings reduce visibility and provide some protection from indirect fires while drawing enemy forces into small arms range. Rather than gain advantage because the enemy's weapons cannot depress enough to engage, defenders can occupy high positions in buildings that enemy weapons cannot elevate enough to engage. Few locations would enable a reverse slope defense of an entire city, so a smaller element is more likely to employ this as part of a larger perimeter or linear defense.

TECHNIQUES OF CONDUCTING A DEFENSE

4-112. The unit can use one of three basic techniques: defend a battle position, defend a sector, and defend a strongpoint. The commander has many things to consider before selecting a specific defensive technique. The following paragraphs describe each technique.

DEFEND A BATTLE POSITION

4-113. A *battle position* is a defensive location oriented on a likely enemy avenue of approach (ADP 3-90). This technique also allows units to concentrate fires or place units in an advantageous position for a counterattack. A battle position is generally only used during defensive operations. The purpose of defend a battle position is to destroy an enemy force in the engagement area, block an enemy avenue of approach, control key or decisive terrain, and fix the enemy force to allow another unit to maneuver. There are five kinds of battle positions; primary, alternate, supplementary, subsequent, and strong point (see ADP 3-90 for more information on the kinds of battle positions).

4-114. When assigning battle positions, the higher echelon designates the primary battle position. The subordinate unit designates and prepares alternate, supplementary, and subsequent positions as time and other resources permit and if the terrain or situation requires them. A commander's use of a battle position does not direct the position of the subordinate's entire force within its bounds since it is not an assigned area. The unit can maneuver in and outside of the battle position as necessary to adjust fires or to seize opportunities for offensive operations within the commander's intent. The commander can use battle positions and additional direct fire control as control measures to further synchronize the employment of combat power.

4-115. Battle positions should be placed where heavy weapons, antiarmor weapons, and armored vehicles such as tanks, Strykers, and BFVs, have the best fields of fire. Such locations are normally found at major street intersections, parks, and at the edge of open residential areas. Battle positions should be carefully and deliberately prepared, reinforced by obstacles and demolished buildings, and supported by artillery and mortars. They should be positioned to inflict maximum losses on the enemy and cause them to deploy early, setting them up for a deliberate friendly attack.

DEFEND A SECTOR

4-116. A *sector* is an operational area assigned to a unit in the defense that has rear and lateral boundaries and interlocking fires (FM 3-0). A defense in sector conveys an expectation that the defending commander uses the available depth of the sector to actually defend in depth. This technique allows the unit to maintain flank contact adjacent units and ensures unity of effort within the scheme of maneuver. The defending unit must maintain connection with adjacent units that are also defending in sector. A higher echelon headquarters uses fire support coordination and maneuver control measures such as battle positions and trigger lines to synchronize subordinate units. Units use sectors to synchronize and coordinate engagement areas and allow for mutually supporting fields of fire, which do not require coordination between adjacent units. Sector boundaries never split an avenue of approach (see FM 3-90 for more information on sectors). Based on METT-TC (I) considerations, the defense in sector may incorporate multiple battle positions and/or strongpoints, each with unique occupation and displacement criteria.

4-117. A unit may be given the mission of defending a sector in an urban environment. Sectors are normally assigned when blocks and streets provide a grid type pattern and boundaries can be clearly delineated. In an

urban environment, the unit should take advantage of outlying structures sector to provide early warning and delay the enemy. Units should also take advantage of interior buildings to provide concealment and protection in a fixed defense.

DEFEND A STRONG POINT

4-118. A *strong point* is a heavily fortified battle position tied to a natural or reinforcing obstacle to create an anchor for the defense or to deny the enemy decisive or key terrain (ADP 3-90). This technique's purpose is to deny terrain and redirect enemy formations. Commanders establish a strong point defense when anticipating that enemy actions will isolate a defending force retaining terrain critical to the defense. Commanders also prepare a strong point for all around defense.

4-119. Before assigning a strong point mission, commanders ensure that the strong point force has sufficient time and resources to construct the position. This includes providing all assets for overhead protection, trenches, and other protective construction using both natural and man-made terrain. A minimally effective strong point typically requires one day of effort from an engineer unit the same size as the unit defending the strong point. Constructing a strongpoint is labor-intensive. Units may be challenged to get soil to fill sandbags and may be required to use alternatives such as rubble in fillable barriers. In building the strong point, leaders at all levels must carefully establish and execute priorities of work as Soldiers build hardened fighting positions within a structure while also working to develop engagement areas outside.

4-120. Urban areas are easily converted to strong points. In choosing specific locations, commanders must balance between selecting positions with effective overwatch and natural engagement areas and ensuring there are adjacent structures which negate threat forces' ability to stand off and destroy strong points with fires. Choose a structure with clear lines of sight and surrounded by features that limit the enemy's ability to easily approach, such as walls, canals, or similar elements. The structure should also restrict an easy entry by the enemy, such as with limited windows or doors on the ground level. Many structures in the urban environment provide excellent protection because they are built with strong materials such as stone, brick, and steel. Common structures found in urban areas such as government buildings, prisons, jails, and industrial complexes are good examples that can be used as strong points. Strong points can be located at intersections, entrances to public squares and parks, or adjacent to bridges to provide observation and weapons system fields of fire in support of prepared engagement areas. Units can then reinforce these natural traits with additional barrier material and place fighting positions to cover approach routes.

4-121. Obstacles should be tied into strong points. Buildings, sewers, and some streets provide covered and concealed routes and can be rubbled to provide obstacles. Concertina wire can be tied into objects such as street signs, fence poles or streetlamps where there is no soft dirt. Engineer dig assets can cut short trenches or reposition rubble or wrecked cars to shape the engagement area.

4-122. The specific positioning of units in a strongpoint depends on the commander's mission analysis and estimate of the situation as long as the end result is interlocking fires within planned engagement areas. The same considerations for a key terrain defense apply. Additionally, commanders must consider the following:

- Ensuring that mutually supporting strong points are echeloned in depth.
- Dividing the strongpoint into several independent but mutually supporting positions or AOs.
- If one of the positions or AOs must be evacuated or is overrun when dividing the strongpoint, limiting the enemy penetration with obstacles and fires to support a counterattack.
- Reinforcing and hardening each individual fighting position (to include alternate, subsequent, and supplementary positions) to withstand small-arms fire, mortar fire, and artillery fragmentation.
- Placing crew served and anti-tank weapons on higher floors so that they can top attack enemy armor, provide grassing and plunging fires.
- Marking routes to alternate, subsequent, and supplementary positions.
- Erecting netting or screening material to deny sniper fire at long ranges or to limit threat UAS operators' ability to identify positions.
- Setting up ambushes in the gaps between strongpoints and other buildings which hinder fields of fire.
- Creating mouseholes for use in deception by suppressed weapons.
- Removing flammable materials to prevent a fire hazard when possible.
- Building up overhead cover or buttressing interior walls to prevent their collapse.

- Reducing backblast overpressure by removing non-load-bearing walls within the position.
- Stockpiling food, water, ammunition, pioneer tools, and medical supplies in each fighting position.
- Supporting each individual fighting position with several others, vertically and horizontally.
- Sealing off all openings in the strong point or denying by obstacles, barriers, and fire.
- Planning and constructing covered and concealed routes between positions and along routes of supply and communication and using these to support counterattack and maneuver within the strongpoint.
- Coordinating fires between strong points.
- Constructing tactical or protective obstacles and minefields to disrupt or canalize enemy formations, to reinforce fires, and to protect the strongpoint from the assault.
- When constructing obstacles and minefields, placing them out as far as friendly units can observe them, beyond hand grenade range, within the strongpoint, and at appropriate points in between structures.
- Whether to use 90-degree turns when emplacing concertina wire and include passage points for the return of the listening post and observation post personnel as well as other friendly personnel to friendly lines.
- Preparing a DA Form 5517 *(Standard Range Card)* for each position, sector sketches, and confirm them by fires.
- Planning indirect fires in detail and register them.
- Planning indirect fires for firing directly on the strongpoint using proximity fuzes.
- Planning and testing several means of internal and external communication, to include frequency modulation, digital, wire, messenger, pyrotechnics, and other signals.
- Preparing communication trenches within strong points.
- Positioning reserve in a separate strongpoint.
- Constructing dummy strongpoints to deceive the attacker.
- Constructing positions for securing and defending the entrances to and exits from underground structures and routes.
- Not defending from roof-top positions due to the threat of air-burst munitions or attack by loitering munitions or other unmanned systems.
- Improving or repairing the strongpoint until the unit is relieved or withdrawn.

Note. The necessary volume of Class IV may not initially be available. As more is supplied, the unit continues to improve their positions.

4-123. Since the defensive battle will be fought primarily from strong points dispersed in depth, armor offers a significant direct fire, heavy weapon supporting capability for these strong points. Tanks must receive mutual support from infantry organic weapons to suppress enemy strong points and anti-tank guided missile systems while they move into position to fire their main armament. Tanks are routinely attached to the infantry for employment in urban ambushes or to reinforce antitank defenses. Tanks may operate in a mobile defense or be positioned in strong points. Tanks may be used in ambushes where they are employed primarily against attacking tanks and along expected routes of the main attack. During defensive operations air support is employed to provide precision-guided munitions support of counterattacks against fallen strong points.

MOBILE DEFENSE

4-124. In a mobile defense, the allocation of substantial depth to assigned areas is imperative. A *mobile defense* is a type of defensive operation that concentrates on the destruction or defeat of the enemy through a decisive attack by a striking force (ADP 3-90). The commander's ability to maneuver friendly forces strategically, circumvent the enemy, and sever their lines of communication is crucial. A comprehensive understanding and shaping of the area in favor of the defender are vital for success. To achieve success, the defender must actively seek to disrupt the enemy.

4-125. Urban environments are generally ill-suited for a mobile defense due to mobility restrictions that hinder the striking force's effectiveness. However, BCTs and maneuver battalions may engage in a mobile defense as either the fixing force or the striking force within a larger division mobile defense. The *striking*

force is a dedicated counterattack force in a mobile defense constituted with the bulk of available combat power. (ADP 3-90). Conversely, the fixing force is a force designated to supplement the striking force by preventing the enemy from moving from a specific area for a specific time (ADP 3-90). The fixing force can be employed to hold attacking enemy forces in place, canalize or turn attacking enemy forces into ambush areas, and retain maneuver space for launching the striking force.

4-126. The core objective of a mobile defense is to defeat or destroy enemy forces by allowing them to advance to a point where the striking force can execute a decisive counterattack. In urban settings, major counterattacks necessitate centralized planning and decentralized execution. At lower echelons, counterattacks leverage the cover and concealment provided by urban terrain, with a focus on reclaiming key locations.

4-127. Units smaller than a division typically do not execute a mobile defense due to their limited capacity to engage multiple fronts within the assigned area while effectively resourcing forces for striking, fixing, and reserve roles. BCTs and smaller units generally conduct an area defense or a delay as part of the fixing force, shaping the enemy force's penetration. Alternatively, BCTs may attack as part of the striking force or constitute a portion of the reserve. In addition, BCTs can conduct a defense in sector as part of a division or higher echelons area defense. Armored vehicles like the Stryker and BFV afford defending forces the ability to maneuver, delay the enemy advance, and then immediately transition from a delay to a mobile defense or counterattack. In a mobile defense, transitioning to the offense generally follows the striking force's counterattack. (See FM 3-90 to organize, plan, prepare and execute a mobile defense).

4-128. In a mobile defense, the commander considers the impact of operations on the civilian population within the assigned area. This concern surpasses that of an area defense due to the larger scope of maneuver and operational tempo. To mitigate civilian interference with ground maneuverability, commanders must account for their presence, provide alternative routes for dislocated civilians, and communicate these routes using various means. Ideally, local civilian or military organizations should furnish traffic regulations and immediate essential services along evacuation routes. If local entities cannot perform these tasks, the defending unit assumes responsibility, necessitating the screening of civilians to prevent enemy infiltration. Commanders must consistently uphold legal obligations to the local civilian population.

RETROGRADE

4-129. A *retrograde* is a type of defensive operation that involves organized movement away from the enemy (ADP 3-90). Variations of the retrograde are delay, withdraw, and retirement. The environment imposes special considerations for commanders planning to employ one or more of these variations.

DELAY

4-130. A *delay* is when a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage on enemy forces without becoming decisively engaged (ADP 3-90). Dense urban terrain greatly enhances the effectiveness of delaying actions by concealing elements until they engage, protecting elements as they engage, and providing covered and concealed movement routes to subsequent positions. Leaders do need to identify, secure, and rehearse movement between positions to ensure routes are open and all Soldiers understand where they need to go. Delays are so effective that units should attempt to incorporate them into any urban defense, except perhaps when trying to deny all enemy access into the city. Because of the ease of stealthy movement, delaying forces risk being bypassed or cutoff by attacking forces. To avoid becoming fixed in place, delaying forces must develop appropriate displacement criteria and follow it, regardless of the level of success they appear to be having in execution. Displacing early is preferable to being flanked, bypassed, or fixed and destroyed in place by attacking forces.

WITHDRAW

4-131. *Withdraw* is to disengage from an enemy force and move in a direction away from the enemy (ADP 3-90). Dense urban terrain facilitates a withdrawal by limiting engagement ranges and slowing maneuver. This enables forces to break contact as described with the delay above. It also provides protection for rear guard elements forced back into contact.

RETIREMENT

4-132. A *retirement* is when a force out of contact moves away from the enemy (ADP 3-90). Dense urban terrain restricts units conducting a retirement by slowing movement and allowing enemy forces to either make contact with the rear guard to transition the operation to a withdrawal or maneuver around to block exit from the urban area.

SECTION V – TRANSITIONS

4-133. As with offensive operations, commanders ensure smooth transitions by identifying their desired end states and planning for follow-on operations early. The preparation time associated with defensive operations should enable the unit to set conditions for an efficient transition. Regarding the urban area itself, commanders should have a plan to transition control to someone rather than leaving disorder and a potential power vacuum.

4-134. When planning, commanders should develop sequels for likely transitions and develop an understanding of the indicators which will show when the transition happens. The unit then actively monitors, and battle tracks those indictors and when recognizing them, immediately implements the transition and direct necessary actions by subordinates in accordance with the plan. Tactical operations centers and commanders manage transitions.

TRANSITION TO OFFENSE

4-135. Units defending an urban area rarely transition fully to the offense unless they are departing the area. More often, a portion of the defending unit will conduct offensive tasks while the rest continues to secure. Still, transitioning from an urban defense to the offense is very challenging in most cases. In addition to the challenges present in any environment, units need a plan to transition control of the urban area over to another unit or a local government or nongovernment entity. The unit may also conduct a counterattack or movement to contact to straighten internal lines, readjust defensive positions, or access better infrastructure. Mobility also becomes a significant concern as units need to reduce their own obstacles as well as clear rubble and disabled vehicles from key routes to enable the force to reach their next objective.

TRANSITION TO STABILITY

4-136. Transitioning from the defense to stability tends to be much smoother than to the offense or from offense to stability. An area defense is especially conducive for this. The force will likely have an understanding of local groups and a relationship with their leaders. Consolidation tasks support information gathering to prioritize stability tasks. Efforts to protect civilians and their property during the defense can improve relationships, and mitigating any destruction provides a focus for initial efforts. Forces will likely continue to defend the urban area from enemy remnants or criminal elements, though the shape of that defense will change over time.

TRANSITION TO CONTINUED DEFENSE

4-137. If a defensive operation leads to a stalemate, with both forces left in contact, defending units seek to retain the initiative and create conditions for future operations. Defending units may also lose some ground to the attacker during the defensive operation. In either scenario, commanders will prepare their defending units to move rapidly to subsequent defensive positions. Units will move during battle lulls because of the risks associated with defending twice from the same positions. This is because the enemy force now knows the location of friendly defensive positions and can target them with supporting fires unless those defending forces can displace. Defending units stay in place and continue to fight unless they can suppress enemy forces or take other actions to break contact with enemy forces if there are no battle lulls. This is because of the risk when units try to displace from prepared positions while still under enemy pressure.

4-138. Local counterattacks are designed to restore the defense and to gain the initiative from the enemy force. The unit may have gained new terrain after a successful counterattack. After a successful counterattack units will then need to move to subsequent defensive positions. As the objective of movement to subsequent

defensive positions is reached, the unit consolidates and continues reorganization that is more extensive and begins preparation to resume the defense.

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Chapter 5
Urban Stability Operations

Units conduct *stability operations* outside the United States in coordination with other instruments of national power to establish or maintain a secure environment and provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief (ADP 3-0). Actions aim to reduce the level of violence; enable the functioning of governmental, economic, and societal institutions; and encourage general adherence to local laws, rules, and norms of behavior. They can help prevent conflict or reestablish enduring peace after open hostilities cease. This chapter describes the roles of maneuver formations during the execution of urban stability operations and supplements information in ADP 3-07, FM 3-07, ATP 3-07.5, and FM 3-96. (See ATP 3-06 for more information on the responsibilities of EAB during the execution of urban stability operations.)

SECTION I – IMPACTS ON STABILITY

5-1. Stabilization is a process in which personnel identify and mitigate underlying sources of instability to establish the conditions for long-term stability. The endstate of stability operations is the establishment of conditions in which the local populace regards its governance institutions as legitimate and its living situation as acceptable and predictable. This intrinsically ties stability operations to urban areas since they are where the populace and seats of government reside. UO will usually require some form of stability activity combined, sequenced, or simultaneously conducted with offensive and defensive operations. The conduct of military operations among a civilian population is in itself a source of instability that commanders must mitigate.

5-2. Sources of instability manifest themselves locally within the urban environment. Catastrophic event, humanitarian crisis, foreign power-instigated violence, insurgency, domestic rebellion, and civil war can all cause instability. Stability is placed at risk during times of transition or contention and at the end of conflict. Enemy forces leverage sources of instability to create conflict, exacerbate existing conditions, or threaten to collapse failing or recovering states. Examples of sources of instability include but are not limited to—

- Ungoverned areas.
- Religious, ethnic, economic, political indifferences among the local population.
- Natural disasters.
- Resource scarcity.
- Individual disrupting legitimate governance.
- Degraded infrastructure.
- Economic strife.
- Immature, undeveloped, or atrophied systems.
- Ineffective and corrupt HN government agencies.

APPLYING THE FUNDAMENTALS OF STABILIZATION

5-3. Commanders and staff apply the fundamentals of stabilization when planning for and conducting stability operations tasks to lay the foundation for long-term stability. When involved, the BCT will execute stability operations continuously throughout all operations. Executed early enough and in support of broader national policy goals and interests, stability operations effectively reduce the risk of partner nations or occupied territories descending into politically motivated violence by addressing the sources of instability before hostilities begin (see ADP 3-07).

CONFLICT TRANSFORMATION

5-4. Conflict transformation is the process for addressing the underlying causes of violent conflict while developing viable, peaceful alternatives for people to meet their needs and pursue their political and

socioeconomic aspirations. Commanders and staff must understand the reasons why people are unsatisfied or have a lack trust in their governmental and security services, as well as having the ability to address those concerns so that they do not turn to violence as a solution. Urban areas can contain many different groups that can have their own issues and grievances. Identifying and addressing the root causes is often challenging as well as time and labor intensive.

5-5. In general, companies and platoons focus on securing areas of operations, communicating with people to identify issues and sources of instability, taking action to meet immediate needs, and facilitating long-term solutions to enable transformation. Battalion leaders establish relationships with local leaders to identify sources of conflict, resource company operations, and leverage those relationships to ensure that efforts are having the desired effect. Brigade leaders focus on building sustainable government systems that will create the conditions for enduring stability. They facilitate cooperation among unified action partners and resource battalions to meet immediate and long-term needs.

UNITY OF EFFORT

5-6. *Unity of effort* is the coordination and cooperation towards common objectives, even if the participants are not necessarily part of the same command or organization, which is the product of successful unified action (see JP 1-0). For a BCT operating in complex urban environments, achieving unity of effort necessitates establishing robust collaborative mechanisms with various governmental and non-governmental agencies. It involves fostering a shared understanding of objectives, resources, and strategies to effectively address the multifaceted challenges posed by stabilization efforts within urban areas. To achieve Unity of Effort, the BCT must actively engage and liaise with key stakeholders, including but not limited to local government authorities, law enforcement agencies, humanitarian organizations, and non-governmental organizations operating within the operational area. This entails establishing regular communication channels, participating in joint planning and decision-making processes, and integrating civilian perspectives into the military strategy. Ultimately, a unified and coordinated approach at the brigade level fosters synergy among diverse actors, leading to a more efficient allocation of resources, minimized duplication of efforts, and an enhanced ability to address the complex social, political, and economic dynamics inherent to urban stability operations.

5-7. Urban stability operations require organizations to work together without a formal command relationship down to the lowest echelons. Platoons and squads conduct combined operations with foreign military or police forces. Brigade and battalion staff will facilitate distribution of supplies from nongovernment and employ the services of civilian subject matter experts to conduct assessments. In addition, the relationships between those elements change as the situation develops, and those that initially led efforts must transition to supporting roles. BCTs will transition as soon as possible from leading stability activities to supporting the efforts of their partners, so they can get back to focusing on large scale combat operations.

5-8. Though commanders conducting urban stability operations should strive for unity of effort, the desires of some elements may be ambiguous and there will often not be complete alignment on the way ahead. They should focus on common concerns and outcomes to determine actions that parties can agree on to make progress. Operations do not exist in a vacuum, and longstanding disputes and prejudices can create resistance to propositions that would benefit all parties. These can take understanding, time, and finesse to overcome.

BUILDING HOST NATION CAPACITY AND CAPABILITY

5-9. Stability requires a HN government that can provide security, governance, economic development, essential services, rule of law, and other critical government functions. Building this capability within HN institutions demands knowledge, skills, and abilities that are not all resident within the BCT. This calls for a whole-of-government approach with success coming from the comprehensive efforts of interagency and intergovernmental entities. BCT units often serve as the foundation for stability efforts. Organizations within the BCT will oftentimes provide the leadership, resources, and work force needed to collaborate with HN government elements at all echelons, identify problems, and support development efforts. Commanders must be careful to understand non-governmental organizations' motivations and be alerted to hidden agendas or ulterior motives. Organizations with seemingly good intentions may be exploiting or exacerbating a situation through biases or by worsening political, cultural, or sectarian divides.

HOST NATION OWNERSHIP AND LEGITIMACY

5-10. Though the BCT can perform many functions and accomplish a wide variety of tasks, ultimate responsibility for stability rests with the HN. They can set the conditions to enable stability but cannot achieve it on their own. Long-term success requires the HN to take proactive measures to perform its governance and security functions largely independent of external support. Leaders at all levels must encourage their counterparts to take ownership of the problems they face and develop solutions that will work for their situations. Commanders must clearly respect the views and interpretations of HN leaders, even if they differ in how to best achieve desired end states. The population must see their government institutions as legitimate on their own and not just as extensions of the American military.

5-11. Ownership and legitimacy are conditions based upon the perception of the people to the legality, morality, and of the authority of the HN leaders. To be perceived as legitimate by the people, HNs protect and defend their population from internal and external threats (for example, provide civil security) to protect individuals from persecution, intimidation, reprisals, and other forms of systematic violence (for example, personal security). Providing a safe and secure environment is a fundamental requirement for building and sustaining stability and these conditions are met when the personal security and basic needs such as food, water, and shelter of the population are met. Where the HN lacks the capability or will to meet security needs, individuals tend to transfer loyalty to any group that promises to meet those needs, including adversarial groups and other opportunists. These groups can and will exploit insecurity by providing money, basic social services, and even a crude form of justice. Therefore, providing security to the population is fundamental to the development of HN legitimacy.

5-12. This transition can be difficult and create friction between personnel, especially when there are significant cultural and political differences between the HN and the United States. HN leaders may not understand when U.S. Forces hold back and refuse to commit their full capabilities. A perceived lack of initiative and deflecting blame can frustrate U.S. leaders. Working through these issues requires patience and understanding. Though attitudes and methods can vary, everyone must remain alert and ensure they understand the distinction between differing approaches and violations of international law.

APPLYING STABILITY MECHANISMS

5-13. A *stability mechanism* is the primary method through which friendly forces affect civilians in order to attain conditions that support establishing a lasting, stable piece (ADP 3-0). Employing stability mechanisms in combinations produce complementary and reinforcing effects that help shape the human dimension of the operational environment.

COMPEL

5-14. Compel involves maintaining the threat—or actual use—of force to establish control and dominance, effect behavioral change, or enforce cessation of hostilities, peace agreements, or other arrangements. Compelling generally changes behavior, but not attitudes or beliefs. Army forces generally rely on compelling cooperation during the initial response when security is poor, speed is important, and they have not had time to establish relationships with the local population. Over time as the security situation improves, the population becomes less tolerant and more resistant to efforts to compel them. Eventually the threat of force will not be enough, and forces must use actual force to compel action. Leaders must be judicious with the use of force as escalations can undermine the legitimacy of the mission and violate the law of armed conflict.

CONTROL

5-15. Control involves establishing civil order and safety; securing borders, routes, sensitive sites, population centers, and individuals; and physically occupying key terrain and facilities. Control aligns closely with the Army stability task establish civil security. Control starts as the fundamental means to improving security and remains important throughout the operation. Over time, U.S. Forces will transition control of specific locations to HNSF until they assume full responsibility for maintaining security.

INFLUENCE

5-16. Influence involves altering the opinions, attitudes, and behaviors of the host-nation population and other actors. Units accomplish this through information operations, presence, and conduct. Influencing individuals or a population requires effective messaging, time, and a perception of legitimacy and trust. Army forces will have limited influence during the initial response, but positive action over time will increase influence until it becomes the primary way to effect change. As all unit actions will influence those around them, leaders must ensure that all subordinates understand the endstate and shape their words and actions to support the commander's intent. The local populace can generally be broken into three categories: those who are supportive of the HN government, those who are opposed to it, and those who are undecided in the middle. Efforts should be made to retain the support of those that already support the government while also moving those in the middle to the side of being supportive. Leaders must be careful that their actions to address those not supportive of the government cannot be used to move either the supportive population or those who are undecided to a point of losing support for the host government.

SUPPORT

5-17. Support involves establishing, reinforcing, or setting the conditions necessary for the instruments of national power of the host-nation government to function effectively; coordinating and cooperating closely with host-nation civilian agencies; and assisting aid organizations as necessary to security humanitarian access to vulnerable populations. Though U.S. military forces generally rely on compelling and controlling the population during the initial response, they will transition to focus more on supporting as the security situation improves and the capabilities of HN government institutions grow. Even a partial solution delivered by the HN can be more effective than a U.S.-led effort. It is important that U.S. support builds HN capacity and capability rather than simply putting a "host-nation face" on U.S. efforts.

5-18. Units can rapidly lose the support of the local populace if they are seen as unaccountable, uncaring, or otherwise appear harmful to the region. Some issues may be matters of unlawful behaviors. These may include matters of criminal or civil jurisdiction. Unless a status-of-forces agreement or other convention exists, Soldiers operating in foreign urban areas are subject to the laws and judicial process of the HN. Other issues may stem from ongoing operations, including damages and injuries. Regardless of the source, commanders must take ownership of unit mistakes. This may mean immediately investigating allegations of wrongdoing. It may also require facilitating local national claims for damages or death gratuities as a stability operation matures, as long as those mechanisms are established by higher commands. Failing to demonstrate care and support for local national concerns is detrimental to mission accomplishment.

URBAN STABILITY CONSIDERATIONS

5-19. Common urban environmental characteristics can affect the BCTs' ability to conduct stability operations. The commander must consider these characteristics and their impacts when conducting large scale combat operations.

MOVEMENT AND MANEUVER

5-20. Characteristics of movement and maneuver include increased civilian presence, increased support to unified action partners, and size of force.

Increased Civilian Presence

5-21. Due to the improved security, there will generally be more people out while a unit is conducting stability operations than when conducting major offensive and defensive operations. Citizens that took shelter during the fighting will come out, and displaced persons might return. Rather than avoiding combat engagements, noncombatants will try to get on with their lives and get back to a regular schedule. This increases the challenges for mounted and dismounted mobility as units share the road and walkways with noncombatants. Timing movements effectively and implementing population control measures become more important.

Increased Support to Unified Action Partners

5-22. Accomplishing stability objectives often requires knowledge and capabilities not resident in the force. Unified action partners may have the specific expertise required, but often lack the labor force and resources to implement solutions. Success depends on working together to accomplish tasks, even though this will draw combat power away from security efforts.

Size of Force

5-23. When facing UO, commanders consider if they have adequate troops and equipment of adequate type and size to conduct the operation properly and within acceptable risk. Urban areas of increased size and density will require increased force strength. Stability actions normally require significant forces, particularly when operating in a hostile or uncertain environment. There is no standard template for force level requirements for stability actions; the exact ratio required will depend on several variables, most particularly the level of violence. Generating and maintaining these force levels will be a challenge for any force, so staffs must plan to develop and integrate an effective and sustainable indigenous security capability (JP 3-07). As a planning measure, the number of security force personnel per 1,000 head of population (expressed as a force ratio) can be a useful mechanism to indicate the mass required. Although numbers alone do not constitute a security strategy, successful strategies for population security and control have required force ratios either as large as or larger than 20:1. Adequate force ratio coverage is needed to consolidate gains in urban areas that are occupied and to maintain peaceful conditions. This coverage requires strict enforcement of any rules, disarmament, martial law, or curfews mandated up to and including the escalation and use of lethal force (see ATP 3-06 for more information on force ratios).

INTELLIGENCE

5-24. During stability UO, the intelligence preparation of the operational environment process and information collection operations are focused in more detail on the population as the decisive point for operations. Intelligence places more focus on support to and from information advantage, civil affairs, and psychological operations than during offensive and defensive operations. The intermix of a large variety of friendly, neutral and threat actors—to include local national miliary and law enforcement authorities, insurgents, and criminal elements—requires intensive information collection operations and intelligence analytical support for U.S. Forces to gain and maintain situational understanding.

5-25. In stability operations HUMINT can use the techniques identified for offensive and defensive operations as well as develop and employ source operations. Leveraging source operations, though time intensive, can deliver greater understanding of the capabilities and disposition of insurgent forces, status of city systems, and levels of popular support, which can be impossible to determine using conventional military reconnaissance capabilities. Some of the best intelligence is gathered by Soldiers while on a mission. Therefore, it is very important that all Soldiers get debriefed upon return.

5-26. SIGINT can be the timeliest source of information, provide cues for other intelligence disciplines, and confirm or deny reporting from other sources of intelligence or information. The various authorities, directives and legal agreements that govern SIGINT operations will dictate what can or cannot be collected, reported, and disseminated by SIGINT elements while conducting stability operations (see ATP 2-22.6 for additional information).

5-27. During stability UO, OSINT can use the same techniques identified for offensive and defensive UO. OSINT can answer the commander's priority intelligence requirements that support stability UO. Publicly available information can provide warnings to units and updated terrain, weather, and civil considerations.

5-28. During stability UO, GEOINT focuses on locating remaining threat forces (to include any developing or ongoing insurgency) and critical urban infrastructure, supporting target development, and supporting the unit's overall situational awareness. This enables cross-domain lethal and non-lethal fires. GEOINT teams provide support to civil authorities by identifying and conducting battle damage assessment on critical infrastructure to assist with planning for and restoring essential services required to return the urban area to normalcy. GEOINT also supports force protection information collection priorities and assists threat detection by establishing patterns of life. GEOINT support allows for ground forces to gain situational awareness and familiarity with new environments by providing them with recent imagery products, terrain

analysis, and models depicting potential and current humanitarian and environmental crises. Combined, these actions deter threat escalation and, if required, enable U.S. and mission partner forces to rapidly transition to armed conflict. Pattern analysis becomes very important in stability operations as a predictive tool which may help to know when and how to secure and control an urban environment.

5-29. During stability operations CI is focused on CI support to force protection and identifying threat intelligence collection targeting U.S. and multinational forces. CI support to force protection is focused on assessing vulnerabilities and potential threats to U.S. Forces personnel, operations, facilities, information, and networks. This may include forward operating bases housing BCTs and other forward operating units. CI can recommend countermeasures to the supported commander to negate or mitigate vulnerabilities and potential threat intelligence collection targeting U.S. Forces for attack planning purposes. CI conducts missions and collection activities to identify, neutralize, or exploit threat insurgent, terrorist, and intelligence persons, groups, and networks that may be located outside secure installations and facilities as well as insider threats that may be present inside installations and facilities.

5-30. The Military Intelligence company within the BCT can distribute intelligence support teams to subordinate units based upon the requirement. The BCT can employ anywhere from two intelligence analysts, for example to a maneuver company, or a large team of intelligence analysts as an intelligence support team to support, based on the situation, an Infantry battalion, brigade engineer battalion, field artillery battalion, Cavalry squadron, brigade support battalion, or to further augment the BCT intelligence cell or brigade intelligence support element. If necessary, non-military intelligence Soldiers can fill positions in the intelligence support team.

5-31. During stability operations, commanders and staffs execute force protection information collection. A method such as a census in towns or cities using biometrics data collection devices is an effective tool to account for the general populace. Biometrics enhance force protection and targeting by helping to positively identify persons of interest and others who would do harm to friendly forces and facilities. Biometrics satisfy evidentiary requirements and contribute to establishing a rule-of-law. They are particularly helpful in an immature or corrupt judicial system and help achieve convictions. In addition to censuses, units should routinely employ biometric devices in conjunction with operations. For example, cordoning an area and then confirming the status of all local nationals within the cordon with the device. Units should use biometric devices to confirm the identity of human remains recovered from scenes such as car bombings or other devastating attacks.

FIRES

5-32. Commanders must consider collateral damage. Civilian casualties and major property damage tend to have a greater negative effect on popular support during stability operations. More restrictive ROE can place severe constraints on the use of fires. When units require fires, they can mitigate this with detailed information collection and the use of precision munitions. Commanders may use fires to conduct terrain denial and illumination fire missions. Approval authority for terrain denial and illumination missions may extend to a higher-level commander due to narrow urban collateral damage estimations. Mortars, due to their smaller bursting radius, reduce collateral damage and provide illumination to demonstrate deterrent capability, observe contested areas, or support area security missions.

5-33. In addition to lethal effects, the targeting functions of the BCT fire support cell includes nonlethal effects input to the information collection plan and the targeting work groups. In the urban environment, fire support cell members can perform additional roles such as key leader engagement, civil affairs, psychological operation, and consequence management planning. Nonlethal effects can come from a wide range of military and civilian, joint, and multinational partners. (See FM 3-96 for more information on nonlethal effects.)

PROTECTION

5-34. Units should not set patterns during day-to-day activities. As stability operations occur over extended periods and often require similar actions on a regular basis, units develop schedules to manage their activities. This can cause them to set patterns that an observant enemy can exploit. Leaders must fight complacency and ensure that their subordinates deliberately vary movement times and routes, guard rotations, and force packages to avoid making easy targets (see ADP 3-37 for guidance on additional protection tasks that are synchronized and integrated throughout the operations process).

5-35. Commanders and staff must plan for force protection. Combat outposts and other friendly positions in urban environments are subject to a close approach by enemy forces and are therefore subject to threats such as vehicle-borne improvised explosive devices (VBIEDs), snipers, and indirect fire. Urban structures such as buildings that are used by friendly forces must have extensive force protection: sandbagged positions, sniper screens, serpentine barriers, and clearly marked threat engagement lines. Leaders must also ensure that Soldiers wear appropriate personal protective equipment in the urban environment to safeguard against the three-dimensional threat. Because the urban environment is a three-dimensional battle space, the multidomain imperative to account for being under constant observation and all forms of enemy contact is especially applicable. Units should also actively patrol abandoned buildings adjacent to friendly outposts, facilities, and other positions to deny that terrain to the enemy. Effective force protection efforts enable units to focus on the stability mission by deterring the enemy from drawing them into combat operations. This allows units to focus on the stability mission rather than the combat mission. Leaders ensure that force protection measures are not counter to stability and trust. For instance, maximizing force protection requirements is effective; however, it may be seen as a lack of trust in locals, local security forces, or other partners. Commanders must balance realistic force protection standards with maintaining that trust, while erring on the side of protection. While Soldiers always have a right to self-defense, leaders must assess emerging situations and provide an appropriate response. For instance, always immediately ramping up to the use of deadly force will enable survivability in a given situation; however, the cumulative effect may be towards destabilizing the area and an increase in threatening behavior.

SUSTAINMENT

5-36. Considerations should be made for civilian contract support. Depending on the security situation, units may have the option of using local civilian contractors to supplement sustainment and construction capabilities. For example, civilian contract support may be used to augment other support capabilities by providing additional sources of supplies and services. These supplies and services include all classes of supply (Class VIII, contracting support provided by medical personnel, and Class IX may be limited), labor, mortuary services (within specific parameters), laundry, showers, dining facility services, sanitation, and transportation. This can relieve burdens on Army sustainment systems, provide technical capabilities not resident in the force, and introduce funds into the local economy that can help facilitate a return to normalcy. It can also expose the unit to quality control issues and liability if contractors are injured or killed while supporting operations (see chapter 7 for additional information).

SECTION II – STABILIZATION FRAMEWORK

5-37. The stabilization framework is a model for stability operations that includes conditions-based transitions through initial response, transformation, and fostering sustainability. Understanding where the unit is along this framework helps leaders determine mission priorities, requirements, and initial task organization.

INITIAL RESPONSE

5-38. As part of its initial response, the BCT will act to stabilize a crisis state in the assigned area. This generally occurs during or immediately following a conflict or disaster. Dangerous conditions generally prohibit the introduction of government and nongovernment civilian personnel, so initial response actions aim to provide a secure environment and attend to the immediate humanitarian needs of the local population. They reduce the level of violence and human suffering while creating conditions that enable other actors to participate safely in relief efforts.

5-39. How the BCT conducts their initial response may determine the overall success or failure of the stabilization mission. The initial response will either favorably set conditions for continued stability or result in negative effects which may take years to undo. Often it is the platoon or company, rather than the battalion or brigade, who is most closely involved with the local populace and able to gauge atmospherics and changes to the AO. Because of this, the subordinate echelons may have a much greater understanding of the various dynamics at play within their battlespace. The leaders must actively work to push that understanding upwards to inform decisions by echelons that are most challenged to understand the AO. Leaders must make decisions with an understanding of regional and local dynamics (sectarian, cultural or historic divides or other sources

of bias and contention). Units within the BCT must remain neutral during this period. Supporting one or more factions or leveraging one faction against another may contribute to instability. Perception from the local population must be that the U.S. Forces are neutral, have the best interests of the population, and are providing security to the area allowing further development. Due to the complexity of any stabilization problem, units should plan their initial response using the Army Design Methodology rather than simply use military decision-making process.

5-40. During the initial response, the BCT will provide area security to protect the population. Stability operations are decentralized in nature and often conducted at the platoon and company level, so both the battalion and brigade should anticipate a high demand for enabler capabilities. Unlike combined arms maneuver where higher headquarters shapes the fight for subordinate echelons, these enablers can be sourced directly to the supported platoons or companies. This creates significant leader challenges in terms of planning and integration, or simple requirements such as an increased need for lift support. Enablers might include engineers, working dogs, HUMINT teams, interpreters, female engagement teams, civil affairs, and so forth.

ESTABLISH CIVIL SECURITY

5-41. Establishing civil security is the priority effort for brigades in the initial response as it provides a safe environment that facilitates all other actions. Units focus on reducing the level of violence and human suffering while creating conditions that enable other actors to participate safely in ongoing stability efforts.

5-42. When assigning areas of operation, units must understand whether they intend to control the population or influence them. Controlling the population through checkpoints and fixed locations directly limits the ability to operate among the population and cedes them to enemy influence, enables them to have freedom of movement elsewhere, and is manpower intensive. For instance, a rifle platoon can effectively manage a maximum of three checkpoints at once for any duration. Fixed positions are far more exposed to enemy attack than are unpredictable operations among the populace:

- Brigade:
  - Assign areas of operations to subordinate battalions and squadrons and establish priorities for protection:
  - Identify the actors and actions contributing to instability and assess unified action partner capabilities to determine the best ways to divide labor and achieve unity of effort.
  - Use information operations to inform the population about security measures, encourage people to stop any hostile acts against others, and isolate hostile actors or groups.
- Battalion and squadron:
  - Assign areas of operations to their subordinate companies and troops and refine priorities for protection:
  - In addition to providing enabler support for company operations, negotiate with rival factions and actors to achieve a peaceful resolution of issues.
  - Identify bad actors and separate them from sources of support.
- Company and troop:
  - Secure areas of operations.
  - Maneuver platoons to secure key terrain and conduct attacks against combatant forces.
- Platoon:
  - Secure key capabilities and terrain.
  - Participate in company attacks, and use patrols, checkpoints, and observation posts to gather information and enforce population control measures.

5-43. Units in coordination with HN forces, should assume such threats will emerge and actively work to prevent that from happening. If it does emerge, it will be in the form of light indirect fires, sniper fire, stationary IEDs, VBIEDs, and house-borne IEDs. Security efforts may include efforts to limit hostile force freedom of movement. This violence may be directed against friendly elements, opposing local national elements, or both.

CONDUCT SECURITY COOPERATION

5-44. Security cooperation during the initial response focuses on assessing the capabilities of HNSF and conducting training to bring them to operational effectiveness. To be effective, this generally requires a

dedicated force rather than just making it a secondary effort for units already responsible for establishing security and combating sources of instability within an AO. This can be an external element, such as a security force assistance brigade, or teams formed from leaders within the formation (see ATP 3-96.1 for additional information).

5-45. While security cooperation is a standalone task, units should establish an operational partnership with HNSF and conduct combined operations. This may start with only sufficient HN participation to a local face on security; however, this is essential to effective security efforts. Leaders must be careful to provide security assistance in the form the HN requires; for instance, U.S. Force partnership should not inadvertently create paramilitary or militia capabilities when the need is for capacity in policing:

- Brigade:
  - Assess the status and capabilities of HNSF.
  - Identify requirements for advisor teams and request additional support as required.
- Battalion and squadron: Work with HNSF leaders to identify unit requirements.
- Company and troop:
  - Establish training plans for U.S. supported or funded training.
  - Train leaders on training management, mission planning, and collective tasks.
  - Plan and execute combined security operations as practicable.
- Platoon: Train individual and small unit tasks.

ESTABLISH CIVIL CONTROL

5-46. Establishing civil control and rule of law requires attention early to prevent small problems from becoming major issues. Establishing civil systems can be very complicated depending on the state of the local government. Unit leaders will initially focus on assessing the capability of law enforcement and criminal justice they may have to step in to serve in roles that local agencies are unable, unwilling, or not trusted to fill:

- Brigade: Assess the status and capability of law enforcement and criminal justice systems:
  - This may require brigades to develop a process to resolve disputes peacefully until local agencies are ready to prevent escalation to violence.
  - To the extent possible, the BCT should use local capabilities even if there are no functional local agencies,
  - U.S. Forces can engage with trusted locals to act in lieu of functional local governance.
  - The BCT should not put themselves in a position to be targeted because of unpopular decisions.
  - Conduct information operations to facilitate this by influencing parties to resolve grievances through negotiation and peaceful political processes.
  - Assist with the deployment and integration of interim justice personnel.
- Battalion and squadron: Battalions and squadrons engage with local leaders to identify grievances and facilitate peaceful means to resolve them.
- Company and troop:
  - Companies and troops maneuver platoons where needed and ensure they have adequate support.
  - Commanders communicate with community influencers to quell disruptions peacefully.
  - Identify local police forces that remain in the area and assess their ability to combat local crime.
- Platoon: Platoons protect the population and intervene to prevent groups from enacting their own forms of justice.

RESTORE ESSENTIAL SERVICES

5-47. Initial efforts to restore essential services focus on identifying and filling critical needs to alleviate unnecessary suffering. Priorities include distribution of food, water, clothing, emergency shelters, fuel, and medical supplies. Support efforts to open transportation routes and hubs, including major roads, airfields, and ports. Units may only need to provide minimal assistance if other actors at EAB are already established and able to meet requirements:

- Brigade:
  - Conduct reconnaissance to identify areas requiring immediate assistance.
  - Facilitate HN government efforts to establish or restore basic services, and reinforce civilian capabilities as needed to prevent or mitigate public health hazards.

- Prioritize repairs to restore water, power, and hospitals.
- Coordinate with unified action partners and division headquarters to meet the needs of displaced civilians.
- Coordinate to clear rubble and other obstacles along main routes.

- Battalion and squadron:
  - Meet with local leaders to identify those with the greatest needs but prioritize distribution of resources without favoring any particular groups.
  - Provide medical assessment and treatment.
  - Designate contracting officer's representatives and pay agents to facilitate integration of contracted services.
- Company and troop:
  - Prioritize platoon tasks and maneuver platoons to accomplish them.
  - Track status to ensure unit is meeting immediate needs.
- Platoon:
  - Identify areas and groups requiring immediate assistance as well as the presence of any displaced civilians:
  - Secure elements providing services as criminal elements, insurgent forces, and people in need may try to steal weapons and supplies.
  - Distribute supplies as required.

5-48. Units at all echelons engage with and asses the needs of local national leaders, government officials, and individuals but promise nothing. The guiding principle is to under-promise and over-deliver. Failing to keep promises invariably leads to blame and contention.

SUPPORT TO GOVERNANCE

5-49. Supporting governance is a lesser priority at this stage, but leaders need to understand the status and capabilities of the local government. When units occupy enemy territory, they establish a temporary military government by asserting transitional military authority, thus assuring the continuity of governance functions. If indigenous institutions are viable, commanders may empower them through transitional governance. As indigenous governance capacity increase, EAB will provide support to civil administration, a critical function of support to government, which is one of the six primary Army stability operations tasks. This function assists the stabilization or enhance the operations of the governing body of a foreign country, by assisting an established or interim government:

- Brigade: Assess local government institutions to determine capabilities, identify gaps, and develop a way ahead.
- Battalion and Squadron:
  - Identify local civic leaders, assess faction motivations and agendas, and build constructive relationships.
  - Influence leaders to resolve issues peacefully and participate in the political process.
  - Plan election site security.
- Company and Troop:
  - Influence local population to participate in elections.
  - Execute election site security.
- Platoon:
  - Gather and report information about population issues.
  - Secure election sites.

SUPPORT TO ECONOMIC AND INFRASTRUCTURE DEVELOPMENT

5-50. Developing economic systems and infrastructure require a secure environment. Efforts during the initial response focus on assessments with actual work only occurring as the security situation permits:

- Brigade:
  - Assess infrastructure status.
  - Provide technical experts to assessment teams to ensure they capture relevant details (see ATP 3-34.81 for additional information).
- Battalion and squadron: Identify work projects and employ local population to complete them.

- Company and troop: Monitor status of work projects and manage work crews to complete them.
- Platoon:
  - Gather and report information about economic issues.
  - Secure assessment teams and work sites.

5-51. Project prioritization. Completing projects in support of stability tasks will generally be more complex and require more resources to complete in denser areas, but it can achieve far greater effects than similar projects in more rural areas. For example, building a well to support a small village is relatively cheap and easy, but building any number of wells is unlikely to have the same impact as providing water to a city with thousands or even millions of people in it.

TRANSFORMATION

5-52. Stabilization, reconstruction, and capacity building are transformation actions performed in a relatively secure environment. These actions aim to build HN capacity across multiple sectors. They establish the foundation for long-term development by resolving the root causes of instability. Transformation actions enable the shift from transitional military authority to the control of a legitimate and established government. HN authorities become increasingly involved in decision-making at all levels. Commanders apply the principles of unity of effort, legitimacy and HN ownership and building partner capacity during transformation that enables a combined effort toward sustained social well-being for the population and achieving progress towards fostering sustainability. Depending on the nature and causes of instability, HNs may quickly assume or reassume responsibility for their own functions. Once they have done so, it is important that they function in accordance with local laws, customs, and expectations. Unless HN actions are enabling criminal behavior or violence, units should not attempt to impose a U.S. solution. In fact, an imperfect HN solution is far better than one imposed by the United States.

ESTABLISH CIVIL SECURITY

5-53. Maintaining civil security remains a priority during transformation as it provides the safe environment that facilitates all other actions. Commanders and staff will integrate actions with HNSF, intergovernmental organizations, and other unified action partners:

- Brigade: Staff will continually refine understanding of threats and shift resources to mitigate sources of instability to—
  - Develop a measure of performance and measure of effectiveness indicators that facilitate a transition of security effort to HNSF.
  - Conduct information operations highlighting the capability and effectiveness of HNSF.
- Battalion and squadron:
  - Collect intelligence to drive operations against remaining resistance and sources of instability.
  - Work with HNSF partners to share information and plan operations.
- Company and troop:
  - Conduct combined security operations with HNSF.
  - Transition infrastructure security responsibility to HNSF.
- Platoon: Conduct combined patrols with HNSF and reinforce their population control activities:
  - Conduct targeted raids against critical enemy capabilities.
  - Use interactions with local population to gather information about potential threats.

CONDUCT SECURITY COOPERATION

5-54. In transformation, HNSF are able to conduct operations with assistance. Some HNSF have the capability to conduct operations where they are in the lead. Units at all echelons leverage HNSF strengths, including knowledge of the area and the people, to improve operation effectiveness:

- Brigade:
  - Empower HNSF organizations and continue to build their capability and capacity.
  - Monitor HNSF actions to ensure they respect human rights and operate in accordance with HN and international law.
- Battalion and squadron: Partner with HNSF units to build their capability and capacity.
- Company and troop: Conduct combined planning and operations with HNSF partner organizations.
- Platoon: Conduct combined training, rehearsals, and operations with HNSF.

ESTABLISH CIVIL CONTROL

5-55. Establishing civil control becomes more important during transformation as local police forces and justice institutions develop. Units facilitate the transition of responsibility for law enforcement and dispute resolution as capabilities grow. Integrate security improvements into broader programs that foster good order and discipline, including personnel accountability, property accountability, maintenance, and request the military police support to facilitate host-nation police development (see ATP 3-39.10):

- Brigade:
  - Support the development of HN justice institutions and build a transition plan.
  - Understand HN laws and their effects as they are developed.
  - Mentor law enforcement leaders, adapt to changing ROE, and issue guidance to subordinate elements as needed to remain in compliance.
- Battalion and squadron:
  - Facilitate police operations planning and capability development.
  - Leverage leader engagements to pull groups towards the police and other HN institutions to resolve issues.
- Company and troop:
  - Facilitate local police operations planning and capability development.
  - Support public outreach and community rebuilding efforts.
- Platoon:
  - Support local police actions and operations.
  - Report issues or observed irregularities.

RESTORE ESSENTIAL SERVICES

5-56. The improving security situation allows the other government and nongovernment organizations to take more of a lead with U.S. military forces in support. Once systems are filling the basic needs of the population, attention can broaden to establish or restore remaining services. Restoring services is often a lengthy process, which can cause impatience among the local national population. Units should look for quick turnaround options that demonstrate continued engagement and support to the region while long lead time projects mature.

- Brigade: Partner and assist U.S. and HN government and nongovernment organizational efforts to establish or restore remaining services:
  - Scale efforts with local capacity for sustainment.
  - Hold on large-scale projects until the necessary infrastructure is in place to support such efforts (vertical value chain).
  - A unit-sponsored project that seems like a good idea that does not nest with other necessary elements of the supply chain or other elements of the infrastructure will fail, reflecting a lack of credibility and a loss of resources.
- Battalion and squadron: Leverage relationships with local leaders to confirm that services are meeting the needs of the people.
- Company and troop: Conduct assessments, task platoons, and track statuses to ensure initiatives continue to progress.
- Platoon:
  - Secure construction efforts as required.
  - Use interactions with local people to identify unfilled needs or issues.

SUPPORT TO GOVERNANCE

5-57. Supporting governance and building the capabilities of the local government becomes more urgent during this phase. Building strong and stable government institutions allows them to start picking up more of the burden for establishing civil control and restoring essential services. This effort is time-intensive, and cannot be hurried along; however, commanders and staff must also be alert to any unwillingness to assume the lead by HN actors or capabilities:

- Brigade:
  - Facilitate the establishment of government functions.
  - Advise and support HN government officials.

  - Continually assess them to ensure they adhere to the rule of law.
  - Use information operations to build public support for the government.
- Battalion and squadron:
  - Assist in coordination between HN actors.
  - Leverage leader engagements to ensure that government functions are meeting the needs of the people.
  - Continue to encourage dissatisfied individuals, groups, and leaders to work within the political system to resolve issues.
- Company and troop: Assist with HN site security planning.
- Platoon:
  - Assist with election site security (generally as part of an outer cordon or quick-reaction force).
  - Use interactions with local populace to assess support for HN government and identify issues.

Support to Economic and Infrastructure Development

5-58. With a more secure environment, local leaders, nongovernment organizations, and other unified action partners can work to build the infrastructure and systems required to establish a sustainable economy. The BCT, with support from EAB will leverage organizational skills to monitor, advise, and assist development efforts:

- Brigade:
  - Advise and assist HN leaders in development planning and execution.
  - Facilitate communication and coordination between unified action partners.
- Battalion and squadron: Use engagements with local leaders to confirm that economic development efforts are meeting the needs of the people.
- Company and troop: Monitor status of economic improvement and development efforts.
- Platoon: Gather and report information about economic issues and the progress of development efforts.

FOSTERING SUSTAINABILITY

5-59. Fostering sustainability actions are those activities that encompass long-term efforts, which capitalize on capacity building and reconstruction. Successful accomplishment of these actions establishes conditions that enable sustainable development. The BCT will transition to a steady state posture focused on advisory duties and security cooperation to enable the HN to sustain the peace.

5-60. There will be enormous pressure on leaders to execute a transformation. Commanders must understand the required conditions necessary to successfully transition to HN control to ensure transformation does not fail out of an attempt to do so early. Transition may occur at different times for different elements of governance and security. Commanders should assume that forces hostile to transformation will increase their efforts to prevent it or influence it in their favor.

Establish Civil Security

5-61. HNSF take the lead on security operations with U.S. military forces providing advice and enabler support. Information operations focus on highlighting the capability and effectiveness of the HNSF while combat forces maintain force protection.

Conduct Security Cooperation

5-62. HNSF take the lead in providing security while U.S. military forces supplement with precision enablers and technical support. Commanders at all echelons provide advice to HNSF leaders and facilitate enabler support to operations. Platoons secure critical capabilities and unit leaders.

Establish Civil Control

5-63. HN police and justice institutions assume full control of law enforcement and dispute resolution actions and processes. U.S. military forces continue to provide support while monitoring capability development and performance. Units conduct operations in accordance with HN laws, while leaders report abuses of power or other issues relating to the criminal justice system.

RESTORE ESSENTIAL SERVICES

5-64. HN government officials take full responsibility for providing essential services while U.S. military forces ensure services are sustainable without external support.

SUPPORT TO GOVERNANCE

5-65. HN government leaders take full control over governance functions with U.S. military leaders reducing direct support and direction.

SUPPORT TO ECONOMIC AND INFRASTRUCTURE DEVELOPMENT

5-66. Nonmilitary unified action partners take full control over development efforts with U.S. military leaders only providing advice and assistance as required.

SECTION III – TRANSITIONS

5-67. As the security situation and capabilities of the HN government grow, units will continue to transition from the initial response through transformation and fostering sustainability until the conditions are ready for a full transition to civilian control and the mission is complete. Setbacks, such as a HN institution that is not as prepared as previously assessed or the emergence of a new threat, can require a more hands-on approach for U.S. military forces and cause the operation to shift back to an earlier stage.

5-68. The BCT will continue to conduct offensive and defensive tasks, even when their primary focus is stabilization. The situation can also deteriorate to the point where most stability tasks become secondary until forces can reestablish a baseline level of security. Commanders must constantly assess the situation and be aware of threats emerging from outside the area or developing within. During transition, it becomes increasingly important to keep the multidomain imperative "understand and manage the effects of operations on units and leaders" in mind.

TRANSITION TO OFFENSE

5-69. While platoons and companies will continue to conduct offensive tasks during stability operations, this is less common with battalions and brigades. Transitioning a brigade to the offense is most common upon the emergence of a significant new threat, when an existing threat receives reinforcement, or the brigade transitions to a newly assigned area with a greater enemy presence. The transition requires units to change their focus and often operate under less restrictive ROE. This can be a difficult mental shift for Soldiers, especially if they are not also transitioning to a new area. Commanders must be clear on what the new expectations are and should provide adequate time for Soldiers to adjust before conducting a major offensive operation. Key tasks for brigades transitioning to the offense include the following:

- Release cavalry forces from current stability operations tasks to focus on reconnaissance.
- Concentrate forces in preparation for offensive actions.
- Secure critical facilities, organizations, and equipment with limited forces.
- Change task organization and reconfigure sustainment operations to align with the offense.
- Inform partners of the change in operations.
- Conduct a battle handover when required with successor within the time constraints of the new mission.
- Ensure the mind-set of subordinate leaders and Soldiers has transitioned to the offense.

TRANSITION TO DEFENSE

5-70. Conducting effective stability operations includes having units secure key terrain throughout the assigned area. Transitioning an entire battalion or brigade to conduct a defense is most common when an external force moves into position to threaten the brigade area. Like with the transition to the offense, this requires units to change focus and potentially the ROE. Commanders will need to reevaluate their current defensive posture based on new requirements and available forces. This may require abandoning locations that are important for stability to establish an integrated defense. Units that have been focused on stability operations should leverage their relationships with local leaders and the population to facilitate consolidation

in safer locations away from likely enemy targets and planned engagement areas. Key tasks for brigades transitioning to the defense include the following:

- Concentrate forces, orient on the enemy, and establish a main battle area.
- Redirect assets from current stability operations tasks to area security operations.
- Evacuate or secure critical facilities, organizations, and equipment with limited forces.
- Change task organization and reconfigure sustainment operations to align with defensive operations.
- Inform partners of the change in operations and any plans to continue stability tasks with limited resources.
- Conduct a battle handover when required with successor within the time constraints of the new mission.
- Ensure the mind-set of subordinate leaders and Soldiers has transitioned to the defense.

5-71. Transitioning from stability operations tasks to a retrograde normally occurs if there is a change in political objectives or civil strife escalates beyond what available the BCT and unified action partners can mitigate. The primary objective becomes force preservation and gaining time to allow the brigade to transition to its follow-on mission. The form of retrograde depends on an analysis of threat capabilities and time available.

STABILITY TRANSITION TO CIVILIAN CONTROL

5-72. The goal of stability operations is a full transition to HN government control. This can happen all at once or phased so that the HN government takes full responsibility of specific functions as the institutions that manage those functions are ready. The BCT should strive to achieve to fully transition as quickly as possible but doing so before the HN institutions are ready can result in costly failures and the need to reestablish control. This undermines the confidence of HN leaders and the legitimacy of the government as a whole. A successful transition requires setting and meeting clear, effective, and achievable endstate conditions; normalizing operations under the HN government; and an exit plan that minimizes disruption.

ENDSTATE CONDITIONS

5-73. Establishing clear, effective, and achievable endstate conditions can be very challenging, but are vital to success. It requires detailed knowledge of the current state of a government function and the institutions responsible for it, a vision of what it should be, and the challenges between. Endstate conditions focus on creating a safe, secure, and sustainable urban area to transition the local civil authority, within the limitations set by higher headquarters, civil authority, and the national caveats guiding coalition members. Effective transition to civilian control and responsibility requires commanders at all echelons to understand the basic operation of civil governments and the administration and management of key urban infrastructure. A common pitfall comes in trying to recreate American systems directly. Specific endstate conditions depend heavily on the setup of the local government, the culture, and available resources.

5-74. National authorities will make many decisions regarding operations with higher headquarters communicating this through orders and guidance. Brigades must nest within the larger operational framework, but should involve leaders from the local government, HNSF, and other unified action partners when determining endstate conditions for functions within a specific assigned area. This helps ensure the plan accounts for specific requirements and conditions while also building unity of effort and HN ownership. While timetables serve a valuable purpose in supporting unity of effort, commanders must balance them against the achievement of specific milestones or events. These measures of effectiveness reveal true progress better than a calendar. Progress toward strategic and operational goals is susceptible to many changes and delays, particularly in multinational partnerships that are likely to be a part of most future UO. An inflexible timetable also allows enemy forces to adjust their plans to their benefit and friendly forces' detriment.

5-75. The character of multinational operations in an urban environment merits particular attention. National interests and organizational influence compete with doctrine and efficiency. Commanders should expect contributing nations to adhere to their own national policies and priorities. This complicates the multinational effort. Cultural, diplomatic, information, military, economic, religious, psychological, technological, and political factors all influence the formation and conduct of multinational operations (see FM 3-16).

NORMALIZE SYSTEMS

5-76. Units should start transitioning control as HN government institutions progress to the point that they can handle specific functions. Breaking up government systems into smaller parts allows the unit to transfer tasks gradually, minimizing the chances of catastrophic failures. Leaders on all sides should agree on the moment when primary responsibility and authority transitions to the HN and U.S. Forces move into a supporting role. This requires commanders to transition from "leading from the front" to "leading from behind" in an advisory and assistance role. The BCT must have the ability to step in and relieve some of the burden if it looks like the HN representatives are unable to handle the load. Ensuring that these elements work through challenges that allow them to learn and grow without allowing them to fail can be a delicate balance, especially for units and leaders not trained for these kinds of missions. In the end, the HN institutions should be able to manage their functions and have the systems in place to deal with unexpected situations.

TRANSFER AND EXIT

5-77. Once systems have normalized under HN control, units can begin the process of transferring authority and transitioning resources to other missions. This needs to be planned, coordinated, and executed as any other part of the operation. This should leave a feeling of confidence that the HN is prepared to govern rather than fear of what will happen next. Commanders may consider ceremonies to mark significant transitions, especially those of public interest.

UNIT TRANSITIONS

5-78. Many of the critical aspects of stability operations rely on personal knowledge, relationships, and trust with the local population and unified action partners. While this is true of offensive and defensive operations in urban areas as well, these relationships are not as critical to success. This makes transitions between units and leaders prior to the completion of the mission more disruptive than with other operations. Completing a well-planned and executed relief in place can mitigate many of the challenges and friction associated with unit transitions (see chapter 6, section IV for additional information).

Chapter 6
Urban Enabling Operations

This chapter describes techniques and planning considerations for tactical enabling operations including reconnaissance, security, troop movement, relief in place, countermobility, mobility, and tactical deception within urban areas.

SECTION I – RECONNAISSANCE

6-1. *Reconnaissance* is a mission undertaken to obtain information about the activities and resources of an enemy or adversary, or to secure data concerning the meteorological, hydrographic, geographic, or other characteristics of a particular area, by visual observation or other detection methods (JP 2-0). FM 3-98 describes five types of reconnaissance: zone, area, route, reconnaissance in force, and special reconnaissance. Units can apply all of these in support of an urban operation, though usually only special forces units conduct special reconnaissance.

Note. Special reconnaissance is usually reserved for special operations forces because they are the only unit equipped and possess capabilities that enables them to conduct reconnaissance on denied and hostile areas normally inaccessible to other forces or assets.

6-2. Planning and executing reconnaissance operations consists of seven fundamentals (see FM 3-98 for more information on the fundamentals). During UO the commander should issue the reconnaissance guidance that will consist of the reconnaissance focus, tempo, and engagement and disengagement criteria. In providing this guidance, the commander describes, shapes, and prioritizes the intended vision of the reconnaissance effort supporting the overall scheme of maneuver and the specific roles of the Cavalry unit.

RECONNAISSANCE TECHNIQUES

6-3. Two reconnaissance techniques commanders employ to answer information requirements are reconnaissance-push and reconnaissance-pull. Commanders employ these techniques based on their level of understanding of the urban environment combined with the time available to refine their understanding. In selecting one technique over the other, the commander must consider the following (see FM 3-98):

- A degree of the situational understanding of the enemy.
- Time available to collect the information.
- Leadership ability of subordinate commanders.
- Proficiency of subordinate units to plan and rapidly react under uncertain situations.

RECONNAISSANCE MANAGEMENT

6-4. No single reconnaissance asset can answer every information collection requirement, and there are rarely enough reconnaissance assets to cover every requirement. Staffs use a mix of reconnaissance management methods, such as cueing, mixing, redundancy, and task-organizing, to use their limited assets most effectively and collect the most critical information as quickly as possible, for further detail see (see FM 3-90). In previous discussion chapter 3 briefly mentions that the urban environment hampers certain information collection capabilities (particularly ground forces and aerial platforms) while increasing the importance of others (SIGINT, OSINT, CI, and HUMINT). Commanders may task-organize their reconnaissance assets by placing additional assets under their subordinates' control to increase asset effectiveness and survivability. These assets may include additional signal retransmission elements, engineer reconnaissance elements, civil affairs teams, or additional security forces such as an infantry platoon (see FM 3-90).

6-5. Cavalry units use appropriate combinations of dismounted, mounted, aerial (manned and unmanned), reconnaissance by fire methods, and space assets to accomplish their missions during reconnaissance operations. No means is mutually exclusive of another, since the greater number of capabilities and units applied to information collection increases the operation’s effectiveness. All units conduct reconnaissance

using a combination of dismounted, mounted, aerial, and reconnaissance by fire methods, augmented with brigade and higher echelon technical sensor capabilities (see FM 3-98).

6-6. The civilian populace also becomes a major hindrance to reconnaissance operations. Even a small civilian presence can make threat identification difficult, especially those that do not wear uniforms. Larger populations conceal threats while making systematic searches impractical. A dense population can make it impossible to move unobserved, especially with lights that remain on at all hours, while allowing threats to approach very close. A non-permissive or hostile population is likely to report any friendly movement while refusing to provide any information about threat forces. This combines to make small elements vulnerable to surprise attack or capture. In addition to the increased likelihood of mission compromise due to civilians, the presence of local nationals also creates a heightened risk for civilian casualties, or other violations of the ROE or law of armed conflict. U.S. conventional military forces are not authorized to conduct missions in civilian clothing or otherwise attempt to blend into the civilian populace in any way.

EMPLOYING GROUND RECONNAISSANCE FORCES

6-7. The urban operational environment has a lot of considerations that can influence the effects of employment by friendly forces and their capabilities. The commander will need a vast understanding of the complexity most cities offer and the impact of the infrastructure on operations. Several factors can be identified as issues for reconnaissance observation such as certain buildings, walls, and other structures that greatly reduce vision. The structures can also obscure ranges that would normally provide an advantage to friendly forces while creating dead space that allows small elements to conduct undetected movement and maneuver. This makes specific placement of ground assets very important as they will only be able to detect within small areas.

6-8. Many urban areas also have networks of subterranean tunnels to enable transportation, the flow of essential services, and repair access that forces can also exploit. All of this combines to limit large avenues of approach while providing many small ones and severely restricting the ability of forces to observe movement from a distance. Conventional ground reconnaissance assets are of limited utility within dense urban areas. For major offensive operations, cavalry forces are generally better at conducting reconnaissance of routes leading into the city, conducting a handover with maneuver forces at the edge of the urban area, and then transitioning to provide security on the far side. Battalions should then use their organic reconnaissance platoons to confirm route trafficability ahead of the main body and provide precision fire support.

6-9. Effective employment of ground reconnaissance and surveillance assets requires careful positioning as their field of view will be limited in most cases. It can also be difficult to move or place them undetected due to the density of people. Any individual could serve as a sensor for an adversary. Even at night, the ambient light is often enough to negate night vision devices and prevent undetected movement to an area of interest.

6-10. Route reconnaissance varies little from similar operations in other environments, though leaders should remain aware that traffic patterns could change significantly over short periods. What was a quick movement early in the morning could turn into gridlock by the time the main body starts moving. The urban terrain could also enable small enemy forces to reposition quickly along cleared routes to attack subsequent forces. Scouts should take special note of anything that might restrict the movement of combat vehicles, such as bridges, tunnels, narrow streets, and overhead obstructions.

6-11. Out-posting is a technique used for employing a series of observation posts oriented to observe a particular route. Out-posting is for reconnaissance operations covering lateral and boundary routes, or used during route security to observe a reconnoitered route which will prevent the enemy the ability to interdict along lateral or cleared routes.

6-12. Though every Soldier can serve as a sensor to provide relevant data back to their leaders, the complexity of the urban environment makes it difficult to distinguish what is important. Incorporating specific training on this for all Soldiers can help ensure they do not miss critical indicators (see TC 3-22.69 for more advanced situational awareness techniques that leaders can incorporate into their training plans).

EMPLOYING AERIAL RECONNAISSANCE FORCES

6-13. Urban terrain is complex, requiring assets to get closer to visually distinguish enemy forces. Aerial reconnaissance conducted by Army or joint aviation assets serves as a link between sensors and mounted or dismounted reconnaissance (see FM 3-98). Aerial systems that can hover tend to be more useful in urban areas as buildings greatly reduce line of sight from the air to targets on the ground. Systems that rely on forward movement for lift can struggle to maintain visual contact long enough for positive identification. Operators will also find it harder to avoid hitting structures, wires, and other obstacles when flying close to the ground. All low-flying systems are more vulnerable to detection, sacrificing surprise for better situational understanding. Operators can mitigate this by flying primarily at night; however, this greatly increases the risk of hazards such as wire-strikes.

6-14. The challenges with integrating and deconflicting aircraft and indirect fires from chapter 3 apply here, especially when using aerial reconnaissance platforms as observers for other assets. Planners must manipulate gun-target lines and aircraft approach angles to overcome terrain-masking effects. This limits options and creates additional airspace congestion.

Note. The urban canyons created in dense areas severely limits the angles from which aerial assets can observe the ground and provide escape routes to enable threat forces to break visual contact.

INFORMATION COLLECTION RESOURCES

6-15. Though the urban environment hampers many common reconnaissance capabilities, it also provides additional options that are not available or not as effective in other environments. Though generally better suited for security operations, modern cities often have closed circuit television systems that units can leverage to track enemy and civilian movements. They may be associated with traffic lights, private businesses, or public utilities, but all can provide critical details to aid throughout operations. Their biggest drawbacks are that they tend to be fixed in place and are generally not linked outside of small internal networks. Gaining access to a traffic camera network is not also going to grant access to a nearby bank security system. Units should look for ways to use these kinds of systems to supplement information collection. If nothing else, they should deny this capability to adversaries. In addition to reconnaissance assets, BCTs have the capability to employ four primary intelligence disciplines to provide information collection support:

- HUMINT.
- SIGINT.
- OSINT.
- GEOINT.

SEARCHES

6-16. A *search* in personnel recovery, is a systematic reconnaissance of a defined area (JP 3-50). How U.S. Forces conduct a search is contingent on an understanding of the local population's level of support. A search involves the deliberate examination of people, places, areas, or objects using Soldiers, animals, or technological sensors to discover something or someone. Examples include searches of enemy or detained personnel, military objective areas, personnel or vehicles at a checkpoint, and lines of communications (see ATP 3-90.15 for additional information). As discussed in chapter 3, cordon and search is more common in urban areas than other environments, particularly during stability operations. The following techniques are specific to forces conducting searches of noncombatants and their property.

6-17. Detailed searches require more time and resources than the more cursory searches common following combat engagements. In general, the level of detail will increase inversely to the intensity of combat. When conducting a detailed search in an urban area—

- Treat any objectionable material found, including propaganda signs and leaflets, as booby trapped until inspection proves it safe.
- Search underground and underwater areas thoroughly, using mine detectors to locate metal objects.
- Look for freshly excavated ground could be a hiding place.

- Consider making announcements before entering the area to encourage inhabitants to leave or consolidate in a specific location peacefully, which can make the process smoother, although it also gives an enemy time to react.
- Employ a graduated response technique suitable for the situation when dealing with noncombatants:
  - This can obtain compliance through warnings and progressive amounts of force.
  - For example, a leader can use a loudspeaker to give warnings in the native language announcing that some type of force, lethal or nonlethal, will follow if personnel do not comply with instructions.

6-18. While anyone is a potential enemy or supporter, leaders must ensure that their actions and those of their subordinates do not create more enemies out of neutral or even supportive individuals. Failing to treat others with respect and causing unnecessary damage can drive popular opinion towards adversaries.

6-19. A search should be a systematic action to ensure that any personnel, documents, electronic data, or other material of potential interest is appropriately identified, evaluated, collected, and protected. The unit should move slow enough for an effective search, but while minimizing time for potential threats to react. The unit should maintain uncommitted combat power and assume that intelligence found on search objectives may lead to follow-on missions. Incorporating the following assets can facilitate a successful search:

- Interpreters.
- HN or multinational forces.
- HUMINT collection teams.
- Law enforcement professionals.
- Technical intelligence teams.
- Attack reconnaissance aviation.
- SIGINT enablers.
- Measurement and signature intelligence enablers.
- Military working dog teams.
- Biometrics collection efforts.
- Ground-penetrating radar efforts.
- Tactical military information support operations teams.
- Civil affairs teams.
- Female engagement teams.
- Special advisors with relevant knowledge or skills.

POPULATION CONTROL METHODS

6-20. Units conducting a search in a populated area must have a plan to control the population to ensure a thorough search and protect searching elements. A military information support operations team, using a loudspeaker, can be very helpful by providing specific instructions to the inhabitants of the search area. Three basic methods for controlling the population during a search of an urban area are to—

- Assemble inhabitants in a central location.
- Restrict the inhabitants to their homes.
- Control the heads of households.

ASSEMBLE INHABITANTS IN CENTRAL LOCATION

6-21. This method involves consolidating all personnel in the search are in a single search location. This provides the most control, simplifies a thorough search, denies occupants an opportunity to conceal evidence, and facilitates tactical questioning; however, it is very disruptive to the population and can engender ill feelings. Soldiers may have to deal with difficult or awkward situations, such as unclothed occupants or those that need assistance to walk. Residents may also accuse Soldiers of theft since they are not present to see if anything is removed. Leaders should designate a specific element to control the centralized inhabitants.

RESTRICT INHABITANTS TO HOME

6-22. This method prohibits movement of civilians, but it allows them to stay in their dwellings. It is the least disruptive to the inhabitants and allows them to be present to answer questions during the search, but it also puts the searching forces at the greatest risk. The security element must enforce the movement restriction,

but generally cannot see what is going on within the rooms and buildings. Someone inside could be hiding or destroying evidence, distributing weapons, or even preparing an explosive device.

CONTROL HEADS OF HOUSEHOLDS

6-23. For this method, the searching team holds the head of each household separate in front of the house while everyone else consolidates in one room. The security element controls the group at the central location, controls the head of each household, and provides security for the search team. This combines some of the benefits of the previous two methods but relies on identifying a head of household that has influence over the other inhabitants. When dealing with the head of a household, it is important to explain the purpose of the search using an interpreter. During the search, the head of the household accompanies the search team through the house and can open doors and containers to facilitate the search. This allows the head of the household to see it is a moral and ethical search, reducing potential accusations afterwards.

SEARCHING AREAS

6-24. A search of an urban area can vary from a few easily isolated buildings to a large section of a city. Searches of larger areas are generally less thorough as they require exponentially more personnel, time, equipment, and supplies. Some typical types of search equipment, such as metal detectors, can be less effective due to the materials used in construction (like steel support beams and concrete reinforced with rebar). Leaders must keep the scale of the task in mind when designating search areas. Units should use a GRG or UO sketch to clearly define unit boundaries and track the progress of the search (see chapter 2 for additional information).

6-25. Search teams must account for all open areas, structures, and subterranean spaces within their designated search area. People may also hide things underwater or in other places that the public will likely avoid. Soldiers trained in tactical site exploitation methods can be invaluable for this kind of operation. The training not only helps them think through where items may be hidden, but also how to identify, collect, protect, and evaluate potential evidence for future exploitation. This can help answer information requirements, provide intelligence to enable future operations, and ensure that evidence is later admissible in court.

SEARCHING HOUSES OR BUILDINGS

6-26. The purpose of a house search is to identify any contraband and determine if any residents are sought after adversaries. A search party assigned to search an occupied building should include at least one local police officer, a local security element, and a female searcher. The search party must effectively isolate the building prior to beginning the search to prevent inhabitants from leaving the dwelling. If inhabitants remain in the dwellings, the local security element should isolate and secure the inhabitants during the search. Units may have to conduct a breach if a house is vacant, or an occupant refuses to allow entry. If the occupants of a dwelling containing property are away, the clearing team should secure the location after the search to prevent looting. The leader should also coordinate for local police or neighbors to protect the house until the occupants return.

6-27. Units should make every effort to leave the house in the same condition as when the search began, especially if they do not find anything. The search team may use digital cameras or video recorders to establish the condition of the house before and after the search and to document all sensitive material or equipment found in the house. Before removing material, record the date, time, location, person from whom it was confiscated, and reason for the confiscation. For a detailed search, searchers should look for hidden caches in walls and floors.

SEARCHING PERSONNEL

6-28. The Soldier conducting the search should always have another Soldier providing security. This search team should—

- Keep the individuals being searched separated from each other and the general population.
- Search and interview all individuals to prevent exposing who provided intelligence.
- Have the individual raise arms and conduct a visual inspection, initially, because Soldiers may be able to distinguish weapons or explosives using thermal optics.
- Use a metal detection wand, if available, to quickly identify concealed weapons or other devices.
- Pat down the person being searched:
  - Start from the head and move systematically to the feet.
  - The searcher may need to wear protective gloves.
- Conduct tactical questioning during the search regarding information of tactical significance.
- Use explosive detection kits to test suspicious individuals or groups.

6-29. For any individuals that warrant detainment, move them quickly and quietly to a detainee collection point. Providing an explanation of the purpose or reason for the search to the other civilians in the area through the use of an interpreter helps mitigate friction. Another way to mitigate friction and consequences is to provide humanitarian assistance or medical civil action program operation in coordination with the search. Minimize escalation of posture and the nature of the search unless hostile indicators are present.

6-30. Enemy forces may disguise themselves to transport or hide contraband. Include male and female searchers in the unit search team. Searchers should inspect for physical attributes to ensure the enemy is not wearing a disguise. If a male searches females, take all possible measures to prevent perceptions of inappropriate conduct by—

- Using a metal detection wand to establish the immediate need for a more detailed search.
- Having the female raise her arms and systemically pat herself down, which enables the searcher to visually inspect for concealed weapons.
- Visually inspecting for physical attributes of a man in case an enemy is attempting to exfiltrate dressed as a woman.

6-31. If it is necessary for a male to conduct a more detailed search of the female, use the backside of the hands or ask another female from the same urban area to assist with the search. Cultural differences may make this a particularly sensitive problem, so leaders should remain focused on mitigating any potential problems.

SEARCHING VEHICLES

6-32. Vehicle searches often occur at static locations along a trafficable route. Establish a separate vehicle search area to avoid unnecessary delays and traffic jams. Leaders should assess the situation and direct whether to search all or a portion of the vehicles. All Soldiers need to be aware of what is going on and alert to indicators of potential threats. For example, a vehicle riding unusually low may be transporting normal supplies or simply in need of maintenance, but this could also be a sign of a VBIED.

6-33. Move and individually search occupants away from vehicles before searching the vehicle itself. A technique to reduce the chances of an explosive device injuring a Soldier is to have the driver of the vehicle open all doors, the trunk, and the hood while under the close observation of a search team member. After opening all doors, move the driver and all occupants to the individual search area before conducting a thorough search of a vehicle. Look under the vehicle and in the engine compartment. Look for disturbances in the floorboards, seats, or side panels of the vehicle. Searching vehicles may require equipment such as mirrors, explosive detection kits, and military working dogs.

MAINTAINING SEARCH RESULTS AS EVIDENCE

6-34. Site exploitation is the systematic action executed with the appropriate equipment, to ensure that personnel, documents, electronic data, and other material at a site are identified, evaluated, collected, and protected to gather intelligence and facilitate follow-on actions. (See ATP 3-90.15 for a detailed discussion site exploitation.) It is a means by which units exploit and analyze the enemy after collecting biometric, physical, digital, and spoken data. In large scale combat operations, enemy who are captured are prosecuted

within the HN rule of law and site exploitation is an excellent means of providing courts with evidence, especially when properly recorded.

SECTION II – SECURITY

6-35. *Security operations* are those operations performed by commanders to provide early and accurate warning of enemy operations, to provide the forces being protected with time and maneuver space within which to react to the enemy, and to develop the situation to allow commanders to effectively use their protected forces (ADP 3-90). Though units typically conduct reconnaissance to set conditions for offensive operations and security operations to protect a defending force, they both help commanders develop and sustain their understanding of the environment, enable them to defeat adaptive and determined enemies, and set conditions to consolidate tactical gains. The urban environment also hinders them in similar ways.

6-36. When possible, units should place initial security forces outside the urban area to maximize use of long-range detection capabilities and deny access to the enemy. This can reduce fighting within the city and prevent the enemy from using the urban terrain and population to conceal their movements. In this case, security forces will modify operations to suit the terrain surrounding the city. Preventing enemy access into the city can greatly simplify the problem set, but it is not always feasible and does not allow security forces to exploit the defensive advantages of urban terrain.

6-37. When operating within the urban area, units should assume that adversary elements or their supporters are observing and reporting any movements. They should take extra care to avoid setting predictable patterns, while taking advantage of patterns they observe in others. Humans are creatures of habit, and the actions of people across cultures tends to form patterns over time. Noticing changes to these patterns can be a major indicator that something is wrong. For example, a major marketplace being empty on a day and time that it is normally busy can indicate something dangerous in the area, such as an enemy ambush or IED. Enemy forces may also set patterns that an observant leader can exploit. Combatants may continue to conduct ambushes in the same location or initiate attacks at the same time if they have been successful in the past. Pattern analysis can predictively lead to an understanding of when and where attacks are likely to happen and allow preventive actions to take place.

EMPLOYING GROUND SECURITY FORCES

6-38. Conventional ground security forces are of limited utility within dense urban areas. When possible, employ cavalry outside the urban area to hinder enemy maneuver and prevent resupply. This enables the force to destroy enemy capabilities before they can take advantage of its inherent defensive benefits and concealed movement within the city. It also employs standard execution techniques and allows cavalry to maintain standoff when identifying and interdicting enemy elements. A larger flow of people on roads leading into and out of a city can help conceal plain-clothed threat actors and supply smuggling.

6-39. If trying to prevent a major attack and forced to operate within the city, the multiple routes available to attackers and limited visibility make standard screen and guard missions very difficult. Using conventional engineer support or nonstandard obstacles to limit available routes or otherwise disrupt enemy movement can help. Because small units are vulnerable to detection, isolation, and defeat, units should employ small unmanned systems and wireless cameras for persistent surveillance rather than occupy observation posts away from the main force (see chapter 4 for additional information. This chapter also contains considerations for fortifying fixed sites).

6-40. Units employed in noncontiguous areas of operation can use cavalry to secure the routes between them, though this is generally more effective in rural areas than urban. Local security by any type of organization is complex, consumes significant amounts of combat power, and is a challenge to maintain for a long duration. If local security is to be maintained for the long term, commanders must ensure individual positions can overlap sectors of observation and that there is sufficient combat power at each point to manage security, observation, and rest. Commanders may choose to have cavalry provide direct security for moving elements such as logistics patrols or command nodes. They can also provide security for elements positioned or moving a distance away from the forward line of troops during an attack or defense. This does not really allow cavalry forces to employ their full capabilities, but it can save a unit from pulling infantry or armor forces away from the front to secure elements in their rear.

6-41. Static checkpoints can be useful during stability operations for controlling the flow of people, weapons, and supplies into and within an area; however, the longer the checkpoint is in place the easier it will be for adversaries to find ways to bypass the location or otherwise get contraband into protected areas. This can also leave Soldiers vulnerable to deliberate enemy attacks. Temporary checkpoints can be harder to protect as they tend to rely on luck to be effective unless the unit has excellent intelligence. Fixed security positions can become a troops-to-task, leadership and discipline problem that diminish their effectiveness. Fixed check points are best when the civilian population's movement is controlled by barriers and the checkpoints use biometrics. Commanders must weigh the effectiveness of such actions against the cost in manpower and other resources.

EMPLOYING AERIAL SECURITY FORCES

6-42. Employing rotary-wing aircraft within a city to secure ground forces makes them vulnerable to antiair ambush. They must generally travel low to identify enemy forces and are likely to set patterns over time. The urban terrain provides many locations to conceal an antiair weapon system until needed and enable the crew to escape after firing. These aircraft tend to perform better engaging enemy forces outside the city or standing by in a safe location for use as a quick reaction force. Do not have aircraft hovering stationary over an urban area more than is necessary as it allows enemy forces to position weapons for a clear engagement. There are two ways to employ aircraft in the urban environment. Aircraft are either on station, providing coverage or on-call and ready to respond. Reconnaissance aircraft on station for example may conduct a reconnaissance in force operation to determine the enemy strength and reactions in a specified area. The reconnaissance in force focusses on answering priority intelligence requirements when entering complex urban terrain not previously occupied by friendly forces. (See ATP 3-04.1 for more information on aviation reconnaissance.)

EMPLOYING HOST NATION SECURITY FORCES

6-43. U.S. Forces transition to consolidate gains, often to HNSF or other governance apparatuses. UO plans may include options to either re-empower the existing government, trusted HNSF, or to disband, rearm, and reorganize security forces favorable to partners and HN after limited contingency or large-scale combat. Establishing or reestablishing competent HNSF is fundamental to providing lasting safety and security for the HN and its population. These forces primarily counter external threats. However, they also assist in other key missions including disaster relief, humanitarian assistance, and some other internal military threats. At operational levels and above, urban problems may not be wholly solved through military action, although military action should provide a base of security for diplomatic, informational, or economic joint, interagency, intergovernmental, and multinational actions. The long-term goal is for the HN to take proactive measures to perform its governance and security functions largely independent of external support. Leaders at all levels must encourage their counterparts to take ownership of security and develop solutions to become independent of external support.

6-44. A HN naturally needs security forces. Therefore, a primary goal of partnering is to identify and cultivate the best of what both sides have to offer. The HNSF secures the populace, upholds the rule of law, and provides a basic level of essential services and security for the populace.

6-45. The HNSF bring many assets to the fight. If properly organized, trained, equipped, advised, and mentored, a HN security force unit is uniquely able to protect the HN population, because they understand the operational environment far better than U.S. Forces. Their cultural and situational awareness is a significant force multiplier during any operation, especially in HUMINT, information collection, negotiations, and targeting. HNSF have some cultural challenges in developing a professional, responsive, and accountable force to the population. Some common cultural challenges are, nepotism, denial of negative results, corruption, and influence from competing loyalties such as, ethnic, tribal, religious, and political allegiances. Some other common challenges include, lack of resources, leadership, abuse of power and organizational structure. There are also possible legal challenges such as, a multinational force may be required by law to turn their detainees over to the HN security force instead of turning them over to U.S. Forces. Perhaps one of the biggest challenges is for U.S. Forces to accept that the HNSF may have organizational and operational structures that differ from U.S. organizational and operational structures. Commanders must recognize that the goal is to ensure that security is in place and that the HN is operating independently. (See FM 3-24.2 and ATP 3-07.10 for more information on HNSF.)

EMPLOYING MULTINATIONAL SECURITY FORCES

6-46. Partnered multinational security forces must acknowledge that though the combined force will seek aligned goals, they may employ dissimilar techniques. U.S. Forces must be aware that multinational forces will be likely be constrained by HN caveats regarding the use of force, handling of prisoners, as defined by their nations' policy directives and objectives. U.S. Forces must also be aware of equipping and other multinational security forces shortfalls such as armored vehicles, aviation, night vision, secure communications, medics, and other capabilities. While other U.S. Government, nongovernmental organization, or civilian agencies can assist in this regard once stable security has been established or reestablished, the security handover to transition forces should remain the purview of the joint force or TF commander.

ADDITIONAL SECURITY OPTIONS

6-47. While OSINT may provide less benefit to security operations as it does reconnaissance, it is still very useful. In contrast, networked camera systems become even more important. The unit generally has more time to identify areas of interest, determine if a camera system covers the area, and then locate and exploit the control center or network hub. HUMINT remains just as important, though units conducting security operations can leverage any extra time to identify better sources and form closer relationships.

6-48. The complexity of urban terrain can allow small groups of enemy Soldiers to move unnoticed, facilitating attacks throughout the depth of the AO. Whatever the plan is for security at higher echelons, every element needs to determine how they will secure themselves throughout the operation. This can include security patrols, observation posts, and use of unmanned systems.

SECTION III – TROOP MOVEMENT

6-49. The complexity of urban terrain disrupts formations and reduces movement speed. While dispersion is important to mitigate the effects of explosive hazards, the distance between elements tends to be shorter so that they can maintain line of sight and move quickly to provide support. This leaves little distinction between traveling and traveling overwatch. Leaders may have to contend with civilians moving intermixed among their formations in addition to the terrain effects. When the citizenry sees the U.S. Forces as a liberator, they may crowd the streets and impede movement. If the local populace is intent on leaving the city prior to, or during combat operations, these displaced persons can also crowd the streets, disrupting both mounted and dismounted operations. In both cases, U.S. Forces must be prepared to make efforts to clear the route in advance of movement and respond to requests for assistance or other engagements with the civilian populace. Units can move along multiple routes to reduce their signatures and make it harder for the enemy to detect them. Because structures restrict the ability of adjacent units to support one another, units should maintain enough combat power on each avenue of approach to endure and defeat potential enemy ambushes.

6-50. Urban areas also present unique navigational challenges. The natural terrain still affects movement, but it is generally less important than artificial structures and streets. Employing overhead imagery, GRGs, and urban operation sketches as described in chapter 2 can assist with urban terrain association. Aerial platforms can also assist units in navigating confusing street patterns. Structure diagrams, building plans, and photographs can enable leaders to remain oriented while moving inside of complex structures. Units should also be aware that communications and GPS are likely to fail upon entering buildings, tunnels, or other locations with significant overhead cover.

DISMOUNTED MOVEMENT

6-51. A *dismounted movement* is a movement of troops and equipment mainly by foot, with limited support by vehicles (FM 3-90). Though slow, a dismounted movement may be the best way to get forces to the right location. Dismounted elements can move through areas that are impassible to vehicles while being harder to detect. Buildings and subterranean passages can provide cover and concealment during movement.

6-52. Urban surfaces tend to be hard and unyielding. Moving on urban surfaces for extended durations increases the strain on Soldiers' bones and joints. Interior movement can be as much vertical as horizontal, with Soldiers traveling up and down stairs and ladders. Urban movement may also require climbing over

walls, through tunnels, and into windows. These factors cause Soldiers to fatigue far faster than in less complex terrain. Leaders can mitigate some of this by reducing Soldier load; however, increased protection requirements and supply consumption often lead to the opposite adding weight back to the load. Thus, brigade commanders and staffs will have to rotate units frequently throughout an urban operation due to these fatigue factors. (See ATP 3-21.18 for additional techniques for conducting dismounted movements.)

MOUNTED MOVEMENT

6-53. A *mounted movement* is the movement of troops and equipment by combat and tactical vehicles (FM 3-90). A mounted movement generally allows a unit to travel further in less time while being less fatiguing for the Soldiers. Civilian mounted and dismounted movement can block streets, potentially making them impassible for vehicles during certain parts of the day. Even parked civilian vehicles can be difficult to negotiate for a force trying to limit collateral damage. Units should be very selective in choosing their routes, movement times, and methods of travel. Understanding the city's terrain, but also the movement patterns of its people, can enable units to reduce many of these challenges. Employing lights and sirens on vehicles can be helpful moving among a permissive population. Special consideration should be made by leaders when traveling through congested urban centers with large trucks and tactical vehicles. Trucks and tactical vehicles with mounted weapons systems provide security, but those systems can also make contact with low power lines and other structures as they travel through the built-up area and roadways. Civilian traffic is likely to integrate within formations traveling in populated areas. This can make it more difficult to maintain spacing and cause breaks in contact between elements. This can also allow threats like VBIEDs to approach undetected (see ATP 4-16 for additional considerations for movement planning and route synchronization).

OTHER MOVEMENT OPTIONS

6-54. Though less common, units can use other methods to transport forces to, from, and within an urban area. Commanders should consider these options and methods when conducting large scale combat operations.

AIR MOVEMENT

6-55. Air movement using fixed-wing assets requires a prepared airstrip for takeoff and landing. Large airstrips can become strategic objectives due to the capabilities they provide to bring combat power into the theater. Even smaller strips often become decisive terrain within urban areas that have them. The size of a large airfield can pose a significant security problem, so selecting one outside of any urban areas is generally preferable when available. Urban airfields are also generally necessary to maintain the flows that sustain urban systems. Military forces may have to share the airfield with civilian users or risk creating larger problems later.

6-56. While rotary-wing movement does not require an airstrip, finding suitable landing zones may be challenging in dense urban areas, especially for large lifts involving multiple aircraft. Even landing zones for a single craft can be limited in the dense city core. Due to scarcity of suitable landing zones the ground tactical plan will change if pick up zones become blocked due to loss of aircraft. Alternate landing zones and pick up zones should be planned for. Some buildings in modern cities have helipads built onto their roofs, though these buildings tend to be very tall. Commanders should confirm the pads are strong enough to support military aircraft, and they have the means to move personnel and equipment to the surface efficiently, such as a freight elevator, before committing to their use. These techniques can be effective for a small force with a limited objective, but do not facilitate a rapid buildup of combat power by air insertion.

6-57. Soldiers can exit an aircraft without landing using a rappel rope or fast rope infiltration and extraction system. These require a landing area generally free of obstacles, especially antennas or other vertical poles; access to the objective, such as a roof access door; and a surprised enemy. The aircraft must hover while Soldiers exit, which makes it unable to react to incoming fire or other potential threats. Though dangerous, this capability can provide a critical advantage that enables units to bypass movement restrictions and enemy engagement areas. It does still require a landing site or separate extraction plan as Soldiers cannot board the aircraft while it is in the air. The fast rope infiltration and extraction system is limited to special operations forces, pathfinders, and long-range surveillance units. It is not approved for Army-wide use (see ATP 3 18.10 for additional information).

6-58. Cities provide many locations to hide antiaircraft systems, so aircraft flying over cities risk direct engagement (see ATP 3-06.1 for specific air mobility challenges and mitigation measures). The same mobility challenges that the unit attempted to avoid by using aircraft will still affect any ground support forces. This makes it difficult to react quickly to a changing situation, and risks leaving a small assault force vulnerable to enemy fixing and isolation efforts.

Rail Movement

6-59. Some cities serve as hubs for rail networks. These are of limited tactical importance but can be critical to achieving operational or strategic objectives. Rail can enable the movement of large numbers of Soldiers and equipment throughout a theater, but it is especially vulnerable to attack. Because trains must travel along a continuous line of rail between locations, routes are highly predictable and enemy forces can disrupt operations by damaging the railway at any point along the path. Forces attempting to secure an urban railhead must address the larger security issue. The HN is ultimately responsible for security of its own railway assets and resources. The expeditionary railway center and advisory team commanders must take all active and passive security measures that are within their capabilities to protect their own Soldiers and equipment and aid the HN in its own security measures. However, expeditionary railway center and advisory team commanders do not have adequate organic personnel to provide necessary active security along rail lines or to guard bridges, tunnels, yards, and so forth. It cannot be assumed that maneuver forces will be available to provide this support. However, expeditionary railway center and advisory team commanders may cooperate and coordinate with area commanders and local security agencies to the maximum extent possible to gain aid and support in their security endeavors. As with airfields, rail networks commonly support required functions to keep cities functional (see ATP 4-14 for techniques associated with expeditionary railway operations).

Water Movement

6-60. Water movement is most commonly associated with movement of equipment into a theater of operations. This generally requires sizable ports to receive and redistribute that equipment, most of which are in major cities. Army units can use large watercraft to move forces in support of an attack into a coastal city, such as at the Battle of Inchon in 1950. These are high-risk operations, but they allow forces to bypass enemy defenses along ground avenues of approach (see ATP 4-15 for additional information).

6-61. On a smaller scale, forces can use boats to infiltrate a coastal city. Some cities also contain rivers or canals that can restrict mounted movement but facilitate use of small boats for internal transportation. While this can enable a small force to bypass restrictive terrain and approach from an unexpected direction, the limited mobility makes elements vulnerable if detected. Units should move at night to minimize the chances of anyone observing from the shoreline or a nearby structure.

SECTION IV – RELIEF IN PLACE

6-62. A *relief in place* is an operation in which, by direction of higher authority, all or part of a unit is replaced in an area by the incoming unit and the responsibilities of the replaced elements for the mission and the assigned zone of operations are transferred to the incoming unit (JP 3-07.3). Units conduct a relief in place as part of a larger operation, primarily to maintain the combat effectiveness of committed force. The higher echelon headquarters directs when and where to conduct the relief and establishes the appropriate control measures.

6-63. As part of a relief in place, the outgoing unit will typically focus on passing intelligence, operations, and sustainment information to the incoming unit. Exchanging information about enemy forces, friendly dispositions, terrain analysis, fire support and obstacle plans, and reconnaissance results helps relieving units plan and execute their missions. In addition to following standard procedures for conducting a relief in place, units conducting operations in urban areas should also complete the following tasks:

- Review the key actors in the area:
  - UO require working in and among the population and unified action partners.
  - Knowing with whom to speak to get something done or to reach a particular group can be critical for a unit transitioning into an area.
  - These can be official or unofficial leaders of military, government, or civilian organizations or other groups.

- Review historical, cultural, and recent events, particularly those that have had a significant impact on the population:
  - The incoming unit needs to know about major instances of civilian casualties or property damage as they can affect future relationships and may serve as focal points for civil unrest.
  - Prior knowledge will help the unit develop an appropriate response before facing a crisis.
- Prior to the transition of authority, the departing unit conducts an intelligence handover, which includes:
  - Lessons learned.
  - Details about the populace, village, and patrol reports.
  - Updated maps and photographs.
  - Targeting efforts.
  - Anything else that helps the arriving unit understand the operational environment.
- Locations of minefields, hazardous materials areas, and so forth.
- Status of municipal services (which ones are functional and nonfunctional).

6-64. Personal knowledge, relationships, and trust with the local population and unified action partners are critical to the successful completion of many stability tasks. They can also take a long time, even years, to complete. This makes transitions between units and leaders more disruptive than with other operations. Leaders should place additional emphasis on the following tasks to mitigate the negative effects of these transitions:

- Review the current political, strategic, and local situation including relevant actors and events, which should also include assessments of the local HN institutions and security forces.
- Arrange and conduct introductory meetings between them and incoming and outgoing commanders:
  - The loss of an effective leader that has cultivated relationships and built trust can cause local leaders and the population to become deeply anxious about the transition.
  - Conducting face-to-face meetings helps alleviate this and can pass some of the goodwill the previous unit built onto the new one.
- Review the operational plan and the status of initiatives along different lines of operation:
  - Many stability tasks can take years to fully accomplish.
  - Therefore, incoming leaders need to understand what the plan is, what has already been done, and what remains to ensure units continue to progress towards endstate conditions.
  - Review the status of all ongoing projects including purpose, key stakeholders, progress, resources committed, additional resources required, key milestones, and additional requirements, which helps ensure that efforts maintain momentum over the transition.
  - Leaders should consider site visits for all major projects:
  - The outgoing unit can delay steps of projects anticipated to end near the transition date to provide opportunities for the new unit to complete the projects after the transition.
  - Immediate positive impacts, sometimes referred to as “quick wins,” help build goodwill with unified action partners and the population and make them more accepting of the new unit.
  - The goal is to ensure that there is no loss in capability or progress during or immediately following the relief in place.

SECTION V – COUNTERMOBILITY

6-65. *Countermobility* entails a set of combined arms activities that use or enhance the effects of natural and man-made obstacles to prevent the enemy freedom of movement and maneuver (ATP 3-90.8). Primary purposes of countermobility operations are to shape enemy movement and maneuver and to prevent the enemy from gaining a position of advantage. ATP 3-90.8 covers planning factors for emplacing specific obstacles that will be more or less effective within urban areas. The enemy will seek to create advantageous conditions by conducting operations in urbanized and populated areas to diminish the potential employment of friendly countermobility capabilities to offset U.S. advantages. In addition to tactical requirements, commanders should consider the effects of countermobility efforts on civilian movement before committing to a course of action.

6-66. Dense urban terrain disrupts movement, especially for large formations, but it does provide many options for commanders willing to move in smaller elements. Defenders can employ obstacles to deny streets,

buildings, roofs, open spaces, dead space, and underground systems. Shaping the routes available to the enemy can prevent them from exploiting gaps in the defense and be more important to the overall success of the defense than obstacle development within planned engagement areas. These still require the unit to commit elements to overwatch the obstacles and support them with indirect fires.

6-67. Obstacles must be planned in depth, starting well forward of an urban area to delay and canalize the enemy. Possibilities for obstacles are unlimited in urban terrain, although the greater presence of civilians and the risk of collateral damage must be considered. The objective is to prevent the enemy freedom of rapid advance through the built-up area. Obstacles, covered by fire, accomplishes this. Barriers, ditches, mines, networked munitions, wire, and rubble all create effective obstacles. Streets are barricaded to halt armored threat vehicles at the optimum range of anti-tank weapons. As enemy vehicles are disabled, they too become obstacles. Since the enemy will be forced to dismount to continue the attack, antipersonnel obstacles must be integrated throughout the obstacle plan.

BARRIERS

6-68. Wire obstacles can be very effective in urban areas. In addition to their standard employment, units can place wire to block interior and subterranean routes. Units can also place wire on rooftops to prevent helicopter landings. Soldiers may be able to use poles or other items found in the area in the place of pickets or stakes, but they must secure the wire in some way, or it will not be an effective obstacle.

6-69. Units can position prepared concrete barriers, such as Jersey barriers or T-Walls, to deny avenues of approach or fix enemy within an engagement area. These are very heavy and require special equipment like cranes and forklifts to emplace. These barriers also create dead space on the far side, but defenders can mitigate this by positioning forces higher within buildings to see over the obstruction. If not directly engaged, these barriers can last for years with units repositioning them as required.

6-70. Though primarily protective obstacles, fillable barriers can also work for countermobility. They do not require special equipment to set up, though the lack of fill material can present a problem. Units can fill them with rocks, rubble, and other debris from the surrounding area, and positioning them away from forces helps mitigate the risk of ricocheting rounds. They do tend to deteriorate faster than concrete barriers and are not normally reusable.

6-71. Logs can be an effective barrier. These are generally not suitable for cities as there will be limited material available. Units could transport logs in from outside the urban area, but this increases the labor and time required to emplace an obstacle type that is already labor and time intensive. Units may be able to create a similar effect through the use of light poles, although this creates long term damage to the infrastructure.

DITCHES

6-72. Digging can be more challenging in dense urban areas as reinforced concrete and asphalt covers most of the space between buildings. Units may need to employ cratering charges to break up the surface before other assets will be effective. Damage to roads and parking areas produces long-term effects to the civilian population in addition to friendly, enemy, and neutral forces. Digging can damage underground utilities and transportation routes, both of which are common in urban areas. Broken water lines can flood nearby areas and subterranean spaces. They also create a shock hazard if the water contacts live electrical wires. Subterranean areas can collapse while digging, putting equipment operators at increased risk. Despite the challenges and risks that come with digging in dense urban terrain, even small ditches can be effective in blocking mounted movement when tied into existing structures. Units can also employ ditches outside the urban area to restrict movement in or out.

MINES

6-73. U.S. national policy limits the use of booby traps and non-self-destructing antipersonnel land mines. Units can still use M18A1 claymore mines in command-detonated mode, antivehicle mines, and mixed minefields containing self-destructing antipersonnel land mines to protect antivehicular mines. Antivehicle mines can block an avenue of approach, force the enemy to deploy, and separate dismounted infantry from their armored support. Units can employ the M18A1 claymore mine to destroy enemy forces within an

engagement area, deny dead space, or support a blocking position. They are effective positioned along streets, but also within buildings or on rooftops given adequate wire for the trigger.

6-74. The terrain's masking effect that limits the use of indirect fires also hinders the employment of scatterable mines delivered by artillery and, to a lesser extent, aircraft. The buildings can create unmined shadow zones, and antivehicle mines especially will be largely useless if delivered on rooftops or within buildings. In addition, hard surfaces like concrete can damage the mines on impact or causes them to bounce and roll. These can combine to reduce the density of a scatterable minefield to the point it is ineffective. Despite the loss of effectiveness in an urban environment, scatterable mines still provide commanders the ability to shape the battlefield in response to an enemy's specific actions. The modular pack mine system provides another option that is also effective in an urban setting. Their small size allows units to keep them hidden and only deploy them after the attackers commit to a route of advance. The mines hit the ground with less force, reducing the problems with employment on a hard surface. The modular pack mine system mines can also self-destruct on command, making them more flexible than other scatterable mine systems.

CAUTION

Standard methods of constructing and marking fratricide fences may not be effective to keep noncombatants out of dangerous areas. Units should consider ways to make the fence more visible and account for differences in custom, language, and literacy level.

DEMOLITIONS

6-75. Road craters are effective obstacles that can make high-speed movement routes impassible to certain vehicles and slow the movements of others. Used in groups, they can deny enemy access to routes. They can also close passage lanes after use. Units may need to employ cratering charges to allow digging into a hardened surface, but this can cause the same kinds of problems described with ditches above. Units can also employ demolitions to collapse buildings, bridges, overpasses, dams, and underground routes like subway tunnels or sewers. For example, destroying bridges controls movement by either denying the enemy's ability to withdraw or attack across them. Though potentially necessary, these kinds of actions will likely increase the eventual cost of reconstruction and repairs.

IMPROVISED OBSTACLES

6-76. Urban areas provide ample material for resourceful units to impede mobility without the use of standard military construction materials. Civilian vehicles restrict mobility whether moving or not. Units can reposition abandoned vehicles to enhance this effect. Unconventional threats have regularly used piles of burning tires and trash as effective short-duration disruption obstacles. In recent conflicts, combatants have purposely opened water mains and flooded subterranean passages to force their adversaries to travel on the surface. All leaders should look for ways to use the environment to their advantage while also thinking about how their adversaries might do the same.

6-77. During a high-intensity engagement, the rubble from damaged structures and other city infrastructure will impede the progress of an attacking force. The defender can move the material and position it where it will have the greatest effect. This is not always a reliable method as some pieces may be too large for engineer assets to move while smaller pieces may have limited effects. Commanders may also choose to deliberately rubble select structures, assuming this action falls within the mission's ROE and the commander has the authority. This allows the unit to produce material where needed to deny terrain and avenues of approach; however, the specific effects can be unpredictable.

6-78. Within buildings, forces can use furniture, wire, and construction material in nonstandard ways to great effect. Fortifying rooms, hallways, and stairwells can bog down an attack and force the enemy to pay a high price for each advance. There are historical examples of small elements in strongpoints denying attackers for weeks or months in the midst of high-intensity combat, even after being isolated from the rest of the force.

SECTION VI – MOBILITY

6-79. ATP 3-90.4 provides a doctrinal basis for conducting mobility to enable freedom of movement and maneuver in support of a larger operation. It also covers the framework of assured mobility and planning factors for specific obstacle reduction techniques that will be more or less effective within urban areas. Enemy forces will likely use obstacles to restrict the movement of attacking elements, and they may not abide by the same national and international restrictions as U.S. Forces.

6-80. Adversaries will seek refuge in terrain that challenges movement and maneuver. An adversary will use urban terrain to offset U.S. advantages. Overcoming challenges to maneuver is primarily accomplished through breaching and gap crossing. Overcoming challenges to movement is primarily accomplished through route and area clearance, and line of communication gap-crossing support.

IDENTIFYING ENEMY OBSTACLES

6-81. Units are more likely to encounter certain types of obstacles within an urban area. Urban terrain also affects employment of these obstacles which can make some detection methods more or less effective. An obstacle is an impediment to movement and maneuver. Obstacles must be broadened to realize the effects that people will have on movement and maneuver just by their existence. (See ATP 3-90.4 for additional information.)

TYPES

6-82. Urban areas facilitate the use of many types of common obstacles and provide material with which to construct improvised versions. Obstacles can exist naturally, be man-made, or be a combination. Natural obstacles are inherent aspects of the terrain (vegetation, water features, soil composition, surface configuration) that impede movement or maneuver. Man-made obstacles can be nonexplosive or explosive. Man-made obstacles (other than structures, cultural obstacles, or human obstacles) are also referred to as reinforcing obstacles since they are generally designed and employed to take advantage of the natural restrictiveness of the terrain. Reinforcing obstacles are categorized as tactical and protective. Tactical obstacles help shape engagements, while protective obstacles provide close-in protection/force protection. Explosive obstacles include mines, IEDs, and unexploded ordnance. Besides their immediate explosive effect, they may leave behind residual effects that become a nonexplosive obstacle.

Barriers

6-83. Section V describes several types of barriers that friendly and threat forces can use to restrict movement and maneuver. These have their own benefits and limitations, but they are all generally easy to identify. Remember that threat elements can easily place obstacles within buildings as well as outside.

Antivehicle Mines

6-84. Enemies are likely to surface lay antivehicle mines on hardened surfaces like reinforced concrete or asphalt, making them easier to identify. The naturally restrictive terrain means that it takes fewer mines to block a route, so the enemy can choose to employ them in many locations or create a deeper minefield that requires more effort and equipment to breach.

Antipersonnel Mines

6-85. Though international law restricts the use of antipersonnel mines except those with specific features employed under specific circumstances, this will not stop all potential adversaries from using whatever is available to them. Enemies can employ them outside and inside structures and combine them with a wide variety of trigger mechanisms to fit their requirements. Soldiers must remain vigilant, especially around entry points to known enemy positions. In addition to mining paths that Soldiers are likely to follow, the enemy may place them behind potential sources of cover as Soldiers are less likely to look carefully when moving under direct fire.

Improvised Explosive Devices

6-86. An *improvised explosive device* is a weapon fabricated or emplaced in an unconventional manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals (JP 3-42). Threat forces commonly repurpose large military munitions, but they can also fabricate hand-made explosives using common materials. They can be tailored to incapacitate a single Soldier or destroy a city block. Threats commonly rig them to detonate by a tripwire, infrared laser, command wire, or remote signal. Urban areas provide nearly unlimited options for emplacing and concealing IEDs, but common locations include suspending them from an overpass or emplacing within trash, animal carcasses, potholes, or other flooded areas, false rocks, or curbs, and behind guardrails. Early in a conflict, IEDs may be very crude, but threat forces will very quickly become adept at employing highly effective devices that are very difficult to detect.

Booby Traps

6-87. Booby trap is a common-use term to describe weapons fabricated or emplaced in an unconventional manner with a victim-operated trigger. They include IEDs, but also nonexplosive devices intended to cause injury or death. The traditional example is the Vietnam-era punji stick, but urban examples could include a concealed hole in the floor or a tripwire that releases a heavy object from overhead. There are no limitations for the construction, emplacement, and concealment of booby traps.

DETECTION METHODS

6-88. Detecting is the actual confirmation of the location of obstacles. It may be accomplished through reconnaissance, or it may be unintentional (such as a vehicle running into a minefield). Detection is used in conjunction with reconnaissance, breaching, and clearing missions. (See ATP 3-34.20 for additional information on detection.) While physical barriers are generally easy to identify, explosive devices can be very challenging to spot depending on the methods used in their construction and the effort taken to conceal them.

Visual or Optical

6-89. The first and most common way to identify enemy obstacles is to see them either with the naked eye or aided by some kind of optic. Commanders should ensure that all Soldiers know the basic signs of the kinds of obstacles used within the area and continue to scan for them throughout the operation. Soldiers should visually inspect door and window thresholds prior to entry into a structure or building. Visual inspections should continue as they move through buildings looking for evidence of an explosive device or its components. Soldiers should continue this technique when passing under bridges, pillars, and other frameworks. Since digging is more challenging in urban areas, obstacles are more likely to be on the surface. Enemies can still use rubble, trash, or other available materials to disguise them. This is especially common with antipersonnel mines, IEDs, and other booby traps.

6-90. When a roadbed or sidewalk is elevated with an exposed flank, particularly banked earth, threat forces can tunnel in from the side and emplace deep-buried devices that are invisible from the upper surfaces. Likewise, culverts or tunnels underneath roads are an optimal location to emplace large devices underneath the roadway. Units should inspect these from the side or below, and in the event of long-term occupation, practice culvert denial by emplacing heavy screening or re-bar across culvert entry points. Within urban environments there may be parks, cultivated gardens, reed beds along canals, or other locations. Units may need to inspect these areas thoroughly and practice controlled burning to eradicate vegetation that allows threat elements to conceal explosive devices or other hazards.

Note. There is often a temperature difference between an explosive device and the material around it. Soldiers may be able to spot an explosive using thermal optics that they would have otherwise missed.

Mine Detectors and Probes

6-91. Though largely unnecessary for surface-laid mines, mine detectors can still be useful on dirt surfaces in parks or other areas that are less dense. Using mine detectors on concrete will likely result in false positives as they detect the rebar or utility lines underneath.

Pole with String

6-92. Soldiers can use a ten-foot pole with five feet of string or thin rope and a weight to create a makeshift device to detect tripwires. Tie one end of the string to the pole and the weight to the loose end (see figure 6-1).

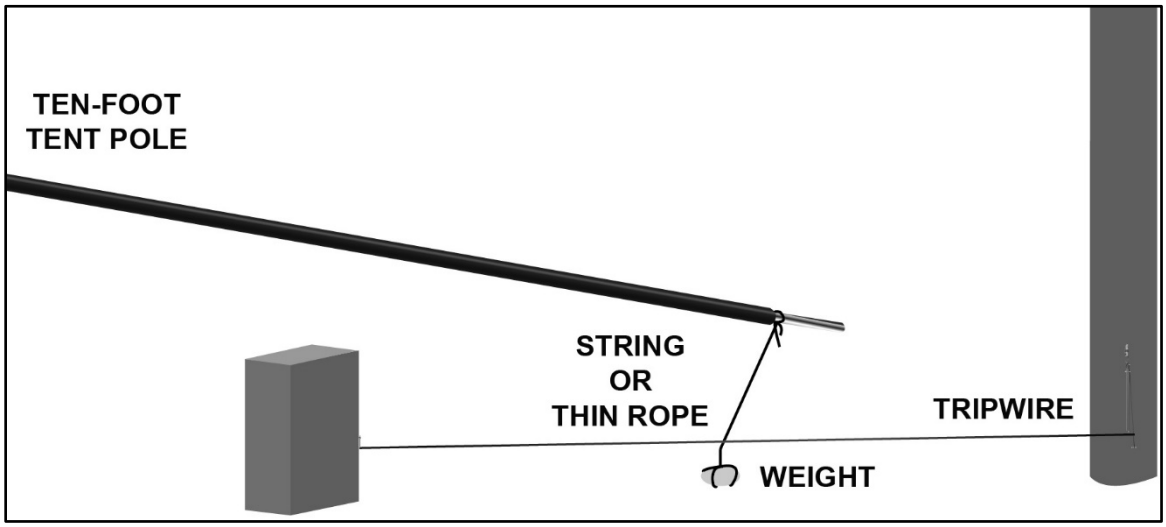

Figure 6-1. Improvised trip wire detection device

V-Sweep Technique

6-93. A v-sweep entails the lead element of a mounted or dismounted column movement using the vee formation. The lead element deploys in a vee to gain standoff in advance of the main body's movement. The lead element of the vee formation visually scans for tripwires far out to the flanks of a movement route. The other members of the clearance visually scan inwards for tripwires as the formation moves progressively down the route. This technique allows the element to sweep for tripwires along the length of the route while clearing both flanks (see figure 6-2 on page 144 and figure 6-3 on page 145).

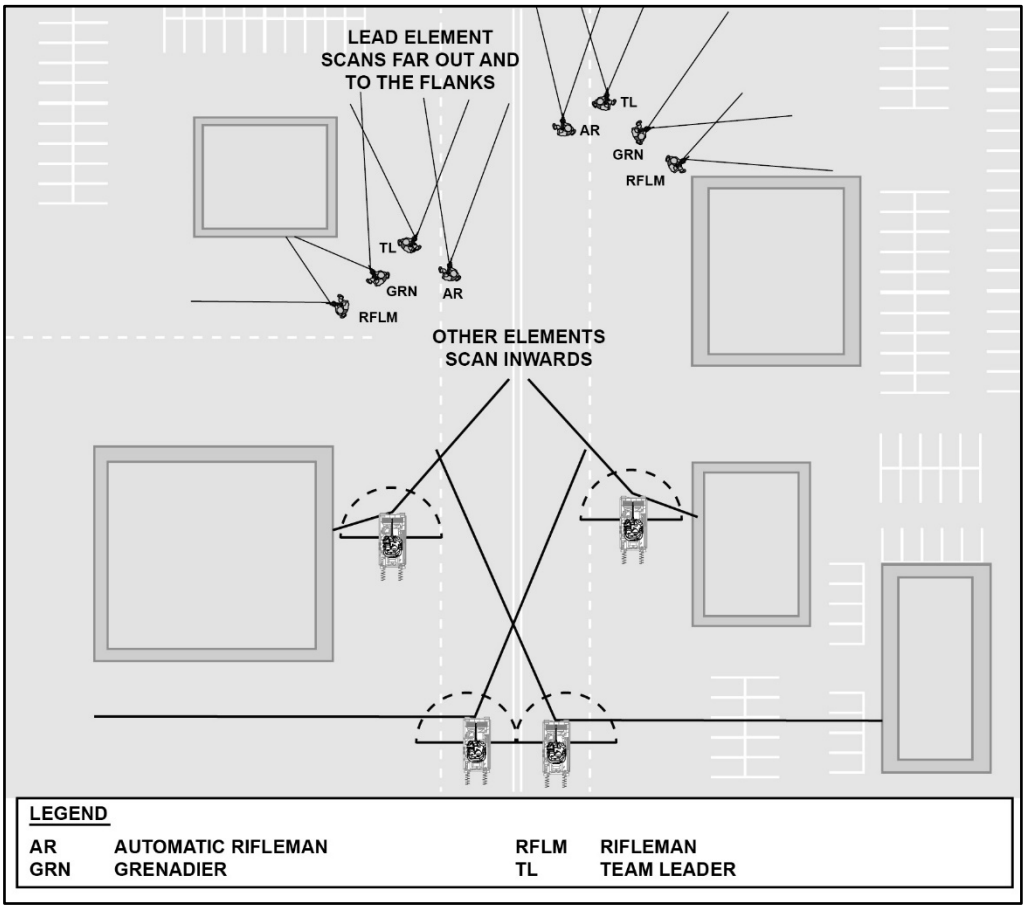

Figure 6-2. Vee sweep urban

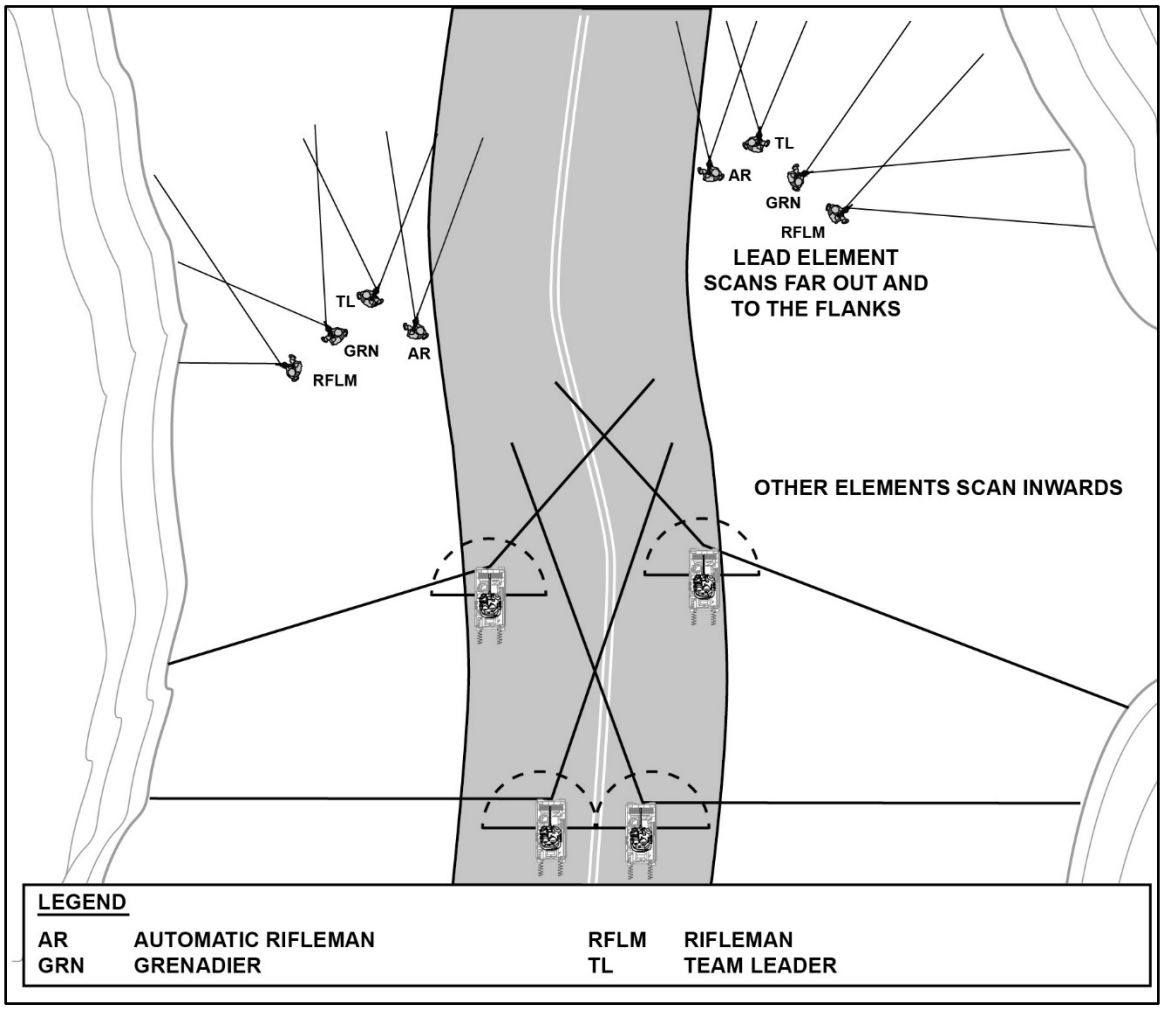

Figure 6-3. Vee sweep terrain

BREACH

6-94. A *breach* is a tactical mission task in which a unit breaks through or establishes a passage through an enemy obstacle (FM 3-90). Urban breaching employs the same methods, tenets, and fundamentals as breaching in other environments, but with some urban-specific considerations. A breach is not always preferred. Like any operation, when in contact with an obstacle, the preferred course of action is to find a bypass, not execute a breach. This may mean going through a building or knocking down a wall to bypass the breach area.

BREACHING METHODS

6-95. Units breach urban obstacles using the same methods as in any other environment; however, there are specific considerations for their employment.

Manual

6-96. Soldiers conduct manual breaches using their own bodies without additional equipment. Examples include running into a door or kicking it open. It is a fast option that does not require preparation, but it is often ineffective and risks injury to the breaching Soldier.

Mechanical

6-97. Mechanical breaching employs tools such as bolt cutters, sledgehammers, crowbars, or even armored vehicles to create an opening. This generally requires the use of special equipment, though units may be able to improvise using objects found in the area. Mechanical breaching generally does not consume equipment or supplies, allowing the unit to use the same piece of equipment for multiple breaches. This makes mechanical breaching very resource efficient and produces little collateral damage, but it can be slow and is not effective for all situations. If not the primary method, leaders should always plan for a mechanical backup for a ballistic or explosive breach.

Ballistic

6-98. Ballistic breaching uses a projectile weapon to weaken an obstacle and create a breach. This can include the use of shoulder launched munitions or close combat missiles. Units can conduct a ballistic breach against a wall, door, or window. While a shotgun may be sufficient for a standard door, reinforced doors and walls require much larger caliber weapons. Ballistic breaches require little set up time, but they can be very hazardous to anyone on the other side of the breach and may require specialty munitions that are consumed in use.

WARNING

Shooting an explosive device may not detonate it. This can also make the device less stable, increasing the risk for anyone attempting to destroy it after through other means.

Explosive

6-99. Explosive breaching uses military demolitions to reduce an obstacle. This method takes the longest to prepare and can be very resource intensive; however, it executes quickly and can be the only effective means of getting through certain obstacles. In most cases, explosive breaching requires creating a breaching charge that is specific to the situation. This allows the force to tailor the charge to their specific requirements, but it also means that a charge built for one situation may not be effective if used in a different one (see TM 3-34.82 for additional information).

Thermal

6-100. Thermal breaching uses a device like an acetylene torch that employs high temperatures as it melts the obstacle at focused points to undermine its structural integrity. These tend to be slow and require very specialized equipment and training, but it can reduce obstacles with little collateral damage. Engineers use this method almost exclusively for metal barriers, though they may have to combine it with other methods to access the metal (such as using an explosive to expose the rebar in a reinforced concrete wall). Thermal breaching equipment includes the use of pressurized gas containers, so leaders must take care to keep them protected from enemy fire.

BREACHING CONSIDERATIONS

6-101. Breaching fundamentals apply in urban areas, but there are considerations that make certain techniques or methods more or less effective (see appendix C and ATP 3-90.4 for more information).

Suppress

6-102. Building protection will make direct and indirect fires less effective. Civilian casualty and collateral damage concerns may also restrict the type and volume of fire acceptable for a particular operation. Units should consider supplementing standard suppression methods with precision fires.

Obscure

6-103. Urban canyons can concentrate smoke effects when aligned perpendicular to the direction of wind; however, they also magnify the force of winds and rapidly dissipate effects along streets that are parallel. Remember that smoke takes time to build no matter the source, and it will take longer to obscure forces on the ground from enemy in elevated positions.

6-104. Given the close engagement ranges, specifically placed smoke grenades can be very effective for short duration obscuration of an urban breach. Artillery-fired smoke is a standard option, but it can be hard to place and puts Soldiers close to the point of impact at risk. Phosphorous rounds are a burning and inhalation hazard for Soldiers or noncombatants within the cloud. Other burning materials in the area can also obscure actions. Units should try to take advantage of this when the opportunity presents itself, but the effects are generally too unpredictable to include as part of the breach plan.

Secure

6-105. Structures around the obstacle can conceal enemy forces until they choose to unmask. This along with the reduced effectiveness of friendly suppression makes the security element's task far more difficult (see chapter 3 for additional information).

Reduce

6-106. The position of the breach element and the rest of the assault force distinguishes whether the unit is conducting a close-in or distant breach. During a close-in breach, the assault force stages at the breach site. Only use this if there is no danger from secondary effects of the breach, such as blast pressure, fragments, or debris. This allows for a rapid entry following the reduction, and is generally suited for manual, mechanical, and small-caliber ballistic breaches. For a distant breach, the breach element reduces the obstacle from a distant covered position. This protects forces from secondary effects of the breach but results in a delay between reduction and entry. This is most common with ballistic breaches using large caliber weapons or missiles. Demolition breaches usually combine elements of both close-in and distant breaches as Soldiers must first emplace demolitions and then move to a safe standoff distance.

6-107. Dense urban terrain provides many natural obstacles that require specialized tools to breach or reduce. The antipersonnel obstacle breaching system is another explosive breaching option suitable for creating a 1 meter by 50 meters path through antipersonnel mines and wire obstacles. It requires 40 meters standoff and 24 meters of overhead clearance. This can still cause some damage, especially to glass windows, but not nearly as much as a mine clearing line charge. Vehicles with a front blade, such as a military or civilian bulldozer or the M9 armored combat earthmover, can be invaluable for breaching obstacles, moving surface-laid mines, and clearing rubble. Units should position them near the front of any mounted assault into a contested urban area to enable ready access and maintain momentum. Units can employ grappling hooks to move surface mines, but this is likely to be very slow unless using the hook to trigger a tripwire or rod. Ensure Soldiers throw and pull from cover. Mines armed with antihandling devices and trip wires may be activated when hit with the grappling hook. Entering and clearing buildings requires the means to breach exterior and interior doors of various sizes, materials, and strengths. Forces require the ability to adjust to different methods to fit the situation as well as the supplies needed to breach many doors based on the size of the objective. Forces also require adequate distribution of equipment so that the right assets are available when and where needed (see appendix C for additional information).

Assault

6-108. Ballistic or explosive breaches of exterior obstacles can create additional rubble either from the street or the sides of buildings around the breach point. This rubble can slow the assault force through the breach if not preceded by a vehicle with a blade that can shift the debris out of the way. Assaulting forces may need to clear a significant number of buildings or other terrain from which the enemy can place direct fires on friendly forces in the breach area before the tactical operation can continue.

GAP CROSSING

6-109. While wet-gap crossings are not limited to urban areas, there are some specific nuances that can affect how units conduct urban crossing operations. Urban areas also include options for crossing dry-gaps that are rare in other environments.

WET-GAP CROSSING

6-110. Rivers, canals, and other gaps remain major obstacles despite advances in high-mobility vehicles. Wet-gap crossings are among the most critical, complex, and vulnerable combined arms missions. Urban areas often develop along rivers or have rivers flowing through them. Conducting a wet-gap crossing within a city follows all the same procedures from ATP 3-90.4. Units should also consider the following:

- Potential crossing locations are likely to be limited as they will need to conform to the existing road network, most likely incorporating an existing bridge, which can make achieving surprise challenging.
- Banks in urban areas are often steep concrete walls which make it difficult to rapidly get out of the water.
- Units can conceal themselves among the built-up terrain to stage for a crossing.
- Enemy forces can use buildings on the far side as protected fortifications from which to engage crossing elements, which generally requires a much larger assault force to dislodge them (see chapter 3 and appendix C for additional information).
- The existing infrastructure may affect requirements for the crossing, especially if there is a height difference to get to the water, and commanders need a plan to mitigate these challenges and take advantage of opportunities.

ROOFTOPS OR WINDOWS

6-111. In some cases, a unit may need to pass from one building to another without going down to surface level. The easiest way to accomplish this is to secure a wooden board or ladder that is long enough to cross the span and can support the weight of a combat equipped Soldier. Units can position these to connect rooftops, balconies, or windows of similar heights. This can be very dangerous depending on the length and width of the spanning platform, any holes in the platform (which are likely when using a ladder), the likelihood of enemy engagement, and the position of the crossing Soldiers (standing versus sitting or crawling). Though it slows movement, units should attach anchor ropes to crossing Soldiers to mitigate any falls.

SECTION VII – TACTICAL DECEPTION

6-112. *Tactical deception* is a friendly activity that causes enemy commanders to take action or cause inaction detrimental to their objectives (FM 3-90). The purpose of a tactical deception is to assist in gaining a tactical advantage, enable freedom of maneuver, and reduce overall operational risk for commanders. The easiest way to achieve surprise is to use deception. Units throughout history have used deception to their advantage. It is a low cost and effective way to cause the enemy to waste their efforts. Deception enhances the conditions that allow friendly units to concentrate forces at decisive times and locations.

FEINT

6-113. A *feint* is a variation of tactical deception that that makes contact solely to deceive the adversary as to the location, time of attack or both (FM 3-90). Feints can be very effective in urban areas as the limited visibility can mask the true size and composition of the deception force. A small force can pass for something much larger, and the protective characteristics of the terrain can allow it to continue to fire without receiving decisive effects. The deception force also risks isolation and destruction if the enemy is able to maneuver undetected and cut it off from its source of support.

DEMONSTRATION

6-114. A *demonstration* is a variation of tactical deception used as a show of force in an area where a unit does not seek a decision and attempts to mislead an adversary (FM 3-90). In some cases, demonstrations will

be more effective in urban areas than in other environments. Unlike many military operations, a demonstration that people do not know about is not going to be effective, which can be a problem in more austere environments. Movements of military forces among the population are going to stand out, so observers are likely to see and report any action. That said, this largely relies on the enemy receiving, processing, and believing intelligence. The time this will take (and the enemy's response) will be inconsistent and hard to predict.

DECOYS

6-115. Units can use decoys to confuse enemy collection assets and paint a false picture of the composition and disposition of friendly elements. Effective decoys must account for the multiple domains and wide band of spectrum that modern enemy forces can use to detect. Cities can provide the means for even small units to construct effective decoys using available materials and production capabilities.

6-116. It can be challenging to keep a dense population away from decoys, especially those intended to deceive in the visual spectrum. This can make it more likely that an enemy force that relies on HUMINT or blending in with the population will detect the decoy. It can also allow people to get close enough to spot differences between actual and decoy systems that would have been unnoticed under other circumstances. Units attempting to deceive an enemy within a city over time will need decoys with higher quality materials and construction.

6-117. Military communications equipment tends to operate on different frequencies than civilian systems, so enemy forces may be able to locate transmission sources despite a congested electromagnetic spectrum. Remote placement of communications antennas can be more effective in urban areas as it is more challenging for the enemy to visually confirm or deny the location of a CP located within a structure. Ensure that units place antennas in locations that can withstand a strike without adverse effects on operations.

6-118. U.S. Forces must assume that every method or technique of decoying and deception is also used by enemies. The enemy will also use decoys as alternate targets against friendly forces which will possibly deceive friendly forces into expending ammunition and possibly revealing their positions.

MILITARY DECEPTION AND INFORMATION OPERATIONS

6-119. Military deception and other information operations capabilities must be planned and integrated to support the commander's campaign and/or operation. Collectively, these capabilities target adversary decision makers to affect their information systems and decision-making processes. (See JP 3-13.4 for more information on military deception and information operations.)

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Chapter 7
Sustaining Urban Operations

This chapter describes environmental and threat impacts and execution techniques for sustaining UO. It includes planning considerations for establishing support areas and providing logistics, maintenance, recovery, health service, and personnel service support to UO.

SECTION I – IMPACTS ON SUSTAINMENT

7-1. The *sustainment warfighting function* is the related task and systems that provide support and services to ensure freedom of action, extend operational reach, and prolong endurance (ADP 3-0). Sustainment tasks include the provision of logistics, financial management, personnel services, and health service support necessary to maintain operations until successful mission completion (see ADP 4-0 for additional information on sustaining Army operations). This can include Army support to other services, government agencies, or even countries.

7-2. The nature of the urban environment creates distinct demands on sustainment, maneuver units, and operations. UO are sustainment intensive. It demands large quantities of materiel and support for military forces and noncombatants displaced by operations. Thorough preparation is critical in developing an adaptable sustainment plan. While UO greatly increase requirements on sustainment systems, they also offer opportunities to supplement those systems using civilian infrastructure.

APPLYING SUSTAINMENT PRINCIPLES

7-3. Sustainment principles focus on regenerating combat power and enabling commanders to maintain operating tempo. The urban environment can make implementing these principles more challenging while also providing opportunities for resourceful leaders.

INTEGRATION

7-4. Units conducting UO regularly reorganize to become more effective. They also work closely with forces from other services and nations. Sustainment planners may need to integrate outside capabilities more than usual to build functioning systems. They may also have requirements to support HN forces, forces from other partners and allies, and the civilian population until the local government can take over.

ANTICIPATION

7-5. Units conducting UO consume supplies at greater rates and have unique challenges. Resupply to disparate fixed security positions and checkpoints is a huge challenge. Planners must still anticipate unit requirements and set conditions to enable sustained operations. Forward positioning supplies requires accurate estimates to ensure requirements are available at the right time in the right location while minimizing waste.

RESPONSIVENESS

7-6. Dense urban terrain restricts movement and impedes flows. Planners must account for this to ensure sustainment remains responsive to unit needs. Restricted mobility may require units to forward position supplies or other sustainment capabilities so that they are readily accessible during combat.

SIMPLICITY

7-7. Simplicity remains critical to effective sustainment planning, but the complexity of UO challenges units trying to achieve this. Staffs must look for ways to mitigate friction while building plans that can adapt to the changing situation.

ECONOMY

7-8. Increased demand during UO can overwhelm standard sustainment processes. Units must look for ways to reduce wasted effort and materials. Forward positioning supplies makes this harder to accomplish.

SURVIVABILITY

7-9. Urban terrain increases the risk to all elements. Plans must address and mitigate the risk to sustainment nodes and moving elements.

CONTINUITY

7-10. Changing conditions and organizational structures can challenge efforts to maintain continuity throughout an operation. Staffs will need to find ways to mitigate these challenges and reduce disruptions.

IMPROVISATION

7-11. Urban areas provide additional opportunities to supplement sustainment efforts and employ nonstandard means to meet sustainment requirements. For example, prefabricated walls and barriers can be locally fabricated and contracted. Leaders need to be adaptable and look for ways to exploit opportunities without increasing risk to the force.

SUSTAINMENT CONSIDERATIONS

7-12. Common urban environmental characteristics can affect the units' ability to conduct sustainment operations.

INCREASED SUPPLY CONSUMPTION

7-13. Forces conducting UO tend to consume supplies at greater rates, especially water (Class I), rations (Class I), ammunition (Class V), and medical supplies (Class VIII). Fuel consumption may increase for generator use to supply power, but vehicle consumption rates tend to stay constant or less overall due to the static nature UO. Forces also request more guided munitions to reduce collateral damage. This will increase requirements for supply delivery and storage for the brigade and subordinate units. Combat vehicles are also limited in what they can carry, so units will need to maintain the flow of supplies to forces on the forward edge of battle. Units can use assault or cargo aircraft to bypass restrictive terrain to deliver supplies directly, but this puts the aircraft at increased risk. They are generally slower and less maneuverable when transporting cargo and must remain stationary for a time when loading or unloading.

7-14. Planners recommend munition supply rates to the commander. The allocation of ammunition is determined by using two ammunition supply rates. The two rates of supply used in munitions control procedures are the required supply rate and the controlled supply rate. Planners must also consider the ammunition requirements of other services and coalition members when computing the required supply rate and controlled supply rate. (See ATP 4-35 for more information on computing ammunition rates.)

SHIFTING TASK ORGANIZATION

7-15. Effective UO require task-organizing different capabilities at lower echelons than is common for operations in other environments. This generally results in having mixed units containing vehicles, weapons, and other equipment that are not organic. This can place great strain on the brigade's ability to sustain its forces. When commanders are tasked to detach an element from their unit, they must ensure that the appropriate supplies and sustainment capabilities are sent with attached element. They can also request additional sustainment support from higher echelons, including sustainment planners familiar with the requirements of these elements. Sustainers must ensure that they account for all forces in their planning. They must also remain adaptable to changes in task organization that were not part of the plan.

INCREASED CASUALTIES

7-16. As described in the previous section, forces engaging in UO tend to have casualties at greater rates than in other environments. In addition to requiring additional medical supplies, such as bandages, tourniquets, and tape, they will require a robust Class VIII resupply system that delivers to the Role 2 and Role 1 medical treatment facilities, combat medics, and combat lifesavers (CLS) on the front lines. Units will likely need to

employ more CASEVAC and medical evacuation (MEDEVAC) methods and assets than normal. This includes having additional litters, vehicles, aircraft, and treatment sites on hand to support as required. CASEVAC is a unit-level responsibility. CASEVAC crews and litter teams should be properly trained to prevent further injury. Staffs will need to develop thorough and innovative plans with contingencies that have been rehearsed to ensure MEDEVAC processes are integrated and synchronized and that dedicated MEDEVAC and CASEVAC platforms of opportunity are not overwhelmed. This may include working with civilian providers, HN medical services, and multinational partners to integrate their capabilities into the plan.

7-17. Units regularly receive casualties in hard-to-reach areas such as within buildings or underground. This forces units to carry casualties by hand for extended distances, around obstacles, up and down stairs, and through narrow hallways to get to a location that a vehicle or helicopter can access. Providing trained aid and litter team support physically burdens and overly exerts Soldiers thereby depleting combat power. Closely spaced buildings, power lines, and enemy air defense capabilities may prevent helicopters from landing near the point of injury. This may force staffs to think of unconventional solutions to ensure timely evacuation of casualties. For example, a building rooftop may be the best location to pick up casualties for evacuation by air as long as there is internal access, it is flat, and there are no other obstructions like climate control vents or antennas. Soldiers may have to hoist casualties out of a window or collapsed stairway to ensure they get to the ground safely, requiring training and equipment they would not normally carry.

7-18. Combat operations among a civilian population is going to result in civilian casualties despite efforts to protect them. Ignoring civilian casualties will turn the population against the military force, but the numbers of potential casualties can overwhelm available assets even quicker. Threats may even target civilians specifically to create dilemmas and draw combat power away. In addition, there can be legal issues regarding the type and amount of care the force can provide to civilians. Commanders and staffs must have a plan to deal with these challenges so that they can mitigate them without pulling focus away from the larger mission.

Reduced Mobility

7-19. The same terrain characteristics that restrict maneuver units can have an even greater effect on support elements. Larger vehicles may not fit on small streets through underpasses, or beneath overhead wires, reducing the routes available between locations. This can make resupply routes predictable and vulnerable to attack, especially when moving between noncontiguous areas of operation. Unmanned ground vehicles can provide units with the ability to resupply in restricted terrain while in and out of contact. Unmanned ground vehicles can transport Class IV, Class V, and heavy weapon systems such as mortar systems, heavy machine guns, and anti-tank weapons. The standard tactical trucks that sustainment elements use to transport supplies are generally better suited to traversing city streets than tanks and other combat vehicles; however, they are less capable of dealing with rubble and other obstacles common to a major urban fight. In addition, standard tactical trucks are not always armored and are susceptible to enemy weapons systems. Depending on the nature of the threat within defensive positions, units may have to allocate combat power to escort sustainment elements or even use armored vehicles to move key supplies. Either of these options strip combat power away from the urban battle's frontlines. Brigade commanders and planners will have to achieve the balance. This also makes vehicle recovery and CASEVAC extremely challenging. Forces may have to use engineers to create lanes or use like-vehicle recovery to position disabled vehicles where dedicated recovery assets can reach them. When possible, leaders must reconnoiter planned supply routes prior to conducting large movements.

Increased Vulnerability

7-20. The density of urban terrain and its population can allow enemy units to move undetected. This can facilitate attacks on support areas and lines of communication that would have been more difficult in other environments. Leaders should never consider a route secure as the numerous covered and concealed avenues of approach available to enemy forces make it easy for a small force to move into previously cleared terrain. In addition to enemy forces, criminals, gangs, and local security forces can disrupt sustainment operations. All elements must be prepared to defend themselves at all times. This requires units to place additional focus and resources on securing assets and nodes in their rear areas. This also reduces the combat power available for other operations but may be critical for continuing operations over extended periods. Commanders must

deliberately assess sustainment elements' ability to secure themselves versus using combat power to escort sustainment elements.

SUPPLEMENTATION OPPORTUNITIES

7-21. Though Army units are designed to operate and sustain themselves using Army systems, forces can supplement their capabilities using civilian systems and infrastructure. This can provide access to additional supplies, services, personnel, and facilities. In some circumstances, it may simply be more convenient to procure support through contracting or otherwise working with the civilian population. In others, integrating civilian capabilities might be essential, such as when isolated from sources of sustainment due to enemy action or other factors. In all cases, commanders should confirm that any intended actions are legal given the specific context of the situation, especially if it would deny the population a vital resource.

SECTION II – SUPPORT AREA ORGANIZATION

7-22. A support area is the portion of the commander's assigned area designated to facilitate the positioning, employment, and protection of assets required to sustain, enable, and control operations. As dense urban terrain restricts movement, a consolidated support area away from the forward lines will likely be unable to sustain the fight. Instead, commanders should try to establish multiple support nodes positioned as close to the forward lines as possible. This allows sustainers to respond quickly to changing circumstances and requirements but brings its own challenges. Support areas should be positioned so that they have good access to road networks, both forward in support of maneuver units and rearward to higher echelons of sustainment. There are challenges that commanders need to work through to provide force protection during continuous operations to distributed support nodes, compared to the easier to secure and bigger consolidated support areas.

7-23. Moving sustainment nodes closer to the forward lines generally makes them more vulnerable to enemy attack. While this is still true in urban areas, using hardened structures to conceal sites and protect them from enemy fires can help mitigate this. The increased vulnerability of all sustainment elements in rear areas means there is less of a distinction in risk between units positioned forward and those further back. This may also increase the distance from higher echelon sustainment nodes, increasing the risk to logistics packages moving to or from those locations.

7-24. The established infrastructure within an urban area might facilitate logistics, maintenance, and medical support operations; however, these are rarely in the same location. City planners generally place warehouses and factories away from population centers, but hospitals nearby. They may also be too far away or lack an adequate road network to facilitate rapid movement between them and the units engaging enemy forces. Commanders will need to decide whether the additional capability or convenience of using existing facilities outweighs other negatives. They must also be able to assess when a site that was perfect for operations early on has outlived its usefulness as the situation has changed.

7-25. The design of brigade sustainment elements is sufficient to operate a consolidated support area; however, it may be challenged to operate at full effectiveness when broken into multiple separate nodes. A commander can request additional personnel and equipment from higher echelons to mitigate this but must be prepared to make do with what the unit has. There may be opportunities to consolidate certain brigade- and battalion-level functions to increase efficiency.

7-26. A large-scale defense will likely be in depth along a perimeter, or a series of noncontiguous strongpoints focused on key terrain. Either requires units to sustain the fight without open lines of communication. The time to plan routes and use of interior lines will help mitigate many of the challenges above, but planners will now need to anticipate requirements and determine how to position all required sustainment nodes, equipment, and supplies within the perimeter.

SECTION III – LOGISTICS

7-27. Urban areas present many challenges for logistically supporting combined arms formations. Mitigating these challenges requires planners that can balance the need to anticipate future requirements with the flexibility to react to the changing situation and take advantage of opportunities. In most cases, waiting until a unit requires something before acting will result in failure. Maintaining momentum and freedom of action requires continuous coordination between the supported unit and logistical element. This communication includes current and predicted (72 to 96 hours out) assessments of equipment and supply requirements, consumption rates, changes to task organization, and the best pickup and delivery locations.

7-28. During offensive operations, the most important materiel and services are typically water (Class I), fuel (Class III bulk), ammunition (Class V), major end items (Class VII), movement control, and MEDEVAC. Lengthening lines of communication, widely dispersed forces, and congested road networks increase stress on transportation systems. Forward positioning of supplies and equipment is often essential for responsiveness, but this can also cause items to be out of position if needed by a different element than anticipated. A limiting factor for combined arms formations is that armored vehicles will only be able to conduct operations for about eight hours before requiring additional fuel. Plans must identify periods where vehicles can rotate out of the fight to refuel. Due to the challenges posed by the urban environment, units must take advantage of every opportunity to refuel. For instance, leaders can't assume current fuel levels will carry them through to the next scheduled logistics package thereby passing up opportunities to refuel. This can create an unforeseen requirement that can't be met in one logistics package. Units can expend ammunition even faster. Planners will need to establish controlled supply rates, particularly for precision munitions, and consider whether to push logistics packages forward or rotate forces out of the fight. Both have their risks, but any option must support the tactical plan. Logistics planners must fully understand the plan and be in position to recognize and anticipate the effects of changes during execution.

7-29. During defensive operations and even offensive attempts to encircle an enemy force, the most important materiel and services are typically building material (Class IV), ammunition (Class V), movement control, and MEDEVAC. Based on planning assessments, commanders direct the positioning of these and other support to meet anticipated requirements. Planners may need to look for ways to use air, water, and subterranean movement to get supplies to isolated forces. Maps of the changing urban landscape quickly become outdated, but aerial imagery can provide more up-to-date route information and reduce navigation errors. Logistics elements may have to support recovery, displacement, and resupply simultaneously. Cache and prepositioned drop positions of supplies at subsequent positions can help alleviate the resupply stress for displacing forces. Barrier materials such as sandbags, concertina, and sniper screens baskets are examples of bulk material loads that fill many lift assets. Planners must consider when to sequence these force protection loads versus other important material.

7-30. Units consume water at greater rates conducting UO and require it for uses ranging from drinking to personal hygiene to firefighting to CBRN decontamination. Modern cities will have the infrastructure to distribute water throughout; however, water purification standards can be a problem. These systems are also susceptible to damage, loss of power, and contamination, so units need to ensure they can continue to provide potable water to all elements without relying on civilian infrastructure. They may also have to supplement this infrastructure to support noncombatants in the area. Units should prioritize control of civilian water purification sites as securing and integrating with them will provide the best options to provide potable water to large numbers of people. Most cities lie along a body of water, so water purification units can draw from lakes, rivers, or even the ocean. Commanders and planners must plan to conduct bulk water exchanges and request reverse osmosis water purification unit and tactical water purification system support from the division sustainment support battalion. Whatever the conditions, units must have plans to draw, treat, and distribute water throughout operations (see ATP 4-44 for additional techniques and planning considerations for water support operations).

7-31. When conducting support area planning, look for large, open warehouses to serve as logistics centers. Units will likely find their construction facilitates the reception, storage, and distribution of supplies. They may even have equipment on hand to make loading and unloading easier, such as forklifts and cranes. On the other hand, they generally have thinner walls and roofs that cannot withstand direct and indirect fires. Other good options include airports, seaports, bus stations, subways, and other transportation hubs.

7-32. Operational contract support is the process of planning for and obtaining supplies, services, and construction from commercial sources in support of combatant commander-directed operations (JP 4-10). Commercial support can provide cost effective surge capability and skills not organic to the unit, such as translators. While varying in scope and scale, operational contract support is a critical force multiplier across all phases and types of operations. Sustainment commanders and staffs need to be able to plan for, integrate, execute, and manage contracts and contractor personnel within the operational environment. The dynamic operational environment requires an agile, flexible approach to contracting. Planners should conduct risk analysis for operational contract support and consider operational risk, contractor risk, as well as performance, schedule, and cost risks. Army theater sustainment command and expeditionary sustainment command play a key role in planning and execution of operational contract support actions. As the senior requiring activity for sustainment-related operational contract support, these units provide expertise to planning activities. Theater sustainment commands and expeditionary sustainment commands provide guidance on developing acquisition-ready requirements packages for what are commonly called theater-wide support requirements. There are second order effects when using commercial support such as local population employment and economic stimulation. Integrating contractor personnel and their equipment into military operations can be a significant challenge. Contractor challenges involve additional mission risk when compared to utilizing organic support capabilities, such as potential loss of flexibility, additional force protection and security-related requirements. Additionally, the commander has limited authority to keep contractor personnel on the job, when compared to military members, a fact often not understood by operational commanders and their staffs. (See ATP 4-10 for additional information on operational contract support.)

SECTION IV – MAINTENANCE AND VEHICLE RECOVERY

7-33. The dense urban terrain hinders maintenance and recovery operations, so units will need to develop plans to mitigate these challenges to get damaged vehicles and equipment to safe locations to conduct repairs and get them back into the fight. The urban infrastructure can also provide capabilities not normally available outside of garrison. Forces may be able to secure the use of established heavy equipment maintenance bays complete with vehicle lifts, pulley systems, and the right power hookups. During stability operations, units may be able to establish contracts with local businesses to fabricate parts and provide skilled labor.

7-34. The Army utilizes a two-level maintenance system comprised of field- and sustainment-level maintenance. The goal of the maintenance system is to reduce repair times by repairing or replacing components, modules, and assemblies as far forward as possible. Field maintenance gets damaged equipment back into service and identifies sustainment-level requirements to transport back to supporting stateside facilities. The lower echelon combined arms task organization that is most effective for UO generally results in mixed units containing vehicles and equipment that are not organic. Maintaining this equipment can require special knowledge, supplies, and tools not resident in the formation. Commanders can help mitigate this by ensuring that the attached units come with appropriate maintenance capabilities. They can also request additional maintenance support from higher echelons. Maintenance surge teams can provide a temporary capability to accelerate repairs and provide maintenance depth and flexibility for critical operations. The urban environment can make it challenging to continue the quality assurance/quality control process by unit mechanics; however, this additional check on operator maintenance is critical to ensure appropriate attention to the maintenance and readiness of the fleet.

7-35. Vehicle recovery in urban terrain is a high-risk operation. Commanders and leaders at all levels must conduct a continuous risk assessment prior and throughout the recovery operation as some recoveries can take numerous hours to complete in very contentious areas. Risk factors include the experience of Soldiers, terrain, climate, and the situation or combat operation. (See ATP 4-31 for more information on risk during recovery operations.)

7-36. Restricted mobility and the prominence of close-range engagements will challenge elements attempting to recover damaged vehicles and other equipment; however, leaving damaged vehicles in place further impedes mobility. Units will need to find ways to overcome these challenges to sustain the force and maintain the initiative. This is another situation when pushing sustainment nodes such as the maintenance collection point close to the front is helpful, even if it exposes them to greater risk. Basing operations out of a large, sturdy structure can help mitigate some of this risk.

7-37. Units may be able use civilian wreckers to supplement organic assets. While these may have the torque and hauling capacity to recover combat platforms, they will likely lack even the basic protection capabilities of their military equivalents. This may only be feasible during the later phases of stability operations when enemy contact is unlikely.

SECTION V – HEALTH SERVICE SUPPORT

7-38. The increased casualties and patients common during UO will challenge the unit's casualty response and health service support capabilities. This requires that a unit's casualty response, which is a unit leader responsibility, be in synchronization with the unit health service support and force health protection medical plans, which are a medical responsibility. This synchronization will allow a better understanding and handling of increased casualty and patient volumes while continuing to be responsive to operational requirements.

CASUALTY RESPONSE

7-39. The tenets of casualty response are self-aid or buddy aid (nonmedical casualty responders, including CLS and aid and litter teams), medical treatment (combat medic), and leader responsibilities (planning, security, scene control, establish a CCP, monitor personnel, casualty movement, reporting requirements, and coordination of evacuation). These casualty response tenets do not change and must be rehearsed and executed to ensure the greatest survivability and return to duty on the battlefield.

7-40. The operating distance away from its higher headquarters makes the treatment and evacuation of casualties two of the most difficult tasks that organizations execute. To ensure successful handling of casualties, units should specifically allocate adequate assets to the platoon and company level to assist in casualty treatment and evacuation. Platoon medics evaluate sick Soldiers, treating and evacuating them as necessary. For further discussion on patient treatment, see ATP 4-02.4 and ATP 4-02.6.

7-41. A *casualty* is any person who is lost to the organization by having been declared dead, duty status—whereabouts unknown, excused absence-whereabouts unknown, missing, ill, or injured (JP 4-02). Casualty response includes the production, dissemination, coordination, validation, and synchronization of information regarding each casualty. This information includes casualty reporting, casualty notification, and casualty assistance. Once a casualty has deceased, they become human remains and should be separated from other casualties in the process. The requirements for handling human remains are different and specifically explained in ATP 4-46.

7-42. Tactical combat casualty care (TCCC) is the deliberate integration of tactics and medicine to treat casualties during combat (JP 4-02). The unit SOP and operation order should address TCCC procedures and CASEVAC in detail to include aid for chemical casualties with particular emphasis on lifesaving tasks. The SOP should cover the duties and responsibilities of essential personnel, the evacuation of CBRN contaminated casualties (on routes separate from non-contaminated casualties), and priority for operating essential weapons and positions. The SOP should specify preferred and alternate methods of evacuation, and the SOP should make provisions for retrieving and safeguarding the weapons, ammunition, and equipment of casualties. Slightly wounded personnel are treated at the appropriate role of care and returned to duty as soon as possible. CASEVACs and MEDEVACs should be rehearsed like other critical parts of an operation.

MASS CASUALTIES

7-43. Unit casualty rates can quickly exceed planner expectations when fighting in urban areas. Sudden increases in casualties can overwhelm organic medical assets and produce a mass casualty (MASCAL) situation. Units must develop comprehensive MASCAL response plans to mitigate their impacts. MASCAL plans facilitate efficient use of available nonmedical and medical assets to triage, treat, and evacuate casualties and patients to the appropriate role of medical care. These MASCAL plans should also describe how to search for and recover casualties separated from the main force, including those within damaged or collapsed structures on, above, or below the surface. These plans combine with unit standard operating SOPs to define specific duties, responsibilities, and expectations for Soldiers and leaders. All elements should rehearse MASCAL procedures prior to conducting UO (See ATP 4-02.4, ATP 4-02.6, and ATP 4-02.13 for additional information.)

CASUALTY EVACUATION

7-44. *Casualty evacuation* is the unregulated movement of casualties that can include movement both to and between medical treatment facilities. (FM 4-02). Since CASEVAC operations can reduce combat power and degrade the efficiency of the AHS, units should only use CASEVAC to move Soldiers with less severe injuries when MEDEVAC assets are overwhelmed. Planners should ensure CASEVAC operations are synchronized with the medical support plan in the operation plan or operation order. Unit leaders should preplan, equip, coordinate, and rehearse CASEVAC operations from point of injury to CCPs where dedicated medical assets can take over. The CASEVAC plan should ensure aid and litter teams are familiar with litter handling techniques and actions around a CCP and battalion aide station where casualties are delivered to include triage categories.

7-45. CASEVAC in urban area is labor-intensive. Manual aid and litter teams may need to traverse extended distances up and down stairs and across hallways, low walls, rubble, and other debris to get to a location that a vehicle can reach. Units can mitigate this by having litter teams that are large enough to rotate personnel or establishing a litter shuttle system to reduce the distance litter teams have to carry the wounded or injured Soldiers. Both reduce Soldier fatigue with a cost in additional personnel. Effective CASEVAC planning should identify covered evacuation routes (such as through buildings or subways) and incorporate noticeable landmarks to assist with navigation and serve as rest stops and CCPs.

7-46. Commanders should assess risks related to the usage of aerial MEDEVAC versus the use of ground nonmedical CASEVAC vehicles. Due to the hazards of overflight, commanders may need to limit the usage of aerial MEDEVAC to the battalions' Ambulance Exchange Points and rearward. It may be advantageous for commanders to use nonmedical CASEVAC vehicles from point of injury to ambulance exchange points because of the complex environment of urban terrain. This may still require dedicated engineer elements to clear rubble so that the ambulances can reach CCPs. Units can plan helicopter landing zones and ambulance exchange points outside built-up areas for greater security and access (see ATP 4-02.13 for additional information). Table 7-1 contains additional CASEVAC planning considerations.

Table 7-1. Casualty evacuation planning considerations

Casualty Evacuation Tasks	*Assumptions*	*Plan, Coordinate, and Prepare*
Manual carries (one- and two-Soldier) Litter carries (two- and four-Soldier) Casualty transport via nonmedical vehicles.	Delays in locating, acquiring, treating, and moving casualties from the point of injury to established CCPs. Delays in moving casualties from established CCPs to the extraction point causing the prolonged care of casualties. Extracting casualties from large buildings and subterranean areas may be a lengthy process.	Develop and rehearse CASEVAC and prolonged care plans and SOPs. Include mitigation for navigation challenges. Coordinate and exercise the plan with supporting (organic and area support) medical assets. Conduct refresher training for TCCC Tier 1 self-aid and buddy aid tasks and Tier 2 CLSs. Train and equip more TCCC Tier 2 CLSs to ensure one per team or squad. Establish, equip, train, and rehearse dedicated non-medical aid and litter teams. Use all available nonmedical ground vehicles and aircraft to transport casualties. Engineer support to train unit personnel on rigging and extraction techniques (vertical lifting and lowering) for casualties. Engineer support to clear or make entry and exit points to speed evacuation of casualties.
Legend: CASEVAC—casualty evacuation; CCP—casualty collection point; CLS—combat lifesaver; SOP—standard operating procedure; TCCC—tactical combat casualty care		

CASUALTY RESPONSE PLANNING CONSIDERATIONS

7-47. A comprehensive casualty response plan will include instructions for casualty response, MASCAL, and CASEVAC operations. For more information on casualty response and evacuation refer to ATP 4-02.4, ATP 4-02.6, ATP 4-02.13, and the unit tactical SOP. Planning considerations include the following:

- All Soldiers should be trained in TCCC Tier 1 tasks and the use of their individual first aid kit.
- Unit leader with attached combat medics validates training by spot checking during precombat check/precombat inspection.
- Trained TCCC Tier 2 CLS should be at the squad and team level.
- Unit combat medics should validate TCCC Tier 2 skills and give specific instructions to each CLS.
- Trained nonmedical aid and litter teams should be available.
- A pool of nonmedical personnel able to perform duties on aid and litter teams is established.
- CCPs should be predesignated along the axis of advance or evacuation routes and are coordinated by the unit first sergeant.
- CCPs are a unit leader responsibility:
  - CCP operations should be rehearsed at echelon.
  - As available, units should also augment with combat medics and trained CLS.
- Unit has trained nonmedical and medical personnel to handle reacting to a MASCAL situation.
- The casualty response plan (casualty response, MASCAL, CASEVAC, and CCPs) should be planned and rehearsed with organic and attached operational medicine forces.
- Unit leaders should know the procedures for replenishing expended Class VIII from the individual first aid kit and CLS medical equipment set.

ARMY HEALTH SYSTEM PLANNING CONSIDERATIONS

7-48. Even though health service support is aligned with sustainment, force health protection aligned with protection is of equal importance. The entire AHS should be considered when conducting UO. A comprehensive AHS support plan will include instructions for health support service (including direct patient care, evacuation, logistics), and force health protection (including operational public health, combat and operations stress control, dental services, veterinary services, and medical laboratory services). Organic and area support medical assets supporting the brigade and below include the following:

- The battalion Role 1 medical platoon's and section's headquarters section (Class VIIIA only, no blood support capability).
- The battalion Role 1 medical platoon's and section's treatment squad and combat medic section; and Role 2 brigade support medical company, medical treatment platoon, and Role 2 medical company (area support) area support medical treatment platoon for medical treatment.
- The battalion Role 1 medical platoon's and section's MEDEVAC squad, Role 2 brigade support medical company’s evacuation platoon, Role 2 medical company area support's ambulance platoon, and medical company (ground ambulance) for ground MEDEVAC and en route care.
- Medical logistics support from the Role 2 brigade support medical company brigade medical supply office and medical company area support providing Class VIII and limited biomedical repair capabilities.
  - The EAB medical logistics company’s forward distribution and contact repair teams may be attached.
  - They provide more robust Class VIII, blood product, and biomedical repair capabilities.
- Operational public health support from the Role 2 brigade support medical company preventive medicine section and EAB preventive medicine detachment.
- Behavior health support from the Role 2 brigade support medical company behavior health section and EAB combat and operational stress control detachment.
- Dental services from the Role 2 brigade support medical company dental team and EAB dental company (area support) forward support treatment section.
- Veterinary services from the EAB veterinary services detachment's veterinary services support team or veterinary medical and surgical team.

7-49. See Table 7-2 on pages 161 and 162 for a list of planning considerations for AHS support in UO.

Table 7-2. Casualty evacuation planning considerations

Medical Function	*Assumptions*	*Plan, Coordinate, and Prepare*
Casualty response and medical treatment (organic and area support) (reference ATP 4-02.4 and ATP 4-02.6)	• Medics unable to get to wounded. • Increased number of crush injuries, fractures, and concussive injuries from falls and explosions within confined spaces. • Increased patient estimates due to conducting subterranean operations. • Delays in acquiring and treating patients. • With the potential of prolonged care, the Role 1 and Role 2 should expect an increase in mortality from wounds. • Potential for high CBRN patient rates and exposure to TIM. • Units operating in close proximity can share capabilities to reduce redundancy, focus security efforts, and allow for additional capabilities further forward. • Units will treat injured noncombatants IAW the established eligibility of care policy.	• Reliance on TCCC Tier 1 and Tier 2 skills. • Establishing CCPs in structures. • Additional medical treatment assets deployed forward. • Establishing BAS (Role 1) and BSMC (Role 2) MTFs in an UO. • BSMC treatment platoon support. • EAB MCAS medical treatment squad and team support. • FRSD surgical support. • EAB medical evacuation support. • EAB COSC support. • EAB blood support. • CBRN patient decontamination support. • CIVCAS support. • Conducting prolonged care operations. • Conducting medical support to subterranean operations.
Casualty and medical evacuation (to include medical regulating) (reference ATP 4-02.2 and ATP 4-02.13)	• Delays in acquiring, treating, and extricating patients from structures. • Structures, power lines, and debris will limit LZ options. • Local traffic patterns can impede military movement.	• Additional organic and area support ground and air ambulance support. • Establish LZs, ALPs, AXPs, and evacuation routes. • Use of nonmedical aid and litter teams • Engineer support (see table 7-1).

Table 7-2. Casualty evacuation planning considerations (continued)

Medical Function	*Assumptions*	*Plan, Coordinate, and Prepare*
Medical logistics (to include blood management) (reference ATP 4-02.1)	• High patient rates consume existing Class VIII and blood supplies at higher rates that will exhaust on-hand supplies. • Cannot rely on civilian water distribution systems, especially in high-intensity conflict, as they are susceptible to damage, loss of power, and water contamination.	• Increased quantities of Class VIII. • IFAK and CLS resupply • Battle dressings. • Tourniquets. • IV fluids. • IV starter sets. • IV needles. • Pain medications. • Blood products. • Prepackaged Class VIII consumables to push forward with litter teams as needed. • Fresh water distribution.
Force health protection COSC, operational public health, and veterinary services medical functions (reference ATP 4-02.4, ATP 4-02.6, and ATP 4-02.8)	• Increased rates of combat and operational stress reactions. • Increased gastrointestinal disease due to local food consumption and difficulty maintaining field hygiene and sanitation. • Need for MWD animal care. • Need for food protection.	• Additional EAB COSC support • Additional EAB operational public health support • Use of unit field sanitation teams • EAB veterinary service support for MWD, food protection, and veterinary public health.
Legend: ALP—ambulance load points; ATP—Army techniques publication; AXP—ambulance exchange points; BAS—battalion aid station; BSMC—brigade support medical company; CBRN—chemical, biological, radiological, and nuclear; CCP—casualty collection point; CIVCAS—civilian casualties; CLS—combat lifesaver; COSC—combat and operational stress control; EAB—echelons above brigade; FRSD—forward resuscitative surgical detachment; IAW—in accordance with; IFAK—individual first aid kit; IV—intravenous; LZ—landing zone; MCAS—medical company (area support); MTF—medical treatment facility; MWD—military working dog; TCCC—tactical combat casualty care; TIM—toxic industrial material; UO—urban operations		

7-50. Urban areas can provide additional options for units attempting to place their own Role 1 or 2 medical capabilities. Standard practice is to set up medical treatment facilities and other nodes in tents; however, structures can provide greater protection. They can also provide sources of reliable power, clean water, and effective drainage. Established clinics, offices, hotels, and schools often have the right characteristics for an effective medical facility. Units should look for locations that are easy to defend, sanitary, facilitate casualty download under cover, and enable triage and separation of patients by category.

7-51. Cities often have their own medical facilities that can have Role 1, 2, or 3 capabilities. Civilian hospitals can aid units requiring quick access to higher levels of care; however, the legal issues may prohibit their use. These facilities may also serve as collection points for civilians seeking treatment or protection during the conflict. In addition to the potential legal issues, securing civilian medical facilities for military use will likely reduce support among the civilian population, especially if this use reduces or denies access for civilians. Units may even need to supplement civilian medical treatment capabilities overwhelmed by large numbers of civilian patients in accordance with the ROE and established eligibility of care policy.

DISEASE AND NONBATTLE INJURIES

7-52. Disease and nonbattle injuries (DNBIs) generate significant combat ineffectiveness. History has shown that more Soldiers are lost due to DNBIs than to combat wounds. Commanders and unit leaders are responsible for protecting and preserving personnel against becoming a casualty from risks such as communicable and vector-borne diseases, food- and waterborne diseases, hearing and vision injuries,

venomous or toxic flora and fauna, musculoskeletal injuries from combat operations, occupational illness and injury and environmental injury (for example, heat, cold, humidity, and significant elevations above sea level). Casualties can also occur in the urban environment due to shattered glass, falling debris, rubble, ricochets, and falls from heights. Soldiers who do not become DNBI casualties remain part of the fighting force. Therefore, by minimizing the number of DNBI casualties, Soldiers and leaders can focus on accomplishing the mission.

7-53. Army policy stated in AR 11-35 requires commanders to provide timely assessment of occupational and environmental health risks to personnel under their command. To counter the health threat, comprehensive medical surveillance activities and individual preventive medicine measures, must be instituted and should receive command emphasis. Preventive medicine measures are those actions taken to counter the health threat and to prevent DNBIs. These measures include proper field sanitation practices, pest and vector control, disease risk assessment, proper waste disposal (human, hazardous, solid wastewater, and medical), food safety inspection, and potable water surveillance. The application of basic preventive medicine measures reduces and, in some cases, eliminates the incidence of DNBIs. However, the success of reducing or eliminating DNBIs depends upon commanders and unit leaders who are charged with protecting the health and safety of their Soldiers, as well as upon the individual Soldiers who are responsible for executing prescribed individual preventive medicine measures. (See ATP 4-02.8 for more information on DNBI prevention.)

SECTION VI – PERSONNEL SERVICES

7-54. While most personnel and financial services remain unchanged when operating in urban areas, there is increased demand for legal and religious support. Personnel services include planning, coordination, and sustaining personnel efforts at the operational and tactical levels. (See ADP 4-0).

LEGAL SUPPORT TO OPERATIONS

7-55. While commanders must always consider the legal implications of their actions, the urban environment can multiply the consequences of those actions. The need to work closely with forces from other countries, local governance and security elements, nongovernment organizations, and contractors can blur the lines of authority. The kinds of actions that are acceptable when dealing with the civilian population can also vary widely based on the situation. All of this greatly increases the requirements for sound legal advice informed by an accurate knowledge of U.S., international, and host-nation laws.

7-56. International law consists primarily of agreements, treaties, and customary law to include the law of armed conflict. The law of armed conflict describes five general principles applicable when conducting any operation but requiring particular attention during UO (see FM 6-27 for more information). Three interdependent principles, military necessity, humanity, and honor provide the foundation for other derivative principles such as distinction and proportionality. Other international laws affect urban operational issues, such as the right of entry, base operations, use of urban infrastructure, and overflight and landing rights. Outside of armed conflict, status-of-forces agreements help clarify legal issues concerning Soldiers (and as necessary, contractors) operating in foreign areas. These issues can include criminal and civil jurisdictions, taxation concerns, and claims for damages and injuries. Unless a status-of-forces agreement or other convention exists, Soldiers operating in foreign urban areas are subject to the laws and judicial process of the HN. During armed conflict, Soldiers have rights afforded to them by the Geneva Conventions. Commanders are responsible for understanding the international and host-nation agreements and laws that influence foreign UO.

7-57. International, host-nation, and U.S. law and other regulatory guidelines have different jurisdictional restrictions. Often these laws and guidelines vary in their applicability in aspects such as time, place, manner, method, and actor. Actions permissible in one jurisdiction may be prohibited in another. Such exceptions and complexities increase requirements for staff judge advocate support, often working with civil affairs personnel, to identify and resolve technical legal issues. Commanders may encounter civilian resistance groups whose actions can range from providing enemies with logistics support to actively fighting friendly forces. Friendly forces take actions with lawful orders in accordance with applicable provisions of the law of armed conflict. Effective commanders seek legal guidance from their designated judge advocate concerning activities or actions they take involving collateral damage or lethal force.

7-58. Contractors authorized to accompany the force provide various sustainment functions for the Army. These functions may range from providing unskilled labor, transportation support, and health care to technical support of sophisticated equipment and weapons systems. Commanders should ensure that they do not place these contractor employees in their assigned areas in positions of jeopardy and distinguish them as noncombatants to prohibit any intentional attacks. The contractors must also understand the risks that they assume when they engage in activities that might be misconstrued as direct or active participation in hostilities.

7-59. The staff judge advocate actively advises and participates in all aspects of UO from pre-deployment training and initial planning through transition and redeployment. They advise, assist, and educate commanders with their understanding of international, domestic, and host-nation legal, political, and cultural laws, regulations, and authorities to empower commanders at the point of decision. This can take the form of legal training, legal advice during planning, and legal reviews of actions prior to execution. Legal instruction and training help leaders and their Soldiers better understand the ROE and enables them to make rapid decisions as situations in complex urban environment often require.

RELIGIOUS SUPPORT

7-60. The unit ministry team consists of a chaplain and a religious affairs specialist. The chaplain serves as a personal staff officer with direct access to the commander. Unit ministry teams perform religious support operations for commanders to protect the free exercise of religion for all assigned or attached Soldiers, family members, and authorized civilians. This includes the personal delivery of rites, sacraments, ordinances, pastoral and spiritual care, and religious education. The unit ministry team also provides religious, moral, and ethical advisement to the command as they impact both individuals and the organization’s mission. During mission analysis, unit chaplains can assist by assessing the impact of local religions and culture on the mission. This can include providing information regarding influential figures and key cultural sites within the urban area. They may also have particular insight on threat courses of action and population response to particular actions.

7-61. Unit chaplains can advise commanders regarding the ethical impacts of command decisions. Though commanders should always take action to protect civilians during conflict, the density of civilians in urban areas greatly increases the likelihood of civilian casualties during any lethal action. This combined with the high casualty rates associated with urban combat can have a significant negative effect on Soldiers. Timely and effective counseling can help reduce or prevent long-term psychological effects.

Appendix A

Urban Patterns and Terrain Features

Urban terrain consists of complex man-made physical terrain superimposed on existing natural terrain. This physical terrain consists of structures of varying types, sizes, materials, and construction. It is sometimes arranged in an orderly manner and other times seemingly randomly. In addition, it may be modern or built around an ancient core, contain towering buildings, or have none over three stories. Buildings, streets, and other infrastructure have varied sizes, forms, and patterns. These combine in various ways to make it difficult to describe a "typical" urban area. Though every urban area is different, there are general characteristics that cities share and patterns that emerge due to underlying principles of effective city design. Geographic characteristics of urban terrain include urban patterns, functional areas, street patterns, and structures. This appendix describes the operational effects of common patterns and features to assist with terrain analysis.

SECTION I – URBAN PATTERNS

A-1. As groups of urban areas develop, they will tend to form patterns that can affect military operations. Understanding the relationships between the areas within the pattern can help commanders anticipate how actions in one area might affect others around it. This can influence how a commander chooses to shape the environment, the sequencing of actions, and the allocation of combat forces. Urban patterns combined with the adjacent natural terrain affect lines of communication and provide options for a unit to enable or deny freedom of maneuver or exert influence over an area without entry. Four common urban patterns are satellite, network, linear, and segment (see figure A-1 on page A-2).

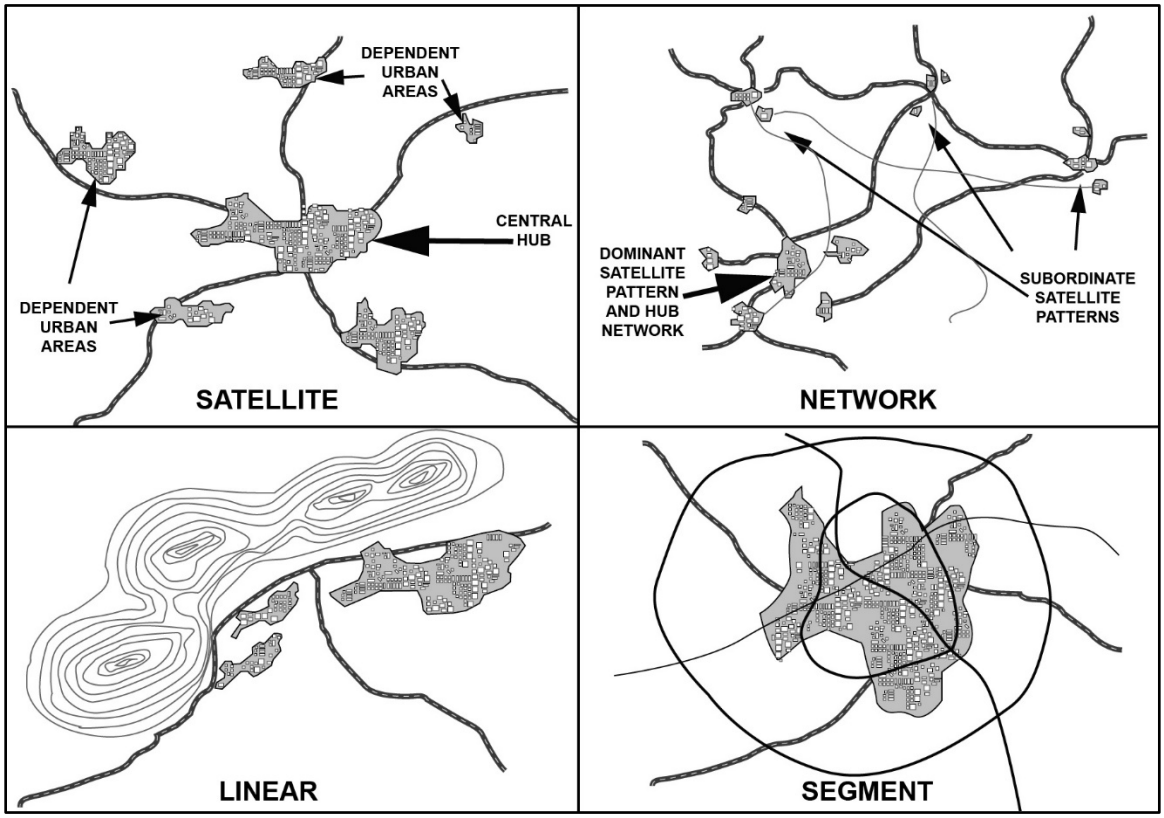


Figure A-1. Common urban patterns

HUB

A-2. Hubs serve as the base for all urban patterns. They are concentrations of structures surrounded by rural terrain. Individual hubs can serve to anchor a defense or as an element of a defense in depth. Hubs serve as obstacles that disrupt or potentially block an attacker's advance. They also tend to funnel forces passing through the hub into a narrower axis that concentrates forces and reduces momentum. Units exiting the hub on the far side will tend to fan out to create space before the full combat power of the unit can assemble. This creates an accordion-like effect that can create opportunities for defenders (see figure A-2). The natural terrain may allow attackers to bypass a hub, but this can also leave them more vulnerable to flank attacks and ambushes along the new axis of advance.

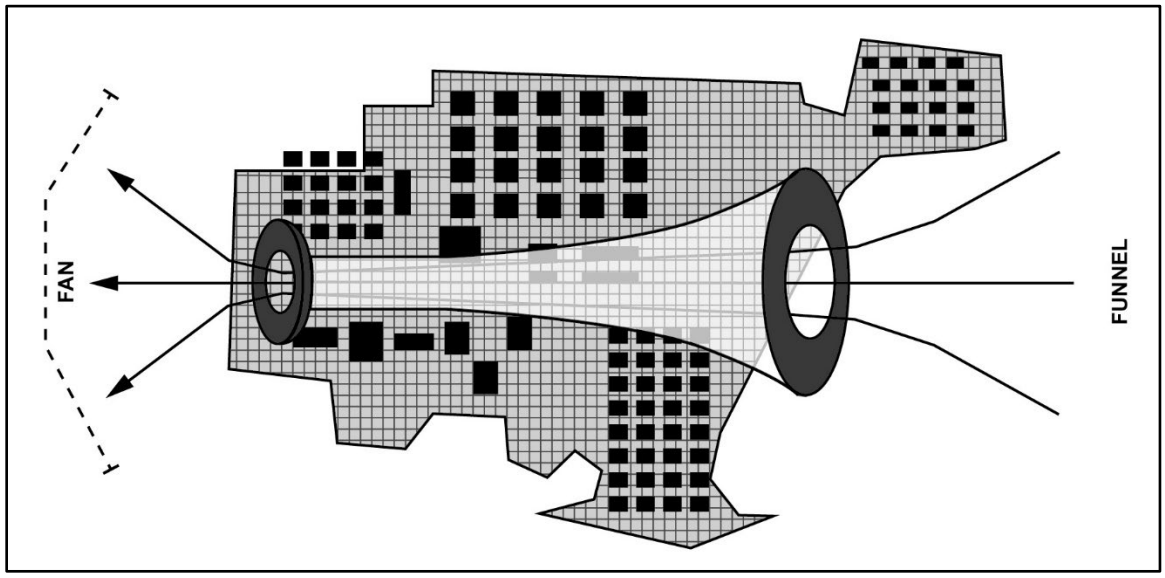


Figure A-2. Funnel-fan effect

SATELLITE

A-3. The satellite pattern consists of a central hub surrounded by smaller, dependent urban areas. Lines of communications converge on the hub. Actions that disrupt the hub are likely to affect the dependent areas, and actions within the dependent areas can have an effect on the hub. These can be physical effects or effects generated through information operations. Units can use the satellites to control the lines of communication back to the hub, exerting influence without requiring direct occupation. Forces positioned in the outlying areas can still reinforce or otherwise support a main force in the hub or serve as mutually supporting battle positions as part of an area defense.

NETWORK

A-4. The network pattern represents the interlocking of the primary hubs of subordinate satellite patterns. Its elements are more self-sufficient and provide less support to each other, although a dominant hub exists. Major lines of communications in a network extend more than in a satellite pattern. These lines of communications take more of a rectangular form than a convergent form with each hub interacting with the others. Its natural terrain varies more than in a single satellite array. Operations in one area may or may not easily influence, or be influenced by, other urban areas in the pattern.

LINEAR

A-5. The linear pattern may form on its own, be one array of the satellite pattern or be found along connecting links between the hubs of a network. Most frequently, this pattern results from stringing minor urban areas along a confined natural terrain corridor such as an elongated valley, a body of water, or a man-made communications route. In offensive and defensive operations, this latter form of the linear pattern helps

develop a series of strong defensive positions in depth effectively blocking or delaying an attacking force moving along the canalized terrain.

SEGMENT

A-6. When dominant natural terrain such as a river or man-made features (canals, major highways, or railways) divide an urban area, it creates a segmented pattern. Although each segment might be an integral part of the whole, the limited lines of communication between them may cause each segment to develop distinct social, economic, cultural, and political characteristics. This creates natural divisions that can serve as unit boundaries. It may also fragment operations and increase risk to an operation requiring mutual support between subordinate units. The segmented parts are more vulnerable to isolation, facilitating defeat in detail or enabling an attacking force to focus on decisive points. The social differences between segments can benefit commanders who have limited assets to influence or control the urban populace. They can focus information operations against specific segments that are decisive while only monitoring other segments for significant changes in the attitudes, beliefs, or actions of the civilians located there. It can also greatly increase requirements if needing to influence multiple segments as effects on one are likely to have reduced effects on the others.

SECTION II – SETTLEMENT CLASSIFICATIONS

A-7. Urban areas are commonly classified according to the general size of their population instead of by their landmass (see table A-1 on page 168). These categories establish common terms for shared understanding when discussing a given city, but do not address the variations between cities with the same population size. Some larger cities have sections that are very dense along with others that are not. Additionally, while population size reflects the numbers within a settlement's defined boundaries, the greater metropolitan area surrounding a city often includes a much larger number.

Table A-1. Settlement classifications

Classification	*Population Range*	*Population Density (km2)*	*Area (km2)*	*Structural Density (M3/km2)*	*Modern Examples*	*Historical Examples*
Homestead	1-10	10	1	Low	Ranch or Farm Compound	
Hamlet	4-4,999	1,250	1-4	Low 500	New Llano, LA (FJLA)	Diersfordt Castle (WWII, 1945)
Village	5K-9,999	1,900	3-5	Low 5K	St. Roberts, MO (FLMO)	
Town	10K-49,999	2,500	5-20	Low-Moderate 50K	Key West, FL (NASKW)	Bastogne (WWII, 1944)
City	50K-99,999	3,100	10-32	Low-Moderate 500K	Manhattan, KS (FRKS)	Aachen (WWII, 1944)
Divisional City	100K-199,999	3,500	20-65	Moderate 1M	Colorado Springs, CO (FCCO)	Hue City (Vietnam War, 1968)
Area City	200K-299,999	4,300	30-70	Moderate 3M	Fayetteville, NC (FLNC)	Incheon (Korean War, 1950) Fallujah (OIF, 2004)
District City	300K-399,999	4,900	40-80	Moderate-High 5M	Honolulu, HI (JBPHH)	Stalingrad (WWII, 1944) Raqqa (OIR, 2017)
Provincial City	400K-499,999	5,500	40-90	Moderate-High 7M	Pierce, WA (JBLM)	Mogadishu (Somali Civil War, 1993)
Regional City	500K-999,999	6,100	40-250	Moderate-High 9M	El Paso, TX (FBTX)	Basra (OIF, 2007)
Metroplex	1M-4,999,999	6,600	40K-100K	High 12-15M	Dallas-Fort Worth, TX	Manilla (WWII, 1944) Mosul (OIF, 2016)
Metropolis	5M-9,999,999	6-10K	40K-50K	Very High 15-18M	Los Angeles, CA	Baghdad (OIF, 2003)
Megacity	10M +	7K +	50K +	Very High 20M +	New York City, NY	

Note: All figures, except population range, are estimates and for illustrative purposes only; each city is unique.

Legend:

CA—California; CO—Colorado; FBTX—Fort Bliss, Texas; FLNC—Fort Liberty, North Carolina; FCCO—Fort Carson, Colorado; FL—Florida; FLMO—Fort Leavenworth, Missouri; FJLA—Fort Johnson, Louisiana; FRKS—Fort Riley, Kansas; HI—Hawaii; JBLM—Joint Base Lewis-McCord; JBPHH—Joint Base Pearl Harbor-Hickam; K—figure in thousands (1K = 1,000); km2—square kilometer; KS—Kansas; LA—Louisiana; M—figure in millions (1M = 1,000,000); MO—Missouri; NASKW—Naval Air Station, Key West; NC—North Carolina; NY—New York; OIF—Operation Iraqi Freedom; OIR—Operation Inherent Resolve; TX—Texas; WA—Washington; WWII—World War II

A-8. While urban areas that fall in the extreme ends of the chart have significant differences and are easily identifiable, the different city types in the middle share many traits and may only be distinguishable by their population. Though only a generalization, the following list describes each classification:

- Homestead: Single-family dwellings with associated buildings in a rural area:
  - These are commonly farms or ranches with large fields around the residence.
  - They are generally not tied into supporting infrastructure with utilities provided by things like generators, wells, and septic tanks.
  - Residents must travel elsewhere for supplies.
  - A homestead can make an effective strongpoint defense with generators and wells providing power and water respectively.
  - They generally reflect the largest settlement that a platoon can manage unaided.
- Hamlet: Small communities or groups of houses in rural areas that have generally not been incorporated as municipalities:
  - Small commercial areas provide for some requirements, but residents must travel elsewhere for more than the most basic supplies.
  - They are generally not tied into supporting infrastructure with utilities provided by things like generators, wells, and septic tanks.
  - Residents must travel elsewhere for supplies.
  - Hamlets can make an effective strongpoint defense or blocking position as part of an area defense.
  - They generally reflect the largest settlement that a company can manage unaided.
- Village: Small communities incorporated as municipalities in rural areas.
  - Small commercial areas provide for some requirements, but residents must travel elsewhere for more than the most basic supplies.
  - Villages are often on choke points, such as in a valley or between high ground and a river, that dominate a single high-speed avenue of approach through the area.
  - Villages can make an effective strongpoint defense or blocking position as part of an area defense.
  - They generally reflect the largest settlement that a battalion can manage unaided.
- Town: Moderately dense urban areas incorporated as municipalities and surrounded either by rural terrain or a larger urban area.
  - Towns are more likely to have centralized distribution systems for power, water, sewer, and other utilities.
  - Towns approach the limit of what a brigade can effectively control, and anything larger will require either additional combat power or a more focused approach.
- City: Moderately dense urban areas incorporated as municipalities that may be part of a larger urban area.
  - Cities are the first type that is large enough to have an established core and may have limited numbers of high-rise buildings.
  - Modern cities also tend to have well established infrastructure.
  - Most cities are too large and too dense for a brigade to effectively seize or secure without additional support.
  - As a planning factor, a city of 50,000 people will require a BCT to clear, whereas a city of 100,000 will require a division.
  - A city is also used as a general term to describe any dense urban area.
- Divisional city: Larger, denser cities that represent the limits of what a division can effectively control.
- Area city: Larger, moderately dense cities that tend to have strong economic and political influence over the surrounding areas.
- District city: Large cities that often serve as district or county seats.
- Provincial city: Large, dense cities that often serve as provincial or state capitals.
- Regional city: Very large cities that tend to have influence over multiple states or provinces.

- Metroplex:
  - Very large, densely populated urban areas consisting of several cities and towns.
  - They tend to be about the same size or slightly larger than metropolises but with less people resulting in lower population and structure densities.
- Metropolis:
  - Very large, densely populated urban areas consisting of several cities and towns.
  - They tend to be about the same size or slightly smaller than metroplexes, but with more people resulting in higher population and structure densities.
- Megacity:
  - Huge, densely populated urban areas consisting of several large cities and towns.
  - There are over 20 megacities in the world, and many estimates show that number approaching 40 by 2035.

A-9. The given population of an urban area is generally an estimate based on census data or extrapolating from a smaller sample; however, the actual number of people in an area at a specific time can vary significantly. The most obvious changes occur with the day-night cycle as the population of an urban area can vary significantly between the two. During the day, people travel to urban centers for work, shopping, religious, or cultural activities. This reduces the populations of outlying and residential areas and increases populations in hubs and commercial, industrial and core areas. At night, the flow reverses as people return to their residences to sleep, though areas focused on entertainment, such as restaurants, theaters, and stadiums, will continue to see activity until late.

A-10. Other events can have a cyclical effect on different areas in different ways. Regions with an agricultural focus experience population shifts based on the seasons. More people are required during planting and harvest seasons (generally spring and autumn), but many will look elsewhere for work during the winter months. Locations with a religious or other culturally significant site may see a surge in population corresponding with a particular holiday or other time of the year. People will tend to migrate into warmer areas in the winter and back to cooler areas in the summer.

A-11. The flow of personnel into and out of an area can have a profound impact on military operations, especially the execution of stability tasks. This makes it critical that leaders understand the cycles that affect their areas of operations. Road traffic peaks during transition periods, particularly between day and night, which can make getting to a location by vehicle at certain times almost impossible. Going to a residence to detain someone when they are at work is not only unproductive, but it can also alert the individual and make subsequent attempts more difficult. Just as some cycles affect different areas in different ways, they may also affect different groups and individuals within the same area in different ways.

A-12. Unexplained interruptions to normal activities can also provide clues regarding enemy activity. For example, an empty marketplace when it is usually full might indicate an enemy ambush in or around that location.

A-13. Another consideration when dealing with the local population is their ability to hinder military operations. Regardless of causes or political affiliations, civilian casualties are often the focal point of press coverage, often to the point of ignoring or denigrating any previous accomplishments. Within the operational continuum, and especially during the conduct of UO, commanders can expect to encounter restrictions on their use of firepower and challenges in their ability to conduct sustainment missions. In the current operational environment, it is unacceptable to leaders and the American population to inflict large numbers of civilian casualties.

A-14. From an intelligence standpoint, the local population can be a valuable information source. Some of the key requirements to identify when analyzing the local population in an urban environment are shown in table A-2 on pages 171 and 172.

Table A-2. Example information requirements for populations

General information

- ■ Identify the values of the urban population.
  - ☐ Family relations.
  - ☐ Religious values
  - ☐ Political views.
  - ☐ Ethnic tribal ties.
  - ☐ Nationalism.
- ■ Identify the current issues/problems facing the urban population.
  - ☐ Economics.
  - ☐ Politics.
  - ☐ Religious conflict.
  - ☐ Crime.
  - ☐ Drug or alcohol addiction.
  - ☐ Ethnic strife.
  - ☐ Housing.
- ■ Assess the history of conflict in the state.
  - ☐ Internal and external.
  - ☐ Recent conflicts.
- ■ Describe the significance of the urban area.
  - ☐ International.
  - ☐ National.
  - ☐ Religious.
  - ☐ Military.
  - ☐ Economic.
  - ☐ Historical.
- ■ Identify key figures in the society.
  - ☐ Government leaders.
  - ☐ Religious leaders.
  - ☐ Military leaders.
  - ☐ Opposition leaders.
  - ☐ Tribal chiefs/elders.
  - ☐ Crime/drug figures.
  - ☐ Other.
- ■ Identify the extent (if any) of anti-American sentiment in each of the following:
  - ☐ Individuals.
  - ☐ Society's privileged.
  - ☐ Lower class.
  - ☐ Government.
  - ☐ Military.
  - ☐ Extremists.
  - ☐ The media.
- ■ Evaluate the city by geographic locations.
  - ☐ Slums and shantytowns.
  - ☐ Areas where criminal gangs operate.
  - ☐ Areas of the city where United States or multinational forces are likely to be unwelcome.
  - ☐ Areas in the city where demonstration or riots typically occur.
- ■ Identify the social aspects/traits of the urban population.
  - ☐ Family structure.
  - ☐ Role of elders.
  - ☐ Role of men.
  - ☐ Role of women.
  - ☐ Role of children.
  - ☐ Opposite sex interaction.
  - ☐ Same sex interaction.
  - ☐ Significance of pets and animals.
  - ☐ Eating habits.
  - ☐ Sanitary practices.
  - ☐ Alcohol and drug use.
  - ☐ Firearm ownership.

Table A-2. Example information requirements for populations (continued)

- Identify the influence of the media.
  - By form (print, radio, television).
  - By origin (local, national, international).
  - Media bias.
  - Groups or individuals that control the media.
  - Key media personnel.
- Identify taboos or insulting social actions.
  - Verbal.
  - Nonverbal (such as body gestures or manner of dress).
- Identify significant dates.
  - Importance.
  - Dates or holidays significant to one portion of populace but offensive to another.
  - Effect on city.
  - Violence.
  - Demonstrations.
  - Types of celebrations.
  - Number of participants.
- Identify cultural landmarks and structures.
  - Location.
  - Type.
  - Religious.
  - Historical.
  - Stadiums.
  - Shopping centers.
  - Other.

Demographics

- Assess the urban area's demographics.
  - Ethnicity.
  - Race.
  - Religion.
  - Economic status.
  - Political affiliation.
  - Other.
- Identify languages spoken.
  - Official.
  - Social.
  - Business.
  - Dialects.
  - Slang.
- Identify the urban population and population density.
  - Total.
  - By city area.
  - Center city.
  - Residential.
  - Slum and shantytown.
  - Area of operations.
- Identify the age structure.
  - Males and females age 0 and 14.
  - Males and females 15 to 64.
  - Males and females age 65 and older.
  - Males age 15 to 49 (potential military age).
- Identify the trends in migration.
  - Number of migrants.
  - Cause(s) of migration.
  - Average age of migrants.
  - Refugee situation.
  - Origin of the refugees.
  - Size of the refugee population.
  - Size of the original population.
- Describe the relationship between refugees and the city populace.
  - Supporting.
  - Hostile.
  - Indifferent.
- Identify segments of the population that fled the city.
  - Cause.
  - Region of resettlement.
  - Circumstances that will afford their return.
- Identify the population of the rural areas surrounding the urban area.
  - Numbers.
  - Location and distance from urban area.
  - Relationship to/with urban population.
  - Travel.
  - Employment.
  - Interdependence.
  - Role in conflict (if any).

Social structure

- Identify the ethnic structure.
  - Percent of population by ethnic group.
  - Physical boundaries of influence.
  - Dominant ethnic group (if any).
  - Reason for dominance.
  - Biases of the groups.
  - Role of ethnicity in conflict (past and present).
  - Key personnel and location.
- Identify the racial structure.
  - Percentage of population by race.
  - Dominant racial group (if any).
  - Reason for dominance.
  - Physical boundaries of influence.
  - Biases of the races.
  - Role in conflict.
  - Key personnel and location.

SECTION III – FUNCTIONAL AREAS

A-15. Cities serve as centers of population, finance, politics, transportation, industry, and culture. Well-planned cities tend to group buildings and other structures into the same area based on function as they develop. Areas serving the same functions tend to share many common characteristics even if located in

different regions, countries, and continents. Figure A-3 depicts some common functional areas, and table A-3 on pages 174 and 175 describes some of their common characteristics that may influence operations.

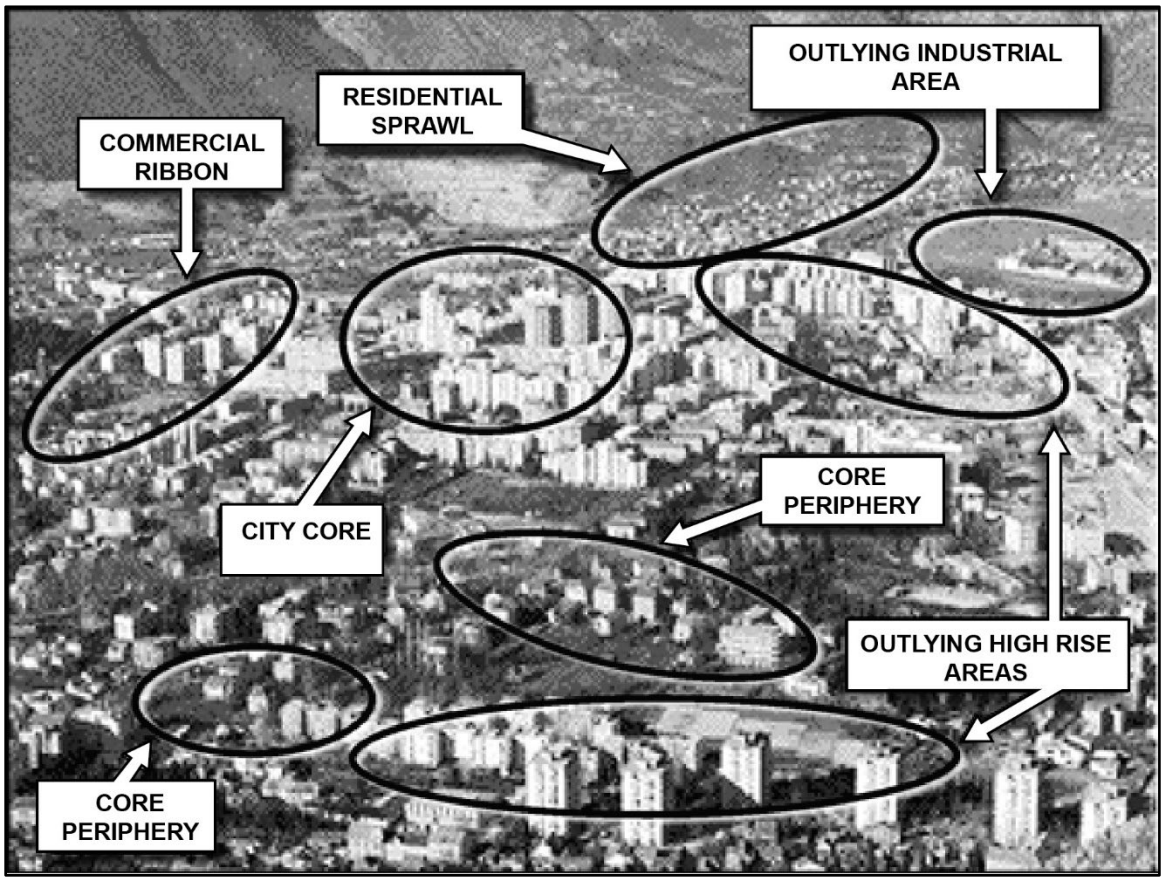


Figure A-3. Urban functional areas

Table A-3. Urban functional area descriptions

Functional Area	*Description*	*Example Structures*	*Effects*
City Core	Heart of the urban area and likely to contain the oldest structures mixed with new construction. Relatively small and dense. Contains mostly shops, offices, and public buildings. Densest concentration of multistory buildings and subterranean areas. Focal point of public transportation network. Also known as downtown or the central business district.	High-rise, parking garages, subways, underground shopping areas.	• As the heart of government and business for a city, the core is normally the focal point for stability operations and establishing control of the city. • Brick and concrete building construction provides some protection. • Conjoined buildings may enable undetected dismounted movement between them. • Subways and large sewers may enable subsurface movement. • May contain historically or culturally significant buildings. • Fewer residences, so area may be largely vacant at night if it does not contain attractions to entertain residents and visitors. • Expect dense civilian population and heavy traffic under normal conditions.
Core Periphery	The core periphery is generally less dense with buildings that contain fewer floors, but otherwise have many of the same characteristics as the city core. More residences than the city core. The core periphery generally does not get the same attention as the city core, so it is more likely to contain older structures that have not been fully modernized.	Mid-rise, parking garages.	• Brick and concrete building construction provides some protection. • Tight corridors, especially in older cities, that restrict large vehicle movement and maneuver. Rubble and other obstacles have a greater impact on mobility. • Conjoined buildings may enable undetected dismounted movement between them. • Short engagement ranges; limited line of sight except down straight roads. • May contain historically or culturally significant buildings. • Dense civilian population.
Outlying High-Rise	Shares many characteristics as the core, but with newer construction and more open areas between large buildings.	High-rise, parking lots, subways, parks, stadiums, hospitals.	• Lightly clad buildings with thin walls (brick, lightweight concrete, or glass). • Subways and large sewers may enable subsurface movement. • Dense civilian population, especially at night.

Table A-3. Urban functional area descriptions (continued)

Functional Area	*Description*	*Example Structures*	*Effects*
Commercial Ribbon	Groups of smaller structures with larger shared parking areas. Mostly shops and small offices.	Strip malls, parking lots, restaurants, large stores.	• Reduced density enables vehicular maneuver. • Increased civilian density during day and evening; mostly vacant at night.
Industrial	Sites focus on product manufacturing and distribution. Located on outskirts where commercial transportation is easiest; Contains generation and distribution centers for essential services including power, water, and waste management. May contain large storage areas for chemicals, petroleum products, fertilizers, and other toxic materials.	Factories, warehouses, power distribution sites, water treatment plants, rail hubs, shipyards, ports.	• Large, open buildings with flat roofs and sufficient interior space for large vehicles and materials handling equipment. • Steel frame construction with lightweight exterior walls. • Commercial transportation hubs. • Road networks facilitate large vehicle movement. • Increased concentration of TIM. • Less population density than other areas, but much higher during day than at night.
Residential	Row houses or single-family dwellings set in a grid or ringed pattern. Buildings often separated by yards, gardens, trees, and fences. Some may include high-walled compounds.	Single-family homes, row houses, compounds.	• Small, lightly clad buildings with thin walls in many areas, but also brick, concrete, or stone in others. • Least amount of public works buildings. • Population spikes at night when majority of workers return home. • Unplanned construction can be very random and difficult to navigate. • Prevalence of fences, backyard walls, and absence of access gates. • Large civilian population, especially at night.
Military	Fortified locations able to support a garrison. May contain extensive subsurface facilities.	Walls/fences, guard towers, barracks, ammunition bunkers.	• Permanent fortifications and defensible structures. • Self-contained support and sustainment.
Note: Included with this are informal settlements, sometimes called “shanty towns,” which form outside of developed cities. They generally consist of improvised structures on squatted land without facilities to provide proper sanitation, safe water supply, electricity, or street drainage. They can be small or expand to house millions of people.			
Legend: TIM—toxic industrial material			

SECTION IV – STREET PATTERNS

A-16. Lesser patterns emerge from the layout of the streets, roads, highways, and other thoroughfares within an urban area. These patterns evolve from influences of natural terrain, the original designer's personal prejudices, and the changing needs of the inhabitants. These patterns can affect the flow of traffic, determine what is key terrain, and aid or impede navigation. Urban areas can display a number of different street patterns that include those described in table A-4 on pages 176 and 177.

Table A-4. Street patterns and effects

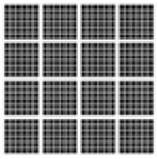
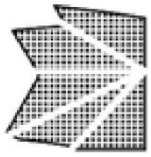
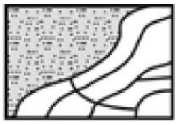
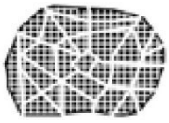
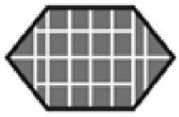
Street Pattern	*Sketch*	*Description*	*Effects*
Linear		Linear refers to a primary thoroughfare with buildings on either side. Commonly used for strip malls and main shopping districts.	• Eases movement along thoroughfare. • Can leave units vulnerable to ambush from the flanks.
Grid		Streets intersect at right angles forming rectangular blocks of buildings.	• Many intersections in close proximity slows traffic. • Facilitates controlled clearances by enabling commanders to maintain awareness of units' locations and control the flow of forces. • Easy to establish clear boundaries between units. • Repeated patterns of streets and buildings can be disorienting for elements on ground, especially without road signs or other markings. • Larger intersections become key terrain to control flows in the city.
Rayed		Streets fan out at various angles from a given focal point but not a full 360 degrees. Focal point is generally a culturally significant landmark such as a holy site, old fortification, or monument.	• Helps to guide people to the focal point. Can have the same effect on military forces causing them to turn towards the focal point. • The focal point is often key terrain that controls lines of communication. The focal point will likely contain the city core or otherwise be a culturally significant location. • Can facilitate a defense in depth as long as enemy is not able to bypass majority of urban area to attack focal point from the rear.

Table A-4. Street patterns and effects (continued)

Street Pattern	*Sketch*	*Description*	*Effects*
Radial		Radial is similar to rayed except main streets radiate out in all directions from a central point like the spokes on a wheel. A radial often has cross streets that link the spokes in concentric rings from the center.	• Helps to guide people to the focal point. Can have the same effect on military forces causing them to turn towards the focal point. • The focal point is often key terrain that controls lines of communication throughout the city. • The focal point will likely contain the city core or otherwise be a culturally significant location. • Can facilitate an encircled defense in depth as critical sites are likely to be centrally located, and defenders can use spokes to facilitate ambushes, delays, and resupply.
Contour Forming		Pronounced terrain relief influences construction of roadways along lines of elevation. Primary streets run parallel to contour lines with intersecting roads between them.	• Natural terrain has a greater impact on mobility than with other patterns. • Standard maps and imagery generally emphasize the layouts of streets and buildings or show natural terrain features, but rarely do both well on the same product.
Irregular		Roads do not form a discernable pattern, either due to a lack of planning or for specific functional or aesthetic reasons. An example is an American residential neighborhood with curving streets and cul-de-sacs.	• Features like curved streets, intersections of three or more roads, and dead ends can be disorienting and make navigation difficult. • Some areas may have limited or even a single entrance and exit. • Can make maneuver less predictable, but also harder to control.
Combined		Combined means a combination of two or more of the above street patterns. Very common as patterns change to better suit the function or terrain of specific locations.	• Can take on characteristics of any of the above within certain areas.

A-17. In addition to the patterns described above, street construction has certain characteristics that vary by location. Street width can be a concern, especially for large military vehicles attempting to traverse paths originally designed for foot and animal traffic. In some places, road construction is unable to support the weight of armored vehicles without damage and rapid deterioration.

SECTION V – STRUCTURES

A-18. Buildings and other structures vary in form and function, but they have common elements and characteristics that can help leaders anticipate what their units will encounter. Understanding these can help leaders choose the right forces, weapons, and equipment to overcome challenges without creating additional

hazards. They can also inform ammunition estimates to achieve specific effects and drive the best angles of approach for an objective.

ELEMENTS

A-19. Structures consist of the following major elements:

- Foundation supports the load of the building and provides stability.
- Frame supports all imposed loads and transmits them to the foundation; some structures, such as towers, antennas, and bridges, may have only a frame with no walls.
- Exterior walls are visible from outside the building; may be part of the supporting structure.
- Interior walls are not visible from outside the building; may be part of the supporting structure.
- Load-bearing walls support the weight of the building and its contents; may be interior or exterior, and generally cannot be removed without compromising the integrity of the building.
- Nonload-bearing walls are used to divide areas, but unable to support the weight of the building and its contents; may be interior or exterior; can generally be removed without compromising the integrity of the building.
- Roof is the top surface of the building; normally supported by load-bearing walls or the frame.
- Vertical transportation systems include elevators, escalators, and stairways.
- Environmental control systems include heating, ventilation, air-conditioning, and lighting.
- Communication systems include internal, external, public address, and closed-circuit television.
- Water supply and waste disposal systems include water heaters, toilets, sinks, and exposed pipes.

CHARACTERISTICS

A-20. Five interrelated aspects characterize all buildings—function, size, height, materials, and construction methods. Two additional aspects, exterior openings and floor plans, determine the interior layout of a building.

FUNCTION

A-21. Function describes the reason for the structure. Four categories of building functions follow:

- Residential—includes single-family and multi-family housing.
- Public and civic—government buildings, religious buildings, schools, gyms, airports, bridges, parks, plazas, and stadiums.
- Commercial—includes offices, hotels, restaurants, and retail stores.
- Mixed-use—can be used for multiple functions and separated by floor, but this is not always the case.

SIZE

A-22. Units can categorize buildings based on the surface area of their footprint on the ground, but these size categories have no firm dimensions and are often relative to the building function and the size of other structures in the surrounding area. For this manual, the square footage for each of the four building sizes follow:

- Small—less than 2,000 square feet.
- Medium—ranges from 2,000 square feet to 22,000 square feet (one-half of an acre).
- Large—ranges from 22,000 square feet (one-half of an acre) to 44,000 square feet (1 acre).
- Massive—greater than 44,000 square feet (1 acre).

HEIGHT

A-23. Though buildings tend to be grouped by function and size, their heights can vary significantly. The development of stronger building materials and increased engineering knowledge has enabled builders to construct ever-higher structures. The height of a single floor varies slightly by locale, function, and construction method. However, individual floors (except for the first floor) are normally the same height throughout the building. For the purposes of this manual, 13 feet (4 meters) is the average height for a floor. The terms commonly used to refer to building height include—

- Low-rise:
  - 5 floors (65 feet) or below.
  - Often without an elevator.
- Mid-rise:
  - 5 floors (65 feet) to 11 floors (150 feet).
  - Common international building codes require at least one elevator.
- High-rise:
  - Between 6 and 37 floors high.
  - Most international building codes require at least one elevator, as well as stairs, in all high-rise buildings.
- Skyscraper:
  - Taller than 500 feet (150 meters) or 37 floors.
  - International building codes require skyscrapers have at least two elevators and two sets of protected stairwells that span the height of the building.

MATERIALS

A-24. The durability of a building and the amount of protection it affords can vary greatly based on its construction material (see appendix B for more information). The six general categories of materials follow:

Reed, Grass, or Thatch

A-25. These are the lowest-cost and least durable option. Generally, their materials are only used for small structures in developing areas. They are easily breached, highly flammable, and offer minimal protection from any kind of munition.

Mud, Clay, or Adobe (Bricks or Wet-Laid)

A-26. This is a low-cost option common in poorer areas that have the right kind of soil. It can generally absorb small arms, but offers limited protection from higher caliber weapons, explosives, and applied mechanical force. The durability of this material varies greatly depending upon quality of construction.

Wood

A-27. This is the least durable common building material and is highly susceptible to fire. It is commonly used in single-family dwellings due to its reduced cost.

Masonry (Fired Brick, Block, or Stone)

A-28. This material offers greater load-bearing capacity and fire resistance than previous options, but with increased construction costs. Brick is favored for residences while block is favored for commercial purposes. Stone is generally reserved for culturally important buildings aside from thin facades used for decoration.

Reinforced Concrete

A-29. This material is very strong, resistant to wind and tremors, and provides weatherproofing. It is used as a major structural material in most buildings. It is used in all foundations and is commonly used as support columns, load- and non-load-bearing walls, interior walls, and roofs in commercial and public buildings. It requires special equipment to breach due to its hardness and reinforcing steel bars.

Steel or Other Metals

A-30. This is a major structural material in most framed buildings. Many public, civic, and commercial structures use steel frames because it allows for longer spans and can be flexible when required.

CONSTRUCTION METHODS

A-31. Modern construction methods vary greatly based on factors such as available materials, building function, aesthetics, and cost; however, the most basic ways to construct a building are stacking, framing, and hanging. Many buildings are built using a combination of these three methods.

Framing

A-32. The framing method is based around structural members (often called studs) that provide a stable frame to which interior and exterior wall coverings and roof trusses are attached. All walls and the roof are then covered by various sheathing materials to give weather resistance and lateral strength. Using a skeleton frame, which essentially consists of vertical members interconnected to horizontal members, is the most common method of modern building. Using load-bearing walls for constructing tall buildings has declined steadily and been replaced by using load-bearing columns with either light or heavy cladding covering the exterior openings.

A-33. Cladding is the exterior covering for framed buildings. It can be heavy (terracotta blocks, brick, or stone) or light (thin brick, lightweight concrete, or glass). Heavy cladding can be found in the city core or core periphery, but light cladding is much more common in buildings constructed since World War II. Buildings can also be clad using tilt-up walls. Complete wall sections, usually large slabs of precast concrete, are tilted up into place. These walls are generally solid and provide good cover, but the roof may be vulnerable since it is generally made of lighter materials or thinner concrete.

Stacking

A-34. Early builders stacked individual stones or mud bricks to form walls. With the introduction of reinforced concrete and the ability to make and transport precast concrete, stacking has evolved to allow the stacking of load-bearing columns, load-bearing walls, floor slabs, roof slabs, and even complete box-like sections. Stacking is commonly used when building mid- and high-rise residential buildings. Since stacked walls are load-bearing, they tend to be thick with 6- to 8-inch walls being common. Stacked walls provide good cover except at the openings.

Hanging or Suspension

A-35. In this construction method, floors are suspended from a central core or a group of centralized cores. Individual floors may be reinforced by cables from the central core or overhanging arms to hold each floor. Cable suspension is common for bridge construction and for long-span roofs, particularly for sports arenas.

Floor Plans and Exterior Openings

A-36. All of the other building characteristics affect the floor plan and locations and number of exterior openings. In general, most buildings limit the number of exterior openings due to privacy requirements, temperature control, and the higher cost of constructing exterior openings. This is especially true for the ground floor of residential buildings. However, for most commercial and service-oriented buildings, the ground floor tends to be open and inviting to attract entry. Other common trends based on the building height and functions are described below.

Low-Rise Wood, Light Metal, and Masonry

A-37. These buildings are rarely over four floors as using reinforced concrete or steel frame construction for taller buildings is usually better for cost and safety. Breaching the interior and exterior walls and roofs of these buildings is generally simple. A masonry wall will likely require explosives or an armored vehicle. Residential buildings tend to have similar floor plans on each floor while public, civic, commercial, and mixed-use buildings normally have a ground-level plan that is different from the higher floors.

Low-Rise and Mid-Rise Reinforced Concrete

A-38. As reinforced concrete is relatively inexpensive, easily manufactured, and strong, it is a material of choice for multi-family low-rise and mid-rise apartments and public, civic, commercial, and mixed-use

buildings. The ground floor plans of these buildings tend to be significantly different from their upper floors. They generally have a centralized hallway with rooms on both sides and stairways on each end on opposite sides of the building. The roofs of these buildings tend to have access doors to the interior. Public gathering buildings (such as churches, theaters, auditoriums, and gyms) typically have large, open interiors. Interior walls are often not reinforced concrete and are normally easy to breach or dismantle. The roofs, usually for aesthetic purposes, are often geometric and not easily accessible. Public gathering buildings are most common in the dispersed residential and high-rise residential areas. The best place to enter this kind of building is generally a ground-floor entrance.

Low-Rise and Mid-Rise Steel Frame

A-39. Steel frame buildings are normally easily recognized because concrete beams and columns surrounding the steel are typically visible from the outside. The floor plans vary greatly depending upon their functions. Additionally, the use of light or heavy cladding varies in terms of aesthetics and function. The floors of these buildings are heavier and provide moderate overhead cover. Office and residential buildings normally have three or four small offices or rooms connected together to form an office group or residence connected to an interior hall that is connected to stairs and often an elevator. Core rooms in framed buildings are much bigger than in other buildings. Lighter materials used as partitions often subdivide the core rooms. Factories and large commercial stores tend to have large windows and open interiors. They may have steel fire doors separating sections that can be difficult to breach.

High-Rise Reinforced Concrete and Steel Frame and Skyscrapers

A-40. All high-rise buildings use a skeleton frame, and most have a central core containing two stairwells, elevators, and all other environmental support items. In some cases, lower floors of high-rise building use heavy cladding, while upper floors use light cladding.

SECTION VI – PHYSICAL CHARACTERISTICS

A-41. Understanding the physical characteristics of urban terrain requires a multidimensional approach (see figure A-4 on page 182). Commanders operating in unrestricted terrain normally address their AO in terms of air and ground. However, operations within the urban environment provide numerous man-made structures and variables not found in unrestricted terrain. Commanders conducting UO must broaden the scope of their thinking. The total size of the surfaces and spaces of an urban area is usually many times that of a similarly size piece of natural terrain because of the complex blend of horizontal, vertical, interior, exterior, and subterranean forms superimposed on the natural landscape. Commanders and leaders can enhance situational understanding by understanding the factors that influence the urban environment.

URBAN AIRSPACE

A-42. Airspace is the area above the ground usable by aircraft and aerial munitions. In urban areas, airspace is broken up by man-made structures of different heights and densities and the irregularities of natural terrain. This produces an urban canyon effect that can adversely impact operations. Urban canyons often cause higher wind speeds with unpredictable wind direction and turbulence that can cause some munitions to miss their targets (increasing risk for both collateral damage and fratricide) and that significantly increase risks for rotary-wing operations near the surface. While aviation assets are unaffected by obstacles such as rubble, vehicles, or constructed barriers, they must consider power lines, towers, sign poles, and billboards when flying. TF reconnaissance elements can locate, identify, and report these obstacles to allow for improved flight planning.

SUPERSURFACE AREAS

A-43. The term supersurface refers to the top, roof, or apex of a structure (external space). Supersurface also refers to the internal floors or levels (intrasurface). These areas can provide cover and concealment, limit or enhance observation and fields of fire, and depending on the situation, enhance, restrict, canalize, or block movement. Supersurface areas can also provide concealed positions for snipers, automatic weapons, light

and medium antitank weapons, and man-portable air defense systems. In many cases, they enable top-down attacks against the weakest points of armored vehicles and unsuspecting aircraft.

A-44. Intense combat engagements often occur in this intrasurface area, which is also known for its widely diverse and complex nature. The intrasurface of a building greatly limits what can be accomplished by reconnaissance and surveillance systems, but, at the same time, enhances cover and concealment. Additionally, the intrasurface areas provide mobility corridors within and between structures at upper levels for both friendly and enemy forces. Like supersurface, intrasurface areas may also provide concealed locations for snipers, automatic weapons, light and medium antitank weapons, and man-portable air defense systems. In many cases, they enable top down attacks against the weakest points of armored vehicles and unsuspecting aircraft.

SURFACE

A-45. Streets are usually avenues of approach. Streets and open areas provide a rapid approach for ground movement in urban terrain. Units moving along streets can be canalized by buildings and have little space for maneuver, while approaching across large open areas such as parks, athletic fields, and parking areas. Streets also expose forces to observation and engagement by enemy elements. Obstacles on streets in towns are usually more effective than those on roads in open terrain since they are more difficult to bypass. For purposes of analysis, the ground floor of buildings and the surface of waterways are also part of the surface dimension. These surface areas follow the natural terrain and are broken up by man-made features.

SUBSURFACE

A-46. Common subsurface areas, which include subways, sewers, public utility systems, and cellars, can be used as avenues of movement for dismounted elements. Both attacker and defender can use subterranean routes to outflank or turn the opposition, or to conduct infiltration, ambushes, counterattacks, and sustaining operations. Subsurface systems in some urban areas are easily overlooked but can be important to the outcome of operations. This dimension includes areas both below the ground and below water. These areas can be used for cover and concealment, movement, and engagement, but their use requires intimate knowledge of the area.

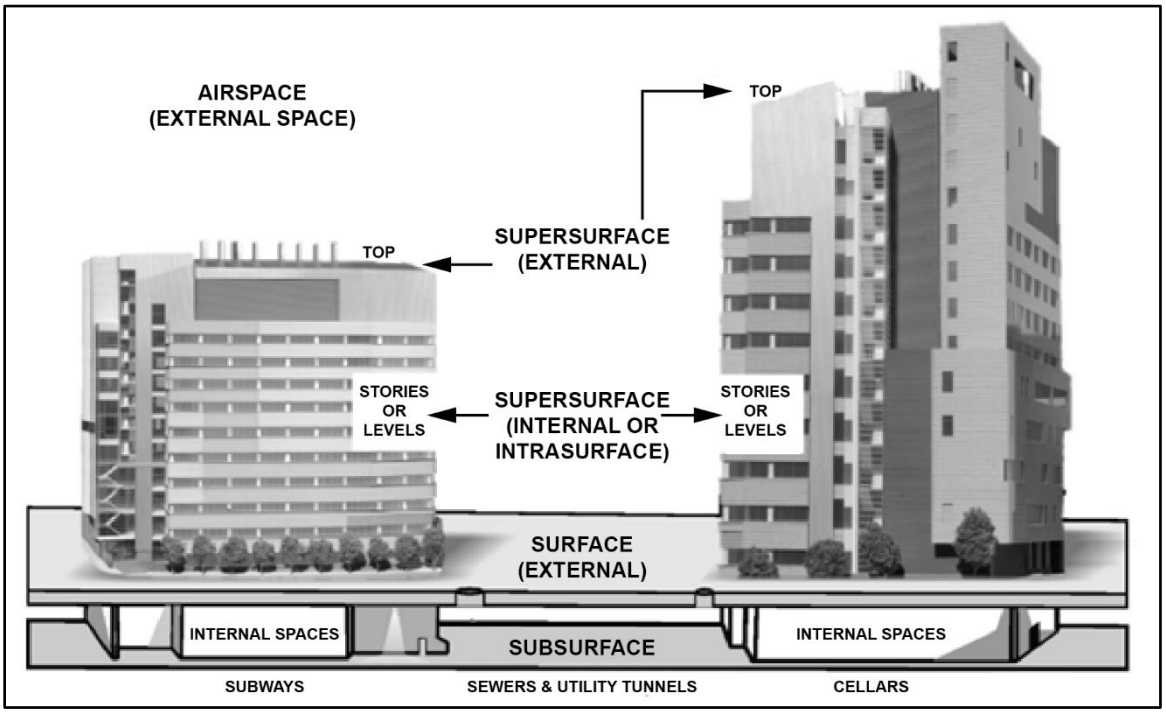


Figure A-4. Multidimensional urban environment

Appendix B
Weapons Effects and Considerations

This appendix supplements the technical manuals and training circulars that describe U.S. weapons capabilities and effects against generic targets and their employment. It focuses on organic infantry and armor weapons and vehicles as well as common supporting weapons employed in UO. It also covers basic enemy weapon systems and hazards associated with explosive breaching.

SECTION I – EFFECTS OVERVIEW

B-1. Leaders and Soldiers must carefully choose the correct weapons system and ammunition to employ while conducting UO. Understanding the effects weapons have against various types of structures enhances survivability and limits collateral damage to the civilian population and structures.

COMMON EFFECTS

B-2. Weapons and ammunition exhibit certain common effects in urban terrain. Leaders should take the below effects into account and use or avoid them as the situation demands.

PENETRATION OF STRUCTURES

B-3. Most tactical situations call for penetration of buildings and walls. The amount of penetration a round will achieve against a specific target is unknown until tried. Generally, the smaller the round, the less penetration. The following definitions are based on analyses of various studies relating to the size of man-size holes:

- Loopholes are firing apertures (a minimum of 8 inches in diameter) made in a structure.
- Mouseholes are openings made to the interior or exterior of a structure (walls, floors, ceilings, and roofs) to aid inter- and intra-building communications and movement.

B-4. Breach holes are openings made in a structure using mechanical, ballistic, explosive, or thermal means to aid the entry of assault elements. A breach hole is a minimum of 50 inches by 30 inches in size.

RUBBLE

B-5. An urban area often becomes more of an obstacle to advancing troops and a stronger position for defending troops after being reduced to rubble by weapons fire.

TRAPPED AND INJURED SURVIVORS

B-6. Urban combat can result in large-scale destruction to buildings. Survivors, both military and civilian, may be trapped in the rubble. Extraction efforts may be impossible without heavy construction equipment. Rescue efforts can result in more casualties as the rubble shifts and collapses on would-be rescuers. Once located, casualties should be evacuated quickly and safely. This is often difficult to do without causing additional injury.

RICOCHETS

B-7. Ricochets are a common hazard in UO, especially inside buildings. The walls of an enclosed room present many right angles. When combined with hard surfaces, a bullet may continue to ricochet until its energy is spent. Even after hitting enemy personnel, ball ammunition may pass through the body and ricochet. This hazard is especially true with the use of enhanced penetration rounds. Body armor and helmets provide some protection from this hazard.

FIRE

B-8. The risk of fire during urban combat is high. Once a large fire starts, it is nearly impossible to extinguish. Fires that rage out of control can cause more damage to the urban area than any other factor. Various factors make containing fires difficult, including—

- Damage to gas lines and water mains.
- Scarcity of firefighting equipment and trained firemen.
- General lack of access caused by rubble blocking the streets.
- Danger posed by combat.

SMOKE AND HAZE

B-9. Limited visibility is common in UO. Fires produce large clouds of often toxic or irritating, choking smoke. Explosions add significant amounts of dust to the atmosphere. Even the effort to rescue personnel trapped within collapsed buildings creates dust.

DAMAGED AND DESTROYED TRANSPORTATION SYSTEMS

B-10. Urban areas are transportation hubs. Urban combat may disrupt the normal flow of traffic, destroying or damaging roads, ports, bridges, and rail lines necessary for the movement and distribution of supplies and goods. Enemy forces may damage or destroy transportation systems in an attempt to slow friendly unit movement.

DISPLACED CIVILIANS

B-11. Although many civilian inhabitants of a town flee the fighting, some remain behind in the immediate area of the fighting and are, thus, in danger. Commanders should consider civilians in all planning and make provisions for their protection and evacuation.

COMMON CHARACTERISTICS

B-12. The characteristics and nature of urban combat affect the use of weapons and their results. Common characteristics of urban combat are described below.

ENCLOSED COMBAT

B-13. Whether inside or outside, nearby walls and barriers limit the openness of urban engagements. Soldiers should consider their weapon's effects such as minimum arming ranges, muzzle blast and back-blast area. A muzzle blast is an explosive shockwave created at the muzzle of a firearm and the backblast area is a cone shaped area behind a launcher or rifle where hot gases are expelled. Most importantly, there is a possibility of a round traveling through an urban structure and striking an unintended target. Soldiers should also consider enemy weapons effects on friendly positions when selecting covered and concealed positions.

SHORT ENGAGEMENT TIMES

B-14. Enemy personnel and vehicles typically present only fleeting targets as they can rapidly seek the cover of a nearby wall and then fire from the same or different firing position. Simultaneously, other enemy fire aims to suppress friendly fire and can often hinder deliberate, well-aimed shots.

CLOSE COMBAT

B-15. Close combat is the predominant characteristic of urban engagements with approximately 90 percent of all engagements at a range of 50 meters or less. Riflemen should be able to hit targets through bunker apertures, windows, keyholes, and loopholes. This requires accurate semiautomatic weapons fire with short target acquisition times.

BUILDING CONSTRUCTION TYPES

B-16. Commanders and leaders must be able to identify building types, construction materials, and must understand the effectiveness and limitations of weapons against these factors. The capability of identifying

building types and understanding weapons effects enables commanders to give clear instructions to their subordinates concerning mission execution. (See table B-2 on page 190.)

MODERNIZED BUILDINGS

B-17. Modern engineering and design improvements mean most large buildings constructed since World War II are resilient to the blast effects of bomb and artillery attack. They may burn easily but usually retain structural integrity and remain standing. Burnt high-rise buildings require substantial explosive force to damage further and typically retain their military significance, such as for individual firing or unit positions. A large structure can take 24 to 48 hours to burn out and become cool enough to enter. Over 60 percent of buildings throughout the world are constructed with 12- to 24-inch brick or concrete block. This means most buildings throughout the world can provide concealment, and a high degree of protection from most weapons effects requiring massed large caliber fires to destroy.

ENHANCED DEFENSE

B-18. Many fabricated structures can serve as strong defensive positions. As a result, units may have to penetrate the structure before affecting enemy personnel inside. Units should choose weapons and demolitions for employment based on their effects against common materials like stone, brick, and concrete.

HARD, FLAT, SMOOTH SURFACES

B-19. Hard, flat, smooth surfaces are characteristic of urban construction. Rounds usually impact at some angle of obliquity, which normally reduces the effects of a round and increases the threat of ricochets, while also requiring a high volume of fire to penetrate. When rounds strike a glancing blow on a hard surface, 25 percent of impact-fused explosive rounds may not detonate. Rubbled areas increase the possibility that a round will not strike a hard, flat, or smooth surface.

VERTICAL DEAD SPACE

B-20. The depression and elevation limits for some weapons create dead space. Additionally, tall buildings form deep canyons that inhibit the use of indirect fires. Some weapons systems, especially small-arms weapons, can be fired with the deliberate intent of the rounds ricocheting behind cover to inflict casualties. Target engagement from oblique angles, both horizontal and vertical, demands superior marksmanship skills.

REDUCED VISIBILITY

B-21. Smoke, dust, shadows, and the lack of light penetrating inner rooms all combine to reduce visibility and to increase a sense of isolation. Additionally, rubble and artificial structures by themselves tend to mask fires. As a result, targets (even those at close range) tend to be indistinct.

RISK OF FRIENDLY FIRE

B-22. Urban fighting often becomes confused melees with several small units attacking on converging axes or being attacked from multiple directions. As such, consider the risks from friendly fires and ricochets during planning. Control measures should be continually adjusted to lower risks. Soldiers and leaders should maintain situational awareness, communicate their movement, and clearly mark their progress as per unit SOP to avoid fratricide.

SECTION II – SMALL-ARMS WEAPONS

B-23. Small-arms weapons covered in this section include the 5.56-mm (millimeter) rifle, 7.62-mm machine gun, .50-caliber rounds, 40-mm grenades, and various hand grenades. Since it has minimal effect on an urban structure and is excellent for breaching and room clearing, the shotgun is covered in appendix C.

RIFLE, CARBINE, AND SQUAD AUTOMATIC WEAPON

B-24. The M16 rifle, M4 carbine, and M249 squad automatic weapon are the most common U.S. weapons fired in urban areas. The overall length of both the M16 and the M249 may require individuals to modify

handling and firing techniques for interior direct fire engagements. Because it is shorter and lighter, the M4 is often easier to handle inside buildings.

PENETRATION

B-25. Most structural building materials (such as stone, brick, or concrete walls) repel single 5.56-mm rounds; however, continued and concentrated fire can create small breach holes. Armor-piercing rounds are slightly more effective than ball ammunition in creating a wall breach. However, armor-piercing rounds are more likely to ricochet than ball ammunition when the target presents a high degree of obliquity.

B-26. The penetration of 5.56-mm rounds depends on target range and the building material. Maximum penetration occurs at 200 meters. At ranges less than 25 meters, penetration is greatly reduced. The best method for breaching a concrete wall is to repeatedly fire short bursts (three to five rounds) in a U-shaped pattern. The 5.56-mm rounds cannot cut the reinforcing bars in reinforced concrete.

PROTECTION

B-27. Barriers can offer protection against 5.56-mm rounds and 7.62-mm rounds with some exceptions. Wood frame buildings and walls offer little protection from 5.56-mm rounds. Even with reduced penetration at short ranges, an interior wall made of thin wood paneling, sheetrock, or plaster is no protection against 5.56-mm rounds. When clearing such structures, Soldiers must ensure friendly casualties do not result from rounds passing through walls, floors, or ceilings. The following common barriers in urban areas stop a 5.56-mm round fired at less than 50 meters:

- Single row of well-packed sandbags.
- Layer of tightly packed books 18 to 24 inches thick.
- Two-inch concrete wall (nonreinforced).
- Cinder block filled with sand.
- Single layer of brick.

MEDIUM AND HEAVY MACHINE GUNS

B-28. The U.S. medium machine gun and the U.S. heavy machine gun provide high-volume, long-range, automatic fires for the suppression or destruction of targets.

EMPLOYMENT

B-29. The primary consideration impacting machine gun employment within urban areas is the limited availability of long-range fields of fire. Although machine guns should be emplaced at the lowest terrain level possible, grazing fire at ground level is often obstructed by rubble. If machine guns are emplaced too high, their plunging fire is limited to a single small open area. Often, the second floor is the best compromise since it is above common debris, allows for relatively low trajectory fire, and the floors above provide indirect fire protection.

PENETRATION

B-30. The penetration ability of the medium and heavy machine guns depends on the range to the target and type of material fired against. The rounds can easily penetrate internal walls, partitions, plaster, floors, ceilings, common office furniture, home appliances, and bedding. Continued and concentrated machine gunfire can breach most urban walls, but typically cannot breach thick reinforced concrete walls or dense natural stone block walls.

Medium Machine Guns

B-31. The penetration of the 7.62-mm round is best at 600 meters, but most urban targets are closer. The typical minimum effective penetration range for the 7.62-mm round is 200 meters. At 50 meters, the 7.62-mm ball round cannot reliably penetrate a single layer of well-packed sandbags. At 200 meters, it can penetrate a single sandbag layer, but not a double layer. The armor-piercing round does only slightly better against sandbags. It cannot penetrate a double layer but can penetrate up to 10 inches at 600 meters.

B-32. A medium machine gun is difficult to hold steady enough to repeatedly hit the same point on a wall. The dust created by the bullet strikes also makes precise aiming difficult. As such, firing from a tripod is usually more effective than without, especially if sandbags are also steadying the weapon. Short bursts of three to five rounds fired in a U-shaped pattern are best. Breaching cinder block presents a problem for medium machine guns. Rounds easily penetrate the hollow portions of the cinder block but leave a net-like structure of the solid portions (concrete and mortar). Substantial ammunition is required to destroy this net since many rounds will just pass through the eroded holes. However, a crowbar or axe can remove this web and allow entry through the breach hole (see TC 3-22.240 for additional information).

Heavy Machine Gun

B-33. The .50-caliber round penetrates best at 800 meters. For hard targets, obliquity and range affect the penetration of the .50-caliber round. Both armor-piercing and ball ammunition penetrates 14 inches of sand or 28 inches of packed earth at 200 meters if the round impacts perpendicular to the target. The .50-caliber machine gun can be fired accurately from the tripod using the single-shot mode. This is the most efficient method for producing a loophole. Automatic fire in three- to five-round bursts in a U-shaped pattern is more effective in producing a breach (see TC 3-22.50 for additional information).

PROTECTION

B-34. The .50-caliber round can penetrate common urban barriers, except a 55-gallon drum filled with sand, a car engine block, and sewer covers. Continued and concentrated fire breaches most urban walls, except for the reinforcing bars in concrete or dense natural stone walls. Barriers that offer protection against 5.56-mm rounds are also effective against 7.62-mm rounds with some exceptions. The 7.62-mm round can penetrate a windowpane at a 45-degree obliquity, a hollow cinder block, or both sides of a car body. It can also easily penetrate wood frame buildings.

HAND GRENADES

B-35. Hand grenades are the most used explosive munitions during intense combat in urban areas. As such, individuals should carry additional grenades, and units should have forward stockpiles for resupply. The mission variables, building construction materials, and ROE dictate the type used. Although useful during urban combat, hand grenades (especially fragmentation hand grenades) are difficult to employ safely and involve a high risk of fratricide.

B-36. Urban areas house large quantities of people and contain large numbers of buildings. The enemy may be intermingled with noncombatants, and collateral damage must be limited. Because of these factors, the ROE may be more restrictive than under other combat environments.

TYPES

B-37. The five types of hand grenades are nonlethal (stun), chemical, fragmentation, offensive, and smoke. Ground smoke signals are commonly known as smoke grenades. Table B-1 on page 188 describes the employment of these grenades. Proper control and safety procedures allow for safe employment of hand grenades (see TC 3-23.30 for additional information).

Table B-1. Employment of hand grenades and ground smoke signals

Type	*Employment*
Nonlethal	Use when noncombatants and friendly forces are intermingled with threat forces. Throw into rooms before entering to cause confusion and hesitation, which is especially useful if the structural integrity of the building does not permit the use of fragmentation or blast overpressure grenades.
Chemical	Use during UO to maintain control (riot control) or for incendiary purposes. Employed only when command directed. ***Note:*** Riot control agents will be employed only when authorized by the President and geographical combatant commander, subject to the effective ROE, and then only defensively, to protect U.S. personnel and installations. (TC 3-19.5)
Fragmentation	Throw at assaulting enemy troops between buildings or on streets or from windows, doors, or manmade apertures. Employed only when command directed.
Offensive	Provides limited 2 meters effects in open terrain. The shock waves (overpressure) produced by the grenade when used in enclosed areas is greater than that produced by the M67 fragmentation grenade, making it more effective against enemy soldiers located in bunkers, buildings, and fortified areas.
Ground smoke signals	The M18 smoke hand grenade (green, yellow, red, and violet) is used for signaling ground-to-ground and ground-to-air marking. The AN-M8 HC and M83 TA smoke hand grenades are used for screening and obscuring the tactical small unit. The M106 SOD-Vr is a near instantaneous bursting-type smoke used to break the enemy line of sight, or it can be used in tandem with the AN-M8 HC or M83 TA smoke hand grenades for a long duration obscuration screen of 105–125 seconds.
Legend: ROE—rules of engagement; TC—training circular; UO—urban operations; U.S.—United States	

EMPLOYMENT IN CLOSE COMBAT

B-38. Fragmentation hand grenades supplement small arms fire against the enemy in close combat. The grenade projects high-velocity fragments in a uniform distribution pattern to produce casualties. Employment considerations when using a fragmentation grenade include the following:

- Used to defeat enemy fighting positions, dismounts in the open, and immobilize light-skinned wheeled vehicles.
- Used to clear buildings, rooms, and halls before entering or continuing movement (see appendix C).
- Ensure Soldiers use proper covered position when employing to avoid fragmentation and enemy fire.
- Ensure Soldiers understand the penetration capability of the fragmentation grenade on walls and doors.

B-39. The offensive hand grenade (known as OHG) may be more appropriate to use in a confined space or in UO than a fragmentation grenade in some situations. This grenade is much less lethal than fragmentation grenades on an enemy or threat in an open terrain, yet they are effective against an enemy within a confined space. The shock waves (blast overpressure-concussion) produced by the OHG when used in enclosed or restrictive areas are greater than that produced by the fragmentation grenade. This makes it more effective against enemy soldiers located in areas, such as bunkers, fortified positions, trenches, and rooms. The following items are employment considerations when using an OHG:

- They are designed to cause overpressure within confined spaces to eliminate or subdue known enemy or hostile personnel within the area.
- They destroy enemy when lobbed through open windows, mouse holes, rooms, and confined enemy structures.
- In buildings, doorways are known as a fatal funnel, and the assault team should lead with a grenade before entering when known threat is in the room to provide the element of surprise and security.
- Entrances to underground passageways allow the OHG to maximize its effectiveness in close, confined spaces.

- If there are suspected or likely enemy positions on stairwells, suppress enemy with an OHG.

GRENADE LAUNCHERS

B-40. Grenade launchers include the M320/M320A1, and MK19 grenade machine gun. The M320 can fire 40-mm high explosive (HE), training practice, nonlethal, illumination, infrared illumination, and smoke rounds. The MK19 can fire 40-mm HE, high-explosive, dual-purpose (known as HEDP), and training practice ammunition. Ammunition for the MK19 is not interchangeable with other grenade launchers, though the grenade and fuse assembly are identical. All systems can provide point and area destructive fires as well as suppression (see TM 3-22.31 and TC 3-22.19 for additional information).

EMPLOYMENT

B-41. A grenade launcher is the safest method for putting a grenade through an aperture in urban terrain. The grenade launcher can also be used to engage and suppress dead space behind walls, beyond rubble, and upper windows to set conditions for movement. When using a grenade launcher to deliver a grenade into a window or doorway, ensure proper standoff for arming the round (see TM 3-22.31 for more information).

B-42. Two considerations affecting the employment of 40-mm grenades within urban areas are the short engagement range and the high rate of ammunition expenditure. The 40-mm grenade has a minimum arming range of 14 to 28 meters. If the round strikes an object before it is armed, it will not detonate. Both the HE and HEDP rounds have 5-meter burst radii against exposed troops.

B-43. The 40-mm grenade can suppress the enemy in a building and inflict casualties by firing through apertures. If fired into an interior room, the 40-mm HEDP can penetrate all partition-type walls. However, none of the fragments reliably penetrate interior walls, office furniture, sandbags, helmets, or body armor. Soldiers can use the M320 from upper stories to deliver accurate fire against the top decks of armored vehicles. The 40-mm high velocity canister cartridge round is used on enemy personnel only. The effects (107 fletchettes) of this antipersonnel round project are not ideal for use in an urban environment because of the likely presence of noncombatants.

B-44. The MK19 can use its high rate of fire to concentrate rounds against light structures. This concentrated fire can create extensive damage. The 40-mm HEDP round can penetrate the armor on the flank, rear, and top of many current armored personnel carriers, however; multiple hits are needed to destroy.

PENETRATION

B-45. The MK19 individual HEDP round can penetrate brick (6 to 8 inches), cinder block, and concrete. The only material that has proven resistant to concentrated 40-mm fire is dense, large block stone. No precise data exists as to the number of rounds required to produce loopholes or breach holes with the MK19. However, the round's explosive effects should exceed the performance of the .50-caliber machine gun. The M320 cannot reasonably deliver the rounds needed to breach a typical exterior wall. Table B-2 on page 190 shows U.S. and enemy small-arms weapons penetration against common materials found in UO.

Table B-2. U.S. and enemy small-arms weapons penetration against common urban materials

Weapon Type		Min Range	Max Effective Range	Penetration Number of Rounds / Material							
				8" Reinforced Concrete	9" Double Brick	12" Cinder Block with Veneer	12" Cinder Block with Sand	14" Triple Brick	16" Tree Trunk	24" Double Sand Bag	3/8" Mild Steel Door
M16/M4	Point	~	500 m	35	70	60	35	90	1-3	220	1
	Area	~	600 m								
M249	Point	~	800 m	35	70	60	35	90	1-3	220	1
	Area	~	1000 m								
M240B	Point	~	900 m	100	18	30	18	170	1	110	1
	Area	~	1800 m								
M203/M320	Point	14-28 m	150 m	~	2	~	1	3	2	2	1
	Area		350 m								
M2 .50Cal	Point	~	1500 m	50	~	25	~	15	~	1	1
	Area	~	1830 m								
MK19	Point	18-30 m	1500 m	~	2	~	1	3	2	2	1
	Area		2212 m								
Javelin		65 m	2000 m	1	1	1	1	1	1	1	1
Threat Weapon Types and Penetration Capabilities											
AK74	Point	~	500 m	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Area	~	800 m								
AKM	Point	~	300 m	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Area	~	800 m								
PKM	Point	~	1000 m	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Area	~	1500 m								
NSV-T	Point	~	800 m	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Area	~	2000 m								
GP-30	Point	10-40 m	400 m	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Area										
W-87	Point	~	600 m	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Area		1500 m								
RPG-7V	Point	18-30 m	200 m	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Area		1000 m								
RPG-29	Point	~	800 m	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

LEGEND

"	INCH	m	METER	Min	MINIMUM
Cal	CALIBER	Max	MAXIMUM		

SECTION III – SHOULDER-LAUNCHED MUNITIONS

B-46. Shoulder-launched munitions include the improved M72-series light antiarmor weapon (known as LAW), the M136 AT4, the M136 AT4CS, and the M141 bunker defeat munition (known as BDM). These munitions are used to attack light armored vehicles, field fortifications, and enemy personnel behind cover. They have limited capability against tanks, especially those equipped with reactive armor. These weapons are issued as rounds of ammunition to individual Soldiers in addition to their assigned weapons.

GENERAL

B-47. Due to warhead design and narrow blast effect, shoulder-launched munitions are not as effective against urban structures as heavier weapons, such as a main gun round of a tank. Since they are man-portable and individual rounds, small units may carry multiple rounds to allow for the repetitive firing at select targets.

FIRING AT ARMORED VEHICLES

B-48. Shoulder-launched munitions are most effective when fired at short-range at a vulnerable part of the armored vehicle. Flank, top, and rear shots hit the most vulnerable parts of armored vehicles. As such, the firing of shoulder-launched munitions from the upper floors or roofs of buildings is extremely effective and common in urban terrain. Additionally, these weapons are best employed using volley fire or paired firing, given that it takes multiple hits to destroy a tank. The most effective method of engagement for hitting and

killing an armored vehicle is to fire from an elevated position at the top of the armored vehicle. This improves the chance of hitting and penetrating an armored vehicle, which increases the probability of destruction.

B-49. Firing from upper stories protects the shooter from tank main gun and coaxial machine gunfire, since tanks are limited in their ability to max-elevate the gun tube to engage targets The M136 AT4CS is the only shoulder-launched munition authorized to fire from an enclosure. Top attacks on tanks from rooftops, further increases survivability and reduces the negative effects of overpressure on the shooter.

Note. The problem with back blast in a confined space is solved with the M136 AT4CS (confined space), specifically designed for the urban environment.

B-50. Many main battle tanks, Infantry fighting vehicles, and armored personnel carriers have some form of reactive armor in addition to improved frontal protection against shaped-charged weapons. Head-on, ground-level shots against these vehicles have little probability of obtaining a kill. Even without reactive armor, modern main battle tanks are hard to destroy with a shoulder-launched munition. Boyevaya Mashina Pekhotys (also called BMPs) can elevate their weapons systems to engage targets in upper stories, reducing the survivability of a shooter from atop a building.

B-51. Table B-3 lists considerations for effects of shoulder-launched munitions on heavy armored vehicles. The older the vehicle model, the less protection it has against shoulder-launched munitions. Newer versions may use bolt-on (appliqué) armor to improve their survivability. Some vehicles are equipped with reactive armor, which consists of metal plates and plastic explosives.

Table B-3. Shoulder-launched munition effects on heavy armored vehicles

Munitions	*Effects on Heavy Armored Vehicles*	*Remarks*
M72-series	Causes only a small entry hole, though some fragmentation or spalling may occur.	Reactive armor may cover the front and sides of the vehicle and can defeat shaped charge weapons. However, the munitions can restrict the vehicle's mobility and may destroy the vehicle if the round hits a vulnerable spot, such as the engine compartment area.
M136-series	Causes only a small entry hole, though some fragmentation or spalling may occur.	
M141 BDM	Can immobilize a vehicle by disabling its suspension system.	The M141 BDM should be a last resort when engaging armored vehicles.
M3 MAAWS	Fires a projectile that has armor penetration capabilities–35mm of armor. Capable of achieving maximum lethality against armored vehicles.	HEAT round is intended for use against all types of armored fighting vehicles including those fitted with protective devices such as skirting plates, grids, and other devices.
Legend: BDM—bunker defeat munition; HEAT—high explosive antitank; MAAWS—multi-purpose anti-armor anti-personnel weapon system; mm—millimeter		

B-52. Table B-4 on page 192 lists considerations for effects of shoulder-launched munitions on light armored vehicles. All current shoulder-launched munitions can destroy most light armored vehicles if the round hits a vulnerable spot, such as the engine compartment area or fuel tank. Unit leaders should provide squad and platoon supporting fires when engaging light armored troop carriers. Any infantry troops that survive the initial assault may dismount and return fire.

Table B-4. Shoulder-launched munition effects on light armored vehicles

Munitions	*Effects on Light Armored Vehicles*
M72-series	Can destroy armored vehicles if the round hits a vulnerable spot, such as the engine compartment area or fuel tank
M136-series	
M141 BDM	
M3 MAAWS	
Legend: BDM— bunker defeat munition; MAAWS—multi-purpose anti-armor anti-personnel weapon system	

B-53. Table B-5 lists considerations for effects of shoulder-launched munitions on nonarmored vehicles. Nonarmored vehicles, such as trucks and cars, are considered soft targets. Firing along their length (flank) offers the greatest chance of destruction since this type of shot is most likely to hit their engine block or fuel tank. Front and rear angles offer a much smaller target, reducing the chance of a first-round hit.

Table B-5. Shoulder-launched munition effects on unarmored vehicles

Munitions	*Effects on Unarmored Vehicles*	*Remarks*
M72-series	May penetrate, but will pass through the body with limited damage unless the rocket hits a vital part of the engine	When engaging enemy in vehicles, fire at the engine compartment area instead of the main body.
M136-series	May penetrate, but will pass through the body with limited damage unless the rocket hits a vital part of the engine	
M141 BDM	Causes destruction to unarmored vehicles.	
M3 MAAWS	Causes destruction to unarmored vehicles.	
Legend: BDM—bunker defeat munition; MAAWS—multi-purpose anti-armor anti-personnel weapon system		

FIRING AT STRUCTURES

B-54. The M72-series LAW, the M136 AT4, M3 MAAWS, and the M136A1 AT4CS are shaped-charge weapons that penetrate most field fortifications and buildings. However, penetration does not mean the destruction of the integrity of the structure. Typically, a small hole is made in the structure, and only those enemy personnel directly in the path of the spall fragmentation from the HE round become casualties. Other enemy inside a fortification may be deafened, dazed, or shocked, but they eventually return to action. The M141 BDM fires the HE charge that destroys fortifications and substantially damages buildings (see table B-6 and table B-7 on page 194).

Table B-6. M136- and M72-series munitions effects on field fortifications or bunkers

Aimpoint	*Effects*	*Recommended Firing Technique*
Firing Port or Aperture	Rounds fired into firing ports or apertures may be wasted. Rounds detonate inside the rear of the position cause little structural damage to the position, equipment, or personnel within unless they are hit directly.	Coordinate fire: fire an M72- or M136-series shoulder-launched munition at a point 6- to 12-inches from the front edge of the firing ports in the berm.
Berm	Firing at the berm causes the round to detonate outside the fighting position or inside the berm, creating only a small hole in the berm, dust, or minor structural damage to the position and no damage to personnel or equipment unless they are hit directly.	
Window	The round may travel completely through the structure before detonating. If not, it creates dust and causes minor structural damage to the rear wall and little damage to personnel or equipment unless they are hit directly.	Coordinate fire: fire 6- to 12-inches from the sides or bottom of a window. M136- and M72-series rounds explode on contact with brick or concrete, creating an opening with a size determined by the type of round used.
Wall	The round detonates on contact, creating dust and causing a small hole and minor structural damage but little damage to personnel or equipment unless they are hit directly.	
Corner	Corners are reinforced and, therefore, harder to penetrate than other parts of a wall. The munitions detonate sooner on a corner than on a less dense surface. Detonation should occur in the targeted room, creating dust and causing overpressure, which can temporarily incapacitate personnel inside the structure near the point of detonation.	M136-series munitions cause more overpressure than M72-series munitions.
Note. Fire small arms weapons at enemy-held positions to prevent personnel within from returning fire.		

Table B-7. M141 bunker munitions effects on field fortifications or bunkers

Aimpoint	*Effects*		*Recommended Firing Technique*
Bunkers	Rounds fired into firing ports or apertures can destroy standard earth and timber bunkers and hasty urban fighting positions. Rounds detonate inside the rear of the position, causing major structural damage. Damage to enemy equipment may be minor unless it is hit directly. The round causes injury or death to occupants.		Coordinate fire: fire a shoulder-launched munition at and through firing ports.
Buildings	Windows or Doorways	Coordinate fire: fire an M141 BDM at the center of the visible part of a window or door.	Rounds fired through windows or doorways can destroy the contents of the building. Destruction may not be contained within a single room. Rounds and debris from the round and material may pass through into other sections of the building, causing collateral damage. Damage to enemy equipment may be minor unless it is hit directly. The round causes injury or death to occupants.
Underground Openings	Walls	Coordinate fire: fire one or more M141 BDM at the center of the desired location for the opening. Fire a second round through the opening to destroy targets within the structure. ***Note.*** It takes more than one round to create a man-size hole. Use pair or volley fire, placing the rounds about 12- to 18- inches apart.	Coordinate fire: fire one or more M141 BDM.
Legend: BDM—bunker defeat munition			

Firing Ports or Windows

B-55. Rounds fired directly into firing ports or windows typically detonate on the rear wall of the structure, causing limited damage to equipment and personnel inside. For best effect, aim shaped-charge weapons about six-inches below or to the side of a firing aperture to maximize blast effects on the interior.

Sandbagged Emplacements

B-56. Because sandbags absorb much of the energy from a shaped charge, aim at the center of the firing aperture. Even if the round misses the aperture, the bunker wall area near it is usually easier to penetrate.

Berms or Walls

B-57. Firing directly at a berm or wall typically produces only a small hole, causing little or no damage to the position, equipment, or personnel behind the wall unless the round penetrates and directly hits equipment or personnel. For best effect, fire at a point 6 to 12 inches from the edge of the top or side edge of the berm or wall to maximize blast effects on the interior. Specific wall material effects follow:

- Stone:
  - Stone is the most difficult to penetrate of all common building materials.
  - The AT4 usually does not penetrate a heavy European-style stone wall.
  - Surface cratering is usually the only effect.

- Brick:
  - Brick is also difficult to breach with light recoilless weapons.
  - Multiple firings can breach some brick walls, especially if they are less than three bricks thick.
  - Weapons such as the AT4 may require three to five rounds to penetrate brick walls.
  - The BDM produces a hole in brick or mud walls that is often large enough to be a breach hole.
- Wood:
  - Wood offers little resistance to light recoilless weapons, which penetrate and splinter even heavy timbered walls.
  - The AT4 and BDM have a devastating effect against wood frame walls.
  - A single round produces a breach hole and significant spall.

PROTECTION

B-58. Soldiers must consider the effects of backblast when employing shoulder-launched munitions, protecting themselves from the blast, overpressure, and heat. During UO, the backblast area is more hazardous due to the channeling effect of enclosed spaces, narrow streets, and alleys. Anyone not able to vacate the caution zone should be behind cover. All personnel should be out of the weapons danger zone. When firing the M72 LAW, AT4, and tube-launched, optically-tracked, wire-guided (TOW) missile from masonry and frame buildings and sandbag bunkers—

- The safest place for Soldiers in the room is against the wall from which the weapon is fired.
- The key difference between firing from an enclosure and firing in the open is the duration of the pressure fluctuation.
- Little hazard exists to the gunner or crew from any type of flying debris, however:
- Firers should take advantage of all available sources of ventilation by opening doors and windows.
- Ventilation clears the room of smoke and dust and reduces the effective duration of the overpressure.
- No substantial degradation occurs to the operator's tracking performance as a result of obscuration or blast overpressure.
- The greatest hazard that can be expected is hearing loss, so all room occupants should wear hearing protection.
- Frame buildings, especially small ones, can suffer structural damage to the rear walls, windows, and doors.
- Large rooms suffer slight, if any, damage.

M72A7 LIGHT ANTIARMOR WEAPON

B-59. The M72A7 LAW offers significantly enhanced capability beyond that of the M72A3.

RANGE AND PENETRATION

B-60. The M72A7 LAW has a minimum range of 25 meters, a maximum range of 1,400 meters, a maximum effective range of 220 meters, and a maximum engagement range of 350 meters. The 66-mm rocket can penetrate 150 millimeters of armor.

FIRING FROM AN ENCLOSURE

B-61. In accordance with TB 9-1340-230-13, firing the M72A7 LAW from an enclosure is prohibited.

PROTECTION

B-62. Like all recoilless weapons, the backblast area of the LAW must be clear of personnel. Figure B-1 on page 196 depicts the M72A7 backblast area (see TM 3-23.25 for additional information).

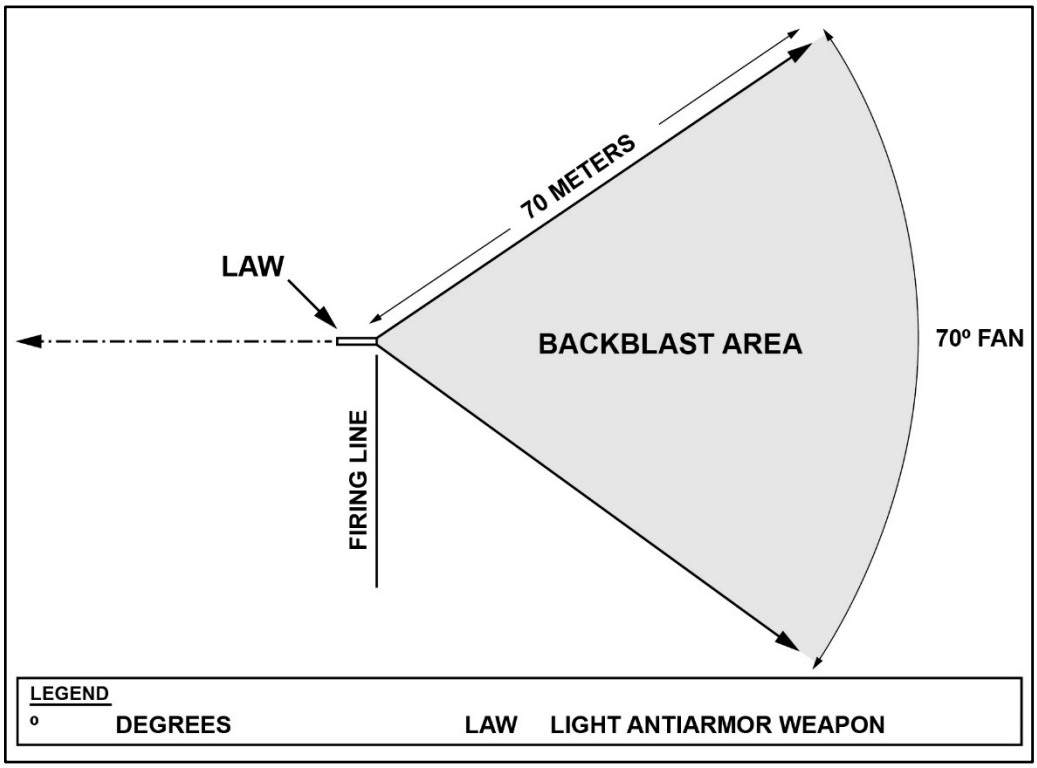


Figure B-1. M72A7 backblast area

M136 AT4

B-63. The M136 AT4 is a lightweight, self-contained, shoulder-launched munition designed for use against the improved armor of light armored vehicles. It provides lethal fire against light armored vehicles and has some effect on most enemy field fortifications.

Range and Penetration

B-64. The AT4 has a minimum range of 10 meters, a maximum range of 2,100 meters, a maximum effective range of 300 meters, and a maximum engagement range of 500 meters. The AT4's warhead has excellent penetration ability and lethal after-armor effects. The shaped-charge explosive penetrates more than 14 inches (350 millimeters) of armor. Penetration of a soft target is enhanced by the high kinetic energy retained by the rocket as it impacts the target. The rocket configuration also provides directional stability as the rocket enters soft targets, which greatly enhances lethality, especially when engaging targets at oblique angles. This directional stability after impact keeps the rocket from deflecting away from the target wall.

Firing from an Enclosure

B-65. Do not fire the AT4 from an enclosure or in front of any barrier that could interfere with the backblast.

Protection

B-66. The total backblast area extends 100 meters to the rear of the AT4 in a 90-degree fan (see figure B-2 and TM 3-23.25 for additional information).

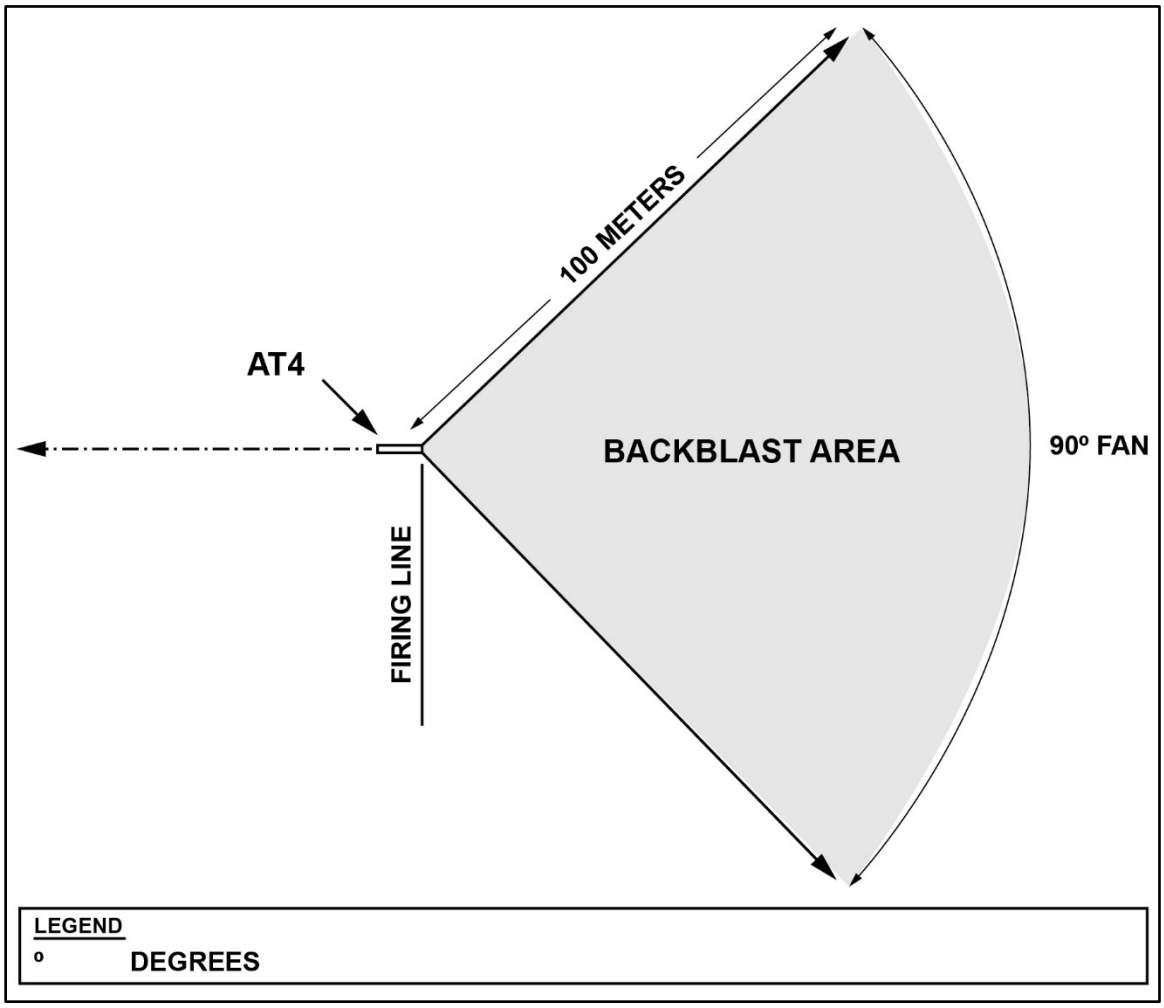


Figure B-2. M136 AT4 backblast area

M136A1 AT4CS 84-MM LAUNCHER

B-67. The M136A1 AT4CS is similar to the AT4, but it uses a different propulsion system that permits the AT4CS to be fired from an enclosure. As such, it is important to be able to identify the visual differences between the AT4CS and the AT4. A clearly displayed marking stating “confined space” identifies the launcher as an AT4CS.

RANGE AND PENETRATION

B-68. The AT4CS has a minimum range of 9 to 15 meters, a maximum range of 2,100 meters, a maximum effective range of 300 meters, and a maximum engagement range of 400 meters. Caution should be taken when engaging targets at less than 30 meters due to fragmentation. The AT4CS can penetrate 15.7 inches (400 millimeters) of armor, which is slightly more than the AT4.

FIRING FROM AN ENCLOSURE

B-69. The AT4CS has been rated safe for use from an enclosure when the enclosure meets the following minimum requirements:

- Construction: The building should be sturdily constructed to reduce the structural damage that would occur in a weakly constructed enclosure, such as one made of wood frame construction.
- Size of enclosure: A room should have a minimum inside area of 12 feet by 15 feet (about 3.5 meters by 4.5 meters) with a minimum ceiling height of 7 feet (2.1 meters).

- Ventilation: To allow for ventilation of the backblast, at least 20 square feet of open area, such as a standard 3-foot by 7-foot doorway, must be available and open on a side or rear wall.
  - Any additional doors or windows should be opened to increase ventilation and reduce overpressure, noise, and blast effects.
  - On the front wall, windows and doors need to be reinforced rather than removed since removing would draw attention to the position.
  - A blanket hung 1.5 to 2 meters behind the weapon and 15 to 30 centimeters from the rear wall considerably reduces sound pressure.
- Objects and debris: Any objects or debris to the rear of the weapon should be removed to prevent them from flying around the room and possibly injuring personnel as a result of the backblast.
  - Any equipment kept in the room when firing must be covered as it will be exposed to countermass spray (corrosive saline solution).
  - Keep soft objects, such as furniture and pillows, to help absorb overpressure.
- Clearance: Firing the AT4CS requires a minimum opening of 36 inches by 36 inches (1 meter by 1 meter) minimum.
  - The fins open approximately 10 inches (25.4 centimeters) wide shortly after exiting muzzle.
  - Use caution when aiming weapon (muzzle) to prevent fins from impacting window or doorsill.
  - Fire weapon no more than 4 inches (10 centimeters) from door or window frame.
- Firing angle: The firing angle of the weapon must not exceed 45 degrees left or right from the vertical plane or 20 degrees of depression. Do not fire weapon at any angle of elevation (see figures B-3 and B-4).
- Personnel positions: The AT4CS must be fired in standing position, with no more than two additional personnel in the room.
  - All personnel within the enclosure should wear earplugs.
  - If any other Soldiers are present, they should remain forward of the rear of the launcher and avoid standing in corners or near walls.

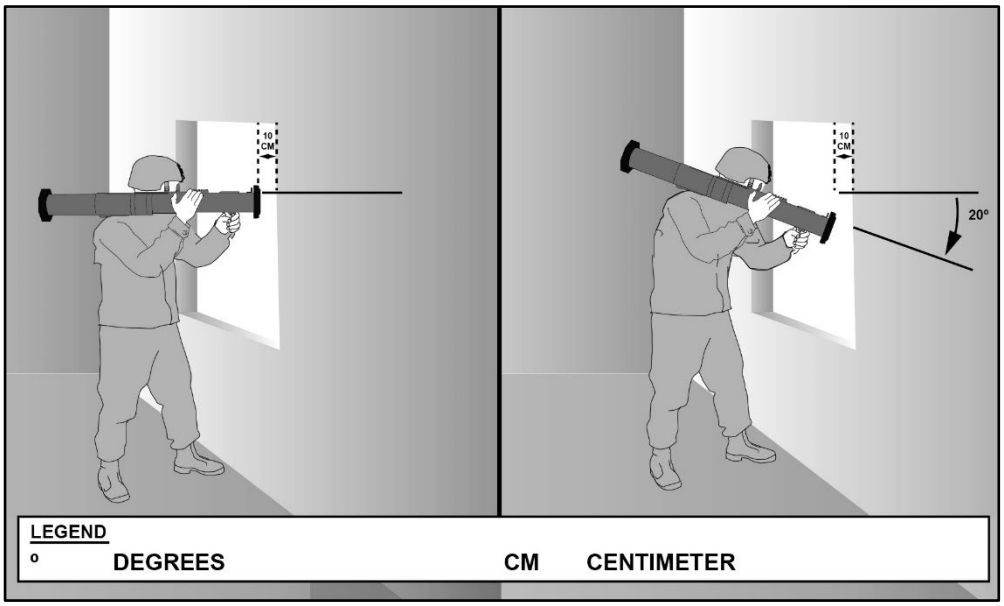


Figure B-3. Vertical firing angle

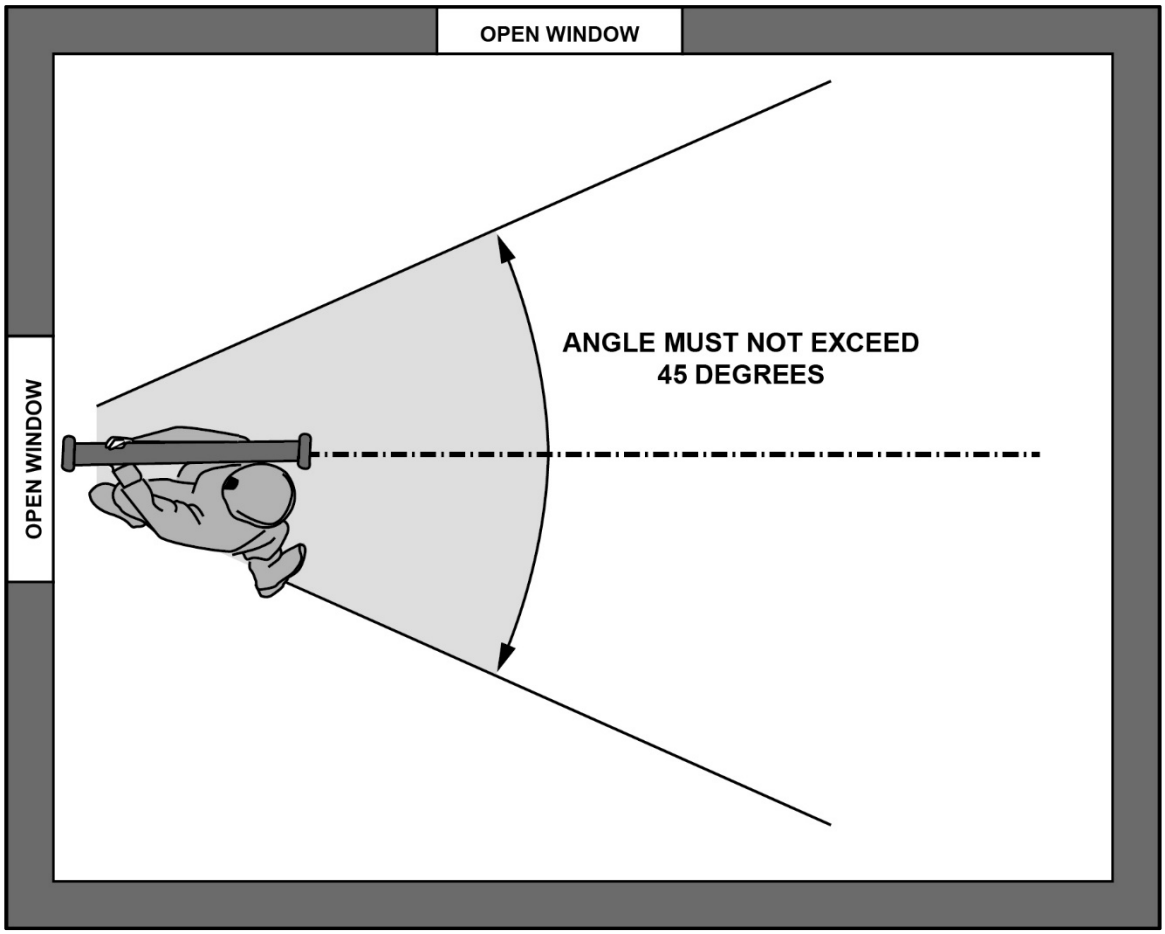


Figure B-4. Horizontal firing angle

PROTECTION

B-70. The backblast area is to the rear of the launcher in a 50-degree fan (see figure B-5). For additional information, see TM 3-23.25.

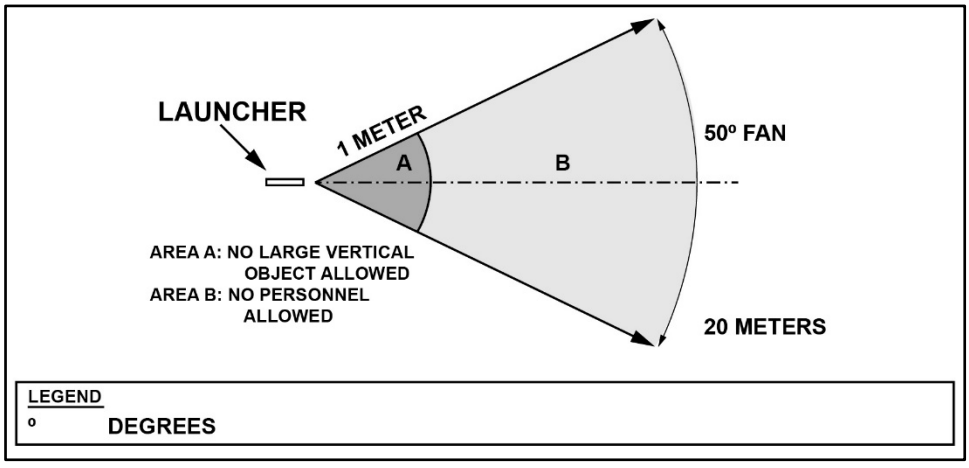


Figure B-5. M136A1 AT4CS backblast

M141 BUNKER DEFEAT MUNITION

B-71. The BDM is a lightweight, man-portable assault weapon that fires an 83-mm HEDP rocket that is effective against walls, bunkers, and light armored vehicles. The BDM can destroy most bunkers with a single hit. While multiple shots create breach holes even in reinforced concrete, they do not cut reinforcing steel bars.

B-72. The warhead automatically adjusts for the target type on impact. If the warhead hits a soft target, such as a sandbagged bunker, the fuse delays warhead detonation until the rocket has buried deep into the target, devastating the target. Rocket impact on a building wall or lightly armored vehicle causes the fuse to detonate immediately. The warhead's HE charge is compressed against the target, resulting in enormous target holes and large fragments inside the vehicle or behind the wall.

RANGE AND PENETRATION

B-73. The effective range is between 15 and 250 meters, maximum range is 2,000 meters, and maximum engagement range is 500 meters. The penetration and breaching of walls are a common task for the BDM in UO. The BDM is the only Army shoulder-launched munition combat-proven to destroy earth and timber bunkers, breach up to 8 inches of reinforced concrete, breach up to 12-inch triple brick walls, and defeat light armored vehicles by penetrating up to 20 millimeters of armor.

FIRING FROM AN ENCLOSURE

B-74. Do not fire the BDM from an enclosure that could interfere with the weapon's backblast (see TM 3-23.25 for additional information).

PROTECTION IN FRONT OF ANY BARRIER

B-75. Do not attempt to fire the weapon unless danger zones are clear of personnel and obstructions. Keep the backblast area clear of personnel (see figure B-6). The BDM backblast area consists of two areas:

- Danger area: No personnel are allowed in this area. Severe injury may be sustained from blast and flying debris.
- Ear protection caution area:
  - All personnel should wear hearing protection devices in this area.
  - Sound pressure levels may exceed 140 decibels.

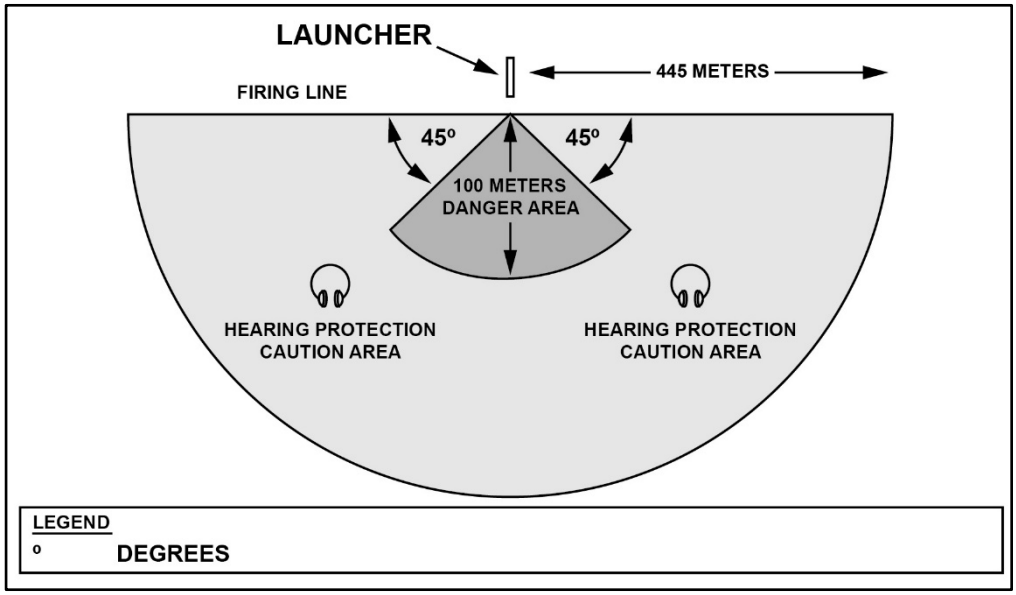


Figure B-6. Bunker defeat munition backblast surface danger zones

SECTION IV – CLOSE COMBAT MISSILES

B-76. Close combat missiles include the Javelin and the TOW missile. They are used mainly to defeat main battle tanks and other armored vehicles. They have a moderate capability against bunkers, buildings, and other fortified targets commonly found during combat in urban areas. Close combat missiles provide precision long-range direct fire capability to platoons and companies. The fire-and-forget capability of the Javelin and the 10-digit grid coordinates afforded by the far target locator provide precision fires against a wide array of fleeting and static targets.

JAVELIN

B-77. The Javelin is a fire-and-forget weapon system that can destroy tanks and fortified positions (see TC 3-22.37 for additional information).

RANGE AND PENETRATION

B-78. The minimum engagement range is 65 meters in direct attack mode and 150 meters in top-attack mode. The maximum range is 2,000 meters. Engagement areas in urban terrain should be developed to ensure the Javelin achieves this minimum arming distance. In the top-attack mode, the missile strikes the thinner armor on the top of an armored vehicle rather than the thicker frontal and side armor plates. Top-attack also prevents an enemy target from protecting itself by moving behind frontal cover. When used in urban areas or where obstacles might interfere with the top-attack flight path of the missile, the Javelin can also be fired in the direct-attack mode.

B-79. Penetration of urban targets does not mean a concurrent destruction of the structural integrity of a position. When engaging a position in a building, gunners should normally use the direct-attack mode to hit the target. When engaging a position or bunker in the open, use either attack mode.

DEAD SPACE

B-80. Few areas in most urban environments permit fires much beyond the minimum arming distance. Ground-level long-range fires down streets or rail lines and across parks or plazas are possible. The Javelin may be effective from the upper stories or roofs of buildings to fire into other buildings. The Javelin gunner should take into consideration the targeting dead space that is sometimes caused by the background of the target and its heat signature. When firing from the upper stories of a building towards the ground, the missile seeker sometimes cannot discriminate between the target and surrounding rubble, buildings, or paving if that background material has the same temperature as the target.

BACKBLAST

B-81. The Javelin's soft-launch capability enables the gunner to fire from within an enclosed area with a reduced danger from backblast overpressure or flying debris. Personnel within the enclosure should still wear appropriate protective gear.

B-82. When firing a Javelin from inside a room—

- Select a building of sturdy construction.
- Ensure ceiling height is at least 7 feet and floor size is at least 15 feet by 12 feet.
- Ensure window opening is at least 5 square feet.
- Ensure at least 20 square feet of ventilation, preferably to the rear of the weapon. An open 7-foot by 3-foot door provides minimum ventilation.
- Remove all glass from windows and all small, loose objects from the room.
- Clean the room of debris and wet the floors to prevent dust and dirt (kicked up by the backblast) from obscuring the vision of other Soldiers in the room.
- Allow sufficient room for the missile container to extend beyond the enclosure.
- Ensure all personnel in the room are forward of the rear of the weapon.
- Ensure a clearance of 6 inches between the launch tube and the firing aperture.

TOW MISSILE

B-83. The TOW missile (especially when using the bunker buster missile) is extremely effective against fortified positions. Within urban areas, it is best employed along major thoroughfares and from the upper stories of buildings to attain long-range fields of fire (see TC 3-22.32 for additional information).

PENETRATION

B-84. The TOW missile can penetrate and destroy heavily armored tanks. All TOW missiles can defeat triple sandbagged walls, double layers of earth-filled 55-gallon drums, and 18-inch log walls. The shaped-charge warhead produces relatively little spall. Enemy personnel not standing directly behind or near the point of impact of the missile may escape injury.

TOW 2A

B-85. The basic TOW missile can penetrate 8 feet of packed earth, 4 feet of reinforced concrete, or 16 inches of steel plate. The missile's primary target set is armor; its secondary target set is reinforced urban structures (building/bunkers and caves).

TOW Bunker Buster

B-86. A single TOW bunker buster missile creates a 22-inch hole in 8-inch double reinforced concrete. It completely destroys an 8-foot by 8-foot cinder block wall. The TOW bunker buster missile is designed to create breaching-sized holes in targets. When applying two missiles to 8-inch double-reinforced concrete targets, it can be used to create an opening large enough for dismounted infantry in full assault gear to pass through. The TOW bunker buster disperses its pressure at the point of penetration. This enables greater precision in urban engagements, enhances lethality, and minimizes collateral damage outside of the target area. It can also neutralize enemy personnel and equipment in a room when fired through an opening and detonated on the back wall. The subsequent thermobaric effects inside a room are devastating. The fragmentation of the titanium warhead case renders the room(s) useless as a fighting position and destroys any enemy personnel within the blast radius. The missile's primary target set is reinforced urban structures (buildings/bunkers and caves). Its secondary target set is light armored vehicles, such as armored personnel carrier and vehicles (trucks and cars).

TOW 2B

B-87. The TOW 2B missile flies over the target and fires onto the thinner top vehicle armor. Because of this feature, this missile cannot be used to attack nonmetallic structural targets. Gunners must avoid firing directly over friendly vehicles, disabled vehicles, or large metal objects. The missile's primary target set is armor. Its secondary target set is reinforced urban structures (buildings/bunkers or caves), specifically using the system's line-of-sight mode to fly the missile through a window or a doorway. Since their dual-explosive formed penetrator warheads point down, TOW 2B missiles are not breaching rounds. However, since their warheads contain twice the explosive as those of TOW 2A missiles, TOW 2B missiles will cause considerable damage when flown through windows or doors and detonated inside of the structure.

TOW 2B Aero

B-88. This version of the TOW 2B missile has an effective range of 4,200 meters, compared to the 3,750-meter range of previous TOW missiles. This longer-range allow the crew to engage a target well beyond the range of the weapons of the target vehicle. TOW 2B Aero incorporated two minor modifications on the TOW 2B to extend the range. First, an aerodynamic nose was added to improve aerodynamic performance. Second, more wire was added to accommodate the command guidance for the extended range. The missile's primary target set is armor. Its secondary target set is reinforced urban structures (buildings/bunkers), specifically using the system's line-of-sight mode to fly the missile through a window or a doorway.

TOW Radio Frequency Variant

B-89. All TOW missiles have a radio frequency variant. The TOW radio frequency missile was developed to improve reliability, perform over water, increase combined arms applications in urban environments, and eliminate limitations imposed by power lines, smoke, and fires.

DEAD SPACE

B-90. Three aspects of dead space that affect the firing of TOW missiles are—

- Arming distance:
  - The TOW missile has a minimum arming distance of 65 meters, which can limit its use in urban areas.
  - Engagement areas in urban terrain must be developed due to the minimum aiming distance.
  - Ground-level, long-range fires down streets or rail lines and across parks or plazas are possible.
  - The missiles may be used from upper stories or roofs of buildings to fire into other buildings.
- Maximum depression and elevation:
  - The maximum depression and elevation limits of the improved target acquisition system (known as ITAS) mount could result in dead space and preclude the engagements of close targets.
  - A TOW ITAS crew located any higher than the sixth floor of a building cannot engage a target at the minimum arming range due to maximum depression limits.
  - At 100 meters, the TOW ITAS crew can be as high as the ninth floor and still engage the target (see figure B-7).

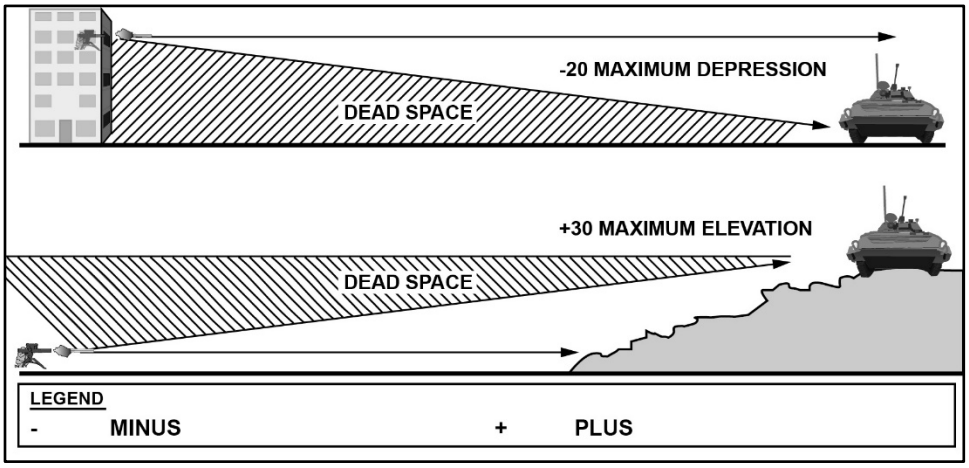


Figure B-7. TOW ITAS maximum elevation and depression limitation

- Backblast:
  - This is more of a concern during combat in urban areas than in open country.
  - The backblast can pick up and throw any loose rubble in the caution zone (see figure B-8 on page 204).
  - The channeling effect of walls and narrow streets is even more pronounced due to the greater backblast.
  - If the TOW missile backblast strikes a wall at an angle, it can pick up debris or be deflected and cause injury to unprotected personnel.
  - When firing the missile from inside buildings, all personnel should wear appropriate protection.

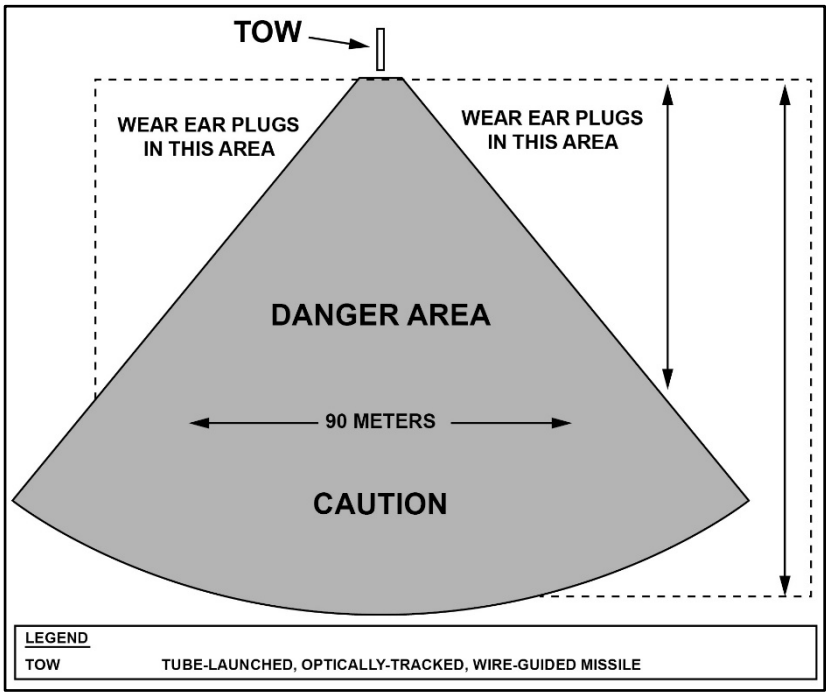


Figure B-8. TOW missile backblast in an open street

B-91. When firing a TOW missile from inside a room—

- Select a building of sturdy construction.
- Ensure ceiling height is at least 7 feet. Ensure floor size is at least 15 feet by 15 feet.
- Ensure at least 20 square feet of ventilation (room openings), preferably to the rear of the weapon. An open 7-foot by 3-foot door provides minimum ventilation.
- Remove all glass from windows and all small loose objects from the room.
- Clean the room of debris and wet the floors to prevent dust and dirt (kicked up by the backblast) from obscuring the vision of other Soldiers in the room.
- Ensure all personnel in the room are forward of the rear of the weapon.
- Ensure a clearance of 9 inches between the launch tube and the firing aperture.

OBSTACLES

B-92. An obstacle is any object that can interfere with TOW missile flight. Manmade and natural obstacles and terrain can break the wire of a wire-guided TOW missile, deflect it from its intended path, and interfere with system-to-missile controls (water, electrical power lines, smoke, and area fires do not affect the wireless radio frequency missile variants). Maintain at least 42 inches of vertical clearance over obstacles. Other obstacles for TOW missiles include—

- Water:
  - Firing across bodies of water wider than 1,100 meters can reduce the range of the TOW missile.
  - Signals being sent through the command-link wires are shorted out when a large amount of wire is submerged in water. If the range is less than 1,100 meters, the missile's range is not affected. Maximum and limited firing ranges over water vary according to missile type.
  - A TOW missile position should be as high above and as far back from the water as the tactical situation allows.

- Electrical power lines:
  - Firing over electric train, streetcar, and power lines may cause the command-link wires to make contact with live high-voltage power lines.
  - If this occurs, personnel can be injured, control of the missile can be lost, and the launcher electronics may be damaged.
- Windy conditions:
  - Gusty, flanking, or quartering winds can cause the launch tube to vibrate and spoil the tracking performance.
  - Strong winds can be present around tall buildings, and erecting a windscreen next to the launcher helps to reduce this problem.
  - Strong winds can move the missile around during flight, but the weapon system itself can compensate for wind effects as long as the crosshairs are kept on the center mass of the target.
- Smoke and area fires:
  - Smoke can obscure the line of sight and hide the target when using the day sight.
  - When obscuration is encountered, the gunner should switch to the night vision sight mode.
  - Fire can burn through the command-link wire, causing loss of control of the missile.
  - The gunner should avoid firing through fire and over fires if there is a possibility that the wires will contact the fire before missile impact.

SECTION V – VEHICULAR WEAPON SYSTEMS

B-93. This section discusses five armored vehicles capable of providing supporting direct fire during UO: M1 Abrams tank, BFV, Stryker ICV, and mine-resistant vehicles. The breaching effects of each of these armored vehicles, especially the 120-mm tank cannon, are major assets to infantry fighting in urban areas.

M1 ABRAMS TANK

B-94. The M1-series tank has excellent cross-country mobility, sophisticated communications, enhanced target acquisition, lethal firepower, and effective armor protection. In combination, these factors produce the shock effect that allows units with M1 tanks to close with and destroy the enemy in most weather and light conditions.

ARMAMENT

B-95. The M1 tank is armed with three types of weapons.

Main Gun

B-96. The tank's main gun can only depress to -10 degrees and elevate to +20 degrees, which creates considerable dead space at the close ranges. The lower depression limit creates a 35-foot (10.8-meter) dead space around the tank. On a 16-meter-wide street, this dead space extends to the buildings on each side (see figure B-9 on page 206). Similarly, there is a zone overhead in which the tank cannot fire (see figure B-10 on page 206). This offers ideal locations for enemy short-range antiarmor weapons. It also exposes the tank's most vulnerable areas: the flanks, rear, and top. Infantry should provide close protection. The M1-series tanks also have a blind spot caused by the 0-degree of depression available over the rear deck. To engage targets in this area, the tank must pivot to orient the main gun over either side of the vehicle.

Coaxial Machine Gun

B-97. The coaxial machine gun is aligned with the main gun by way of a machine gun mount near the breech ring. It is sighted and fired from either the gunner's station or the commander's station in the same manner as the main gun.

Flexible Machine Guns

B-98. All Abrams tanks are equipped with a commander's M2 and a loader's M240 machine gun that can elevate to +36 degrees. The commanders M2 with a Common Remotely Operated Weapon Station (known as CROWS) can elevate -20 degrees +60 degrees and can be fired from the closed hatch position which

provides overhead protection to the crew in an urban environment. The commander's M2 and loader's M240 machine gun with CROWS are both capable of providing highly accurate precision small arms fires.

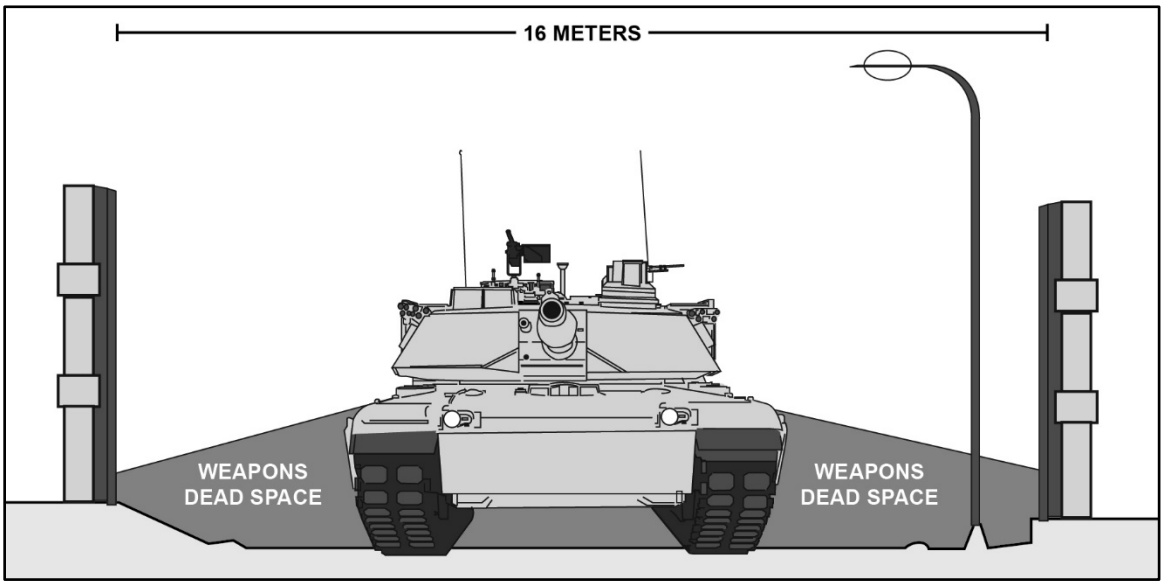


Figure B-9. Dead space at street level

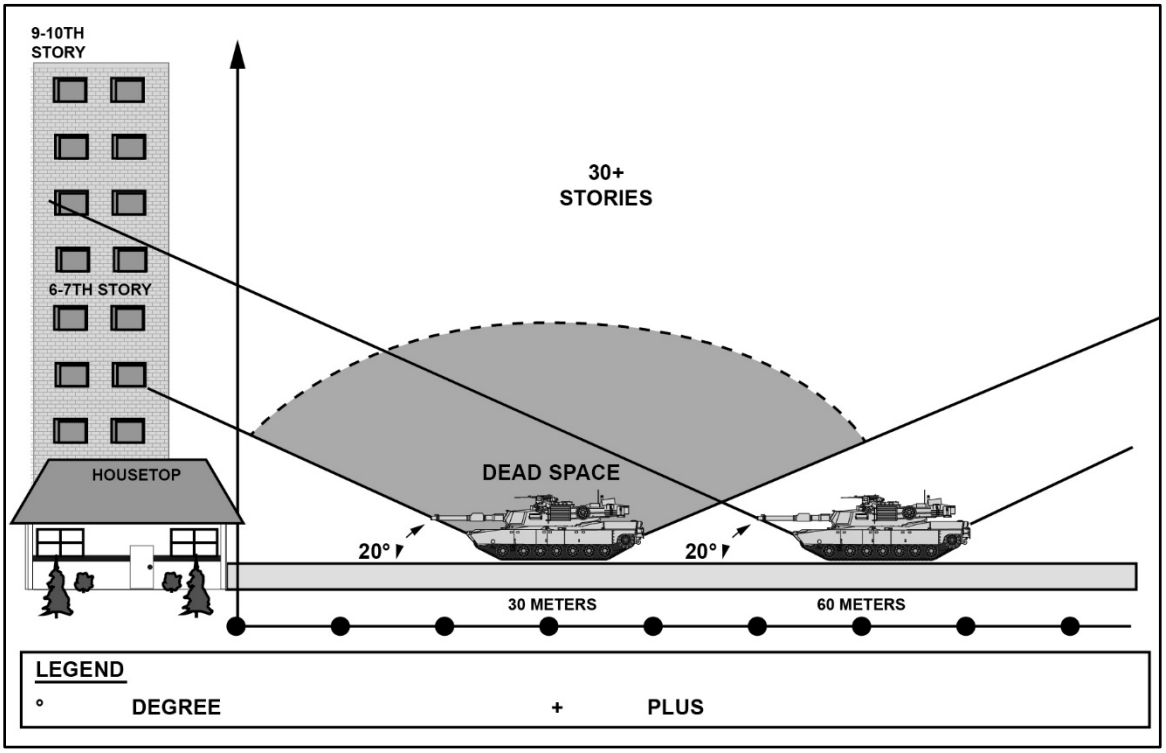


Figure B-10. Dead space above street level

EFFECTS

B-99. Effects are broken down into categories of weapon effects and one category of mechanical effects.

Weapons Effects

B-100. Weapons effects are described below.

Armor-Piercing Fin-Stabilized Discarding Sabot with Tracer

B-101. The armor-piercing fin-stabilized discarding sabot with tracer (known as APFSDS-T) round works best against armored vehicles. It operates by utilizing kinetic energy. Therefore, the round does not need to arm. Because of this, the round can be fired at almost any range. The APFSDS-T round can penetrate deeply into a structure but does not create as large a hole or displace as much spall behind the target.

Multipurpose Antitank with Tracer

B-102. The multipurpose antitank with tracer (known as MPAT-T) round is effective against urban structures and arms approximately 30 meters from the muzzle of the gun when in the ground (G) mode. It can penetrate structures even when unarmed. The effectiveness of the MPAT-T round against heavy armor is limited to attacks from the side and rear and could impair mobility / firepower. The MPAT-T projectile is effective against light armored vehicles. A consideration when using the MPAT-T round in an urban environment is the proximity switch. When firing MPAT-T, crews should be alert to the presence of buildings, light poles, and other objects along the gun-target line that may cause the proximity switch to function early. This premature detonation will not only cause a target miss but may also cause unintended effects on friendly or civilian elements.

B-103. The MPAT-T is effective against buildings with wooden walls over 1-inch thick. Impact against a thinner wall structure (plywood sheathing without striking supporting members) may produce only a small hole as the projectile passes through the wall without detonating if the switch is set to ground mode. Impact against a supporting structure (roof rafter or wall stud) causes detonation of the warhead, a subsequent hole, and lethal fragmentation effects to personnel located inside. Impact against concrete walls yield holes of about 24 inches in diameter, but reinforcing bars embedded within the concrete are not likely to be cleared from the hole unless struck directly.

B-104. The MPAT-T projectile is extremely effective against earthen, timber, and sandbag bunkers. The projectile tends to bury itself into the bunker structure before warhead detonation. When this occurs, the detonation produces lethal effects to personnel within the structure as well as a highly destructive effect to the bunker structure itself.

B-105. The MPAT-T is effective against aircraft. The MPAT-T proximity switch can be set to air (A) mode and destroy aircraft without making impact. If the projectile is on a direct-impact flight path, the proximity electronic switch senses the presence of an air target, sends a signal to the base element, and detonates destroying the aircraft.

High-Explosive Obstacle Reducing with Tracer

B-106. The high-explosive, obstacle reduction with tracer (known as HE-OR-T) round is effective against urban structures and arms approximately 30 meters from the muzzle of the gun. It can effectively penetrate structures even when unarmed. The HE-OR-T round has a rubbling capability.

B-107. The HE-OR-T projectile is effective against concrete obstacles. The projectile is designed to penetrate the structure before the warhead detonates. This penetration fractures the concrete obstacle from within, breaking it into smaller blocks, which can be cleared with a bulldozer blade.

Canister Round

B-108. The canister round is primarily used in an antipersonnel role against troops in the open. It can also be used in an anti-materiel role to defeat unarmored vehicles and surfaced laid obstacles, such as concertina wire. Engagements of anti-materiel objects should be at close range to achieve best results, based on the normal spread and velocity of a canister round.

Mechanical Breaching

B-109. The tank is effective at breaching reinforced doors, fences, or walls to create entry points by ramming. To breach structures, it is recommended that the turret is oriented over the back deck and that the front hull be used to make head-on contact with the structure. However, unless a blade or other externally mounted attachment is used, the headlights and fenders will be damaged. Care should be taken to avoid covering the driver's vision ports with rubble. Also, avoid using the rear of the tank as the grille and external phone are easily damaged by rubble.

PROTECTION

B-110. Tank cannons create an overpressure and noise hazard to exposed Soldiers. All dismounted Soldiers should wear appropriate protection and avoid the tank's frontal 60-degree arc during firing. The overpressure from the tank's 120-mm cannon can seriously injure a dismounted Soldier within a 90-degree arc extending from the muzzle of the gun tube out to 200 meters.

B-111. Discarding sabot petals, including those on MPAT-T and HE-OR-T rounds, endanger accompanying infantry elements. They create a hazard area from 200 to 1,000 meters along a tank's line of fire on a frontage of about 400 meters. Dismounted infantry must be aware of the danger from discarding sabot petals, which can kill or seriously injure exposed personnel.

BRADLEY FIGHTING VEHICLE

B-112. The primary role of the BFV during combat in urban areas is to provide suppressive fire and to breach exterior walls and fortifications. It can also protect Soldiers when they move during UO.

ARMAMENT

B-113. The armament of the BFV consists of a 25-mm main gun, the 7.62-mm coaxial machine gun, and TOW missile launcher.

Main gun

B-114. The 25-mm automatic chain gun is an effective weapon for urban combat. The BFV can elevate its 25-mm gun to +60 degrees but can only depress to -10 degrees, which like the M1 creates considerable dead space at street level. On a 12-meter-wide street, this dead space will extend one to two meters from the buildings on each side (see figure B-11). Similarly, there is a zone overhead in which the BFV cannot fire (see figure B-12). The 25-mm gun fires—

- Three combat rounds—APFSDS-T, armor piercing discarding sabot with tracer (known as APDS-T), and high-explosive incendiary with tracer (known as HEI-T).
- Two training rounds—target practice with tracer and target practice discarding sabot with tracer.

Machine gun

B-115. The 7.62-mm coaxial machine gun is used to engage dismounted infantry, crew-served weapons, antitank guided missile teams, rocket propelled grenade launcher teams, thin-skinned vehicles, and lightly constructed positions (see section IV above for more information concerning medium and heavy machine guns for information on the M240 machine gun).

TOW missile

B-116. See section IV above for the capabilities of the TOW missile.

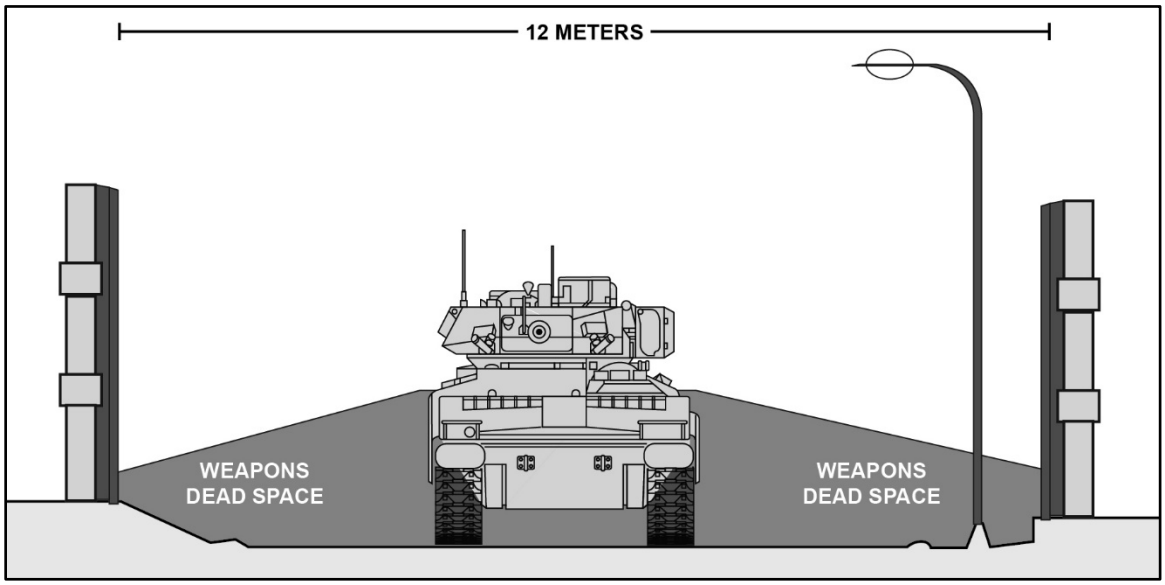


Figure B-11. BFV street level dead space

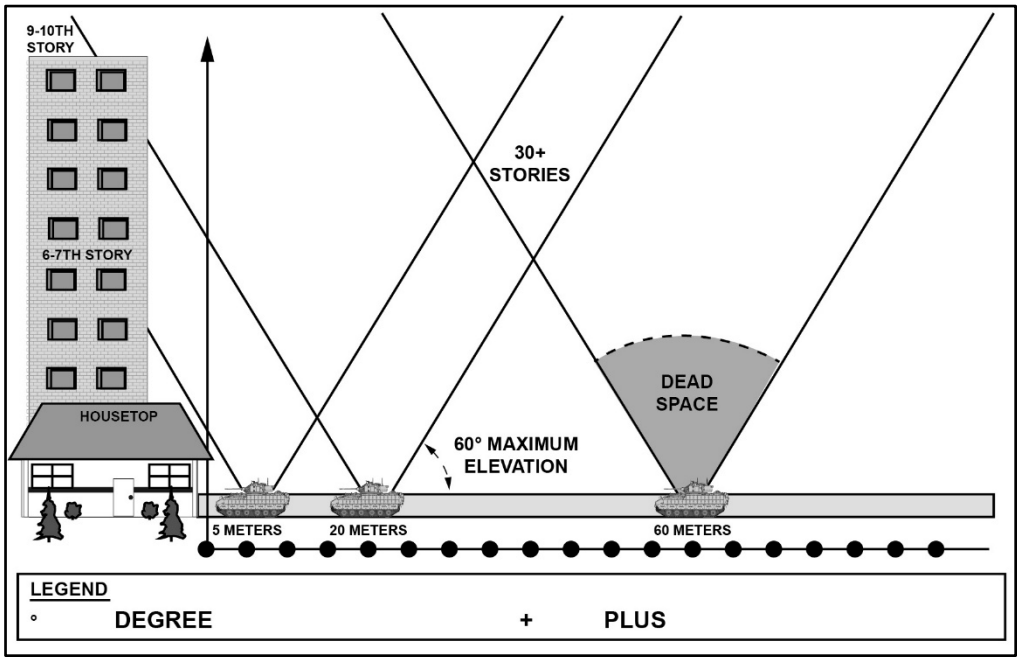


Figure B-12. BFV above street dead space

EFFECTS

B-117. Although the penetration achieved by the three combat rounds differ slightly, all are eventually effective. Soldiers should consider using more effective weapons before expending large amounts of 25-mm ammunition to breach walls.

Armor-Piercing Discarding Sabot with Tracer Round

B-118. The APDS-T and APFSDS-T rounds are similar. The major difference is the APFSDS-T is fin stabilized and contains depleted uranium. They both penetrate urban targets by retaining their kinetic energy and blasting a small hole deep into the target. The APDS-T round gives the best effects behind the wall, and

the armor-piercing core often breaks into two or three fragments, which can create multiple casualties. The APDS-T needs as few as four rounds to begin achieving lethal results behind a wall. Table B-8 explains the number of APDS-T rounds needed to create different size holes in common urban walls.

Table B-8. Breaching effects of APDS-T rounds on urban walls

Target	*Loophole*	*Breach Hole*
3-inch brick wall at 0-degree obliquity	22 rounds	75 rounds
3-inch brick wall at 45-degree obliquity	22 rounds	35 rounds
8-inch reinforced concrete at 0-degree obliquity	22 rounds	75 rounds*
8-inch reinforced concrete at –45- degree obliquity	22 rounds	40 rounds*
*Reinforcing rods still in place. ***Note.** Obliquity tends to increase the amount of wall material removed.		

B-119. When firing single rounds, the APDS-T round provides the greatest capability for behind-the-wall incapacitation. The APDS-T round can penetrate over 16 inches of reinforced concrete with enough energy left to cause enemy casualties. It penetrates through both sides of a wood frame or brick veneer building. The APDS-T round easily penetrates field fortifications. Table B-9 explains the number of APDS-T rounds needed to create different size holes in common bunkers.

Table B-9. Breaching effects of APDS-T rounds on bunkers

Target	*Penetration*	*Loophole*	*Breach Hole*
36-inch sand or timber at 0-degree obliquity	1 round	25 rounds	40 rounds
36-inch sand or 6-inch concrete at 0-degree obliquity	6 rounds	6 rounds	20 rounds

Armor-Piercing Fin-Stabilized Discarding Sabot with Tracer Round

B-120. The APFSDS-T round contains depleted uranium. The depleted uranium is only used in combat and should be reserved for defeating enemy armor and not for penetrating urban targets. The APFSDS-T round can be used to penetrate urban structures, but it should only be used as a last option due to the dangers associated with depleted uranium in urban areas. Its effects are nearly identical to the APDS-T and are covered above under the APDS-T.

High-Explosive Incendiary with Tracer Round

B-121. The HEI-T round does not provide single-round perforation or incapacitating fragments on any external masonry structural wall. It can create first-round fragments behind wood frame and brick veneer walls. The HEI-T round cannot penetrate a bunker as quickly as the APDS-T round, but it can create more damage inside the bunker once the external earth has been stripped away. Against a heavy bunker, about 40 rounds of HEI-T are needed to strip away the external earth shielding and breach the inner lining of concrete or timber. The HEI-T round is also useful for suppression against known or suspected firing ports, such as doors, windows, and loopholes.

B-122. The HEI-T round penetrates urban targets by blasting away chunks of material. The HEI-T round does not penetrate an urban target as well as the APDS-T, but it creates the effect of stripping away a greater amount of material for each round. The HEI-T does more damage to an urban target when fired in multiple short bursts because the accumulative impact of multiple rounds is greater than the sum of individual rounds. Table B-10 explains the number of HEI-T rounds needed to create different size holes in brick or concrete.

Table B-10. Breaching effects of HEI-T rounds on urban walls

Target	*Loophole*	*Breach Hole*
3-inch brick wall at 0-degree obliquity	10 rounds	20 rounds
3-inch brick wall at 45-degree obliquity	20 rounds	25 rounds
8-inch reinforced concrete at 0-degree obliquity	15 rounds	25 rounds
8-inch reinforced concrete at 45-degree obliquity	15 rounds	30 rounds

B-123. The 25-mm gun has different effects when fired against different urban targets. The impact of the 25-mm gun on typical urban targets is often magnified if the firing is in short bursts. At close ranges, the gunner should shift the point of aim in a spiral pattern to ensure that the second and third bursts enlarge the hole. Even without burst fire, sustained 25-mm gunfire can defeat almost all urban targets.

Reinforced Concrete Walls

B-124. Reinforced concrete walls, which are 12 to 20 inches thick, are relatively easy to penetrate, fracture, and clear away the concrete. However, the steel reinforcing rods, normally 3/4 inch thick and 6 to 8 inches apart, often remain in place. This creates a "jail window" effect that prevents entry but allows grenades or rifle fire to be placed behind the wall. There is no quick way of cutting these steel rods. Although, they can be cut with demolition charges, cutting torches, or special power saws.

Brick Walls

B-125. The 25-mm gun defeats brick walls regardless of their thickness.

Bunker Walls

B-126. The 25-mm gun is devastating when fired against sandbag bunker walls. Obliquity has the least effect on the penetration of bunker walls. Bunkers with earth walls up to 36 inches thick are easily penetrated. At short ranges typical of combat in urban areas, defeating most bunkers is easy, especially if the 25-mm gun can fire at an aperture.

PROTECTION

B-127. The APDS-T round creates a hazardous situation for exposed personnel because of the discarding pieces of sabot that are thrown off the round. These discarding pieces could injure or kill personnel not under cover forward of the 25-mm gun's muzzle and within the danger zone. Crew members must consider the safety of the Soldiers on the ground prior to firing any ammunition with discarding sabot projectiles (see figure B-13 on page 212). The danger zone extends at an angle of about 10 degrees below the muzzle level, out to at least 100 meters, and about 30 degrees left and right of the muzzle.

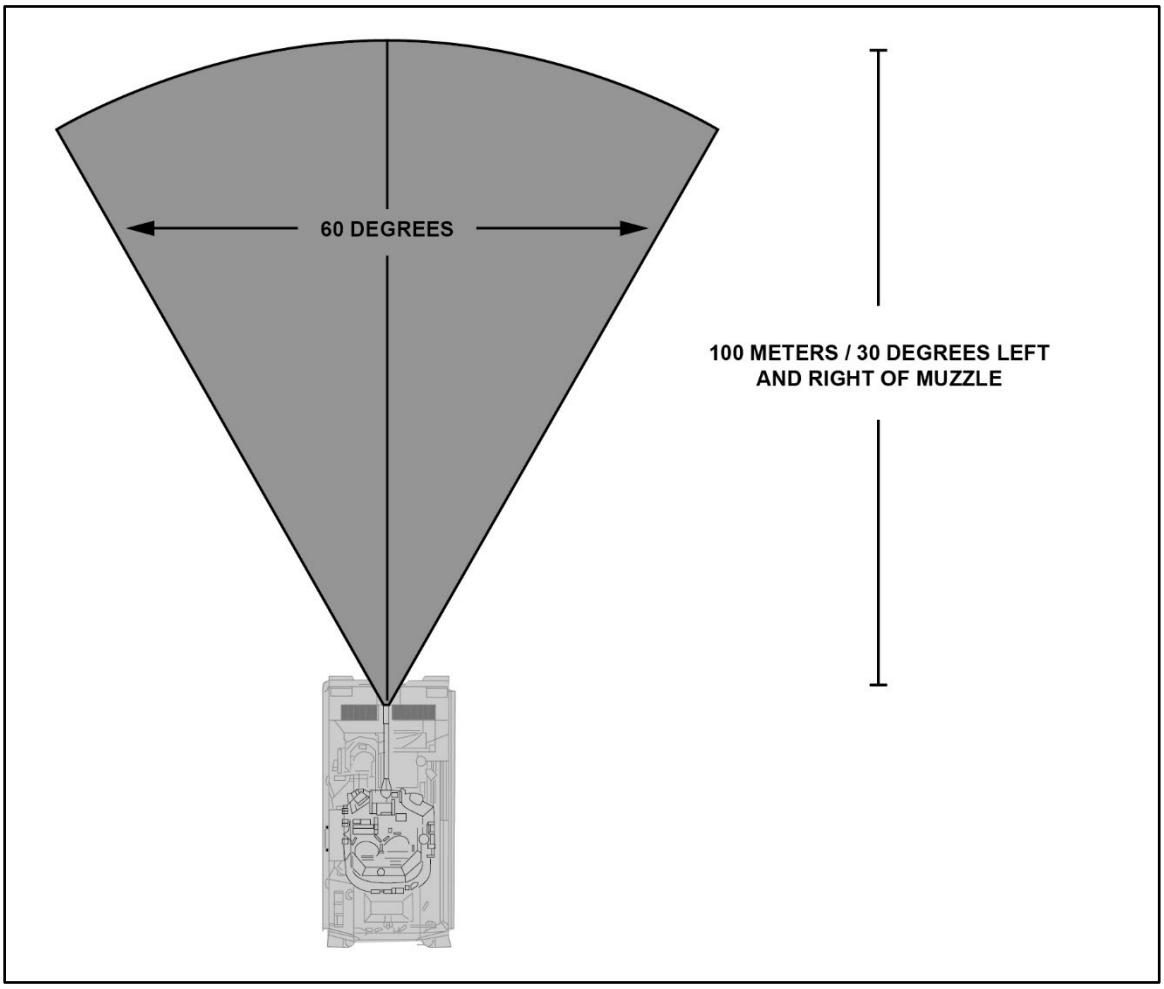


Figure B-13. Sabot petal danger area

B-128. The TOW weapon system has a backblast area that extends 75 meters to the rear of the vehicle in a 90-degree cone (see figure B-14). This area comprises both a 50-meter danger zone and an additional 25-meter caution zone. The Bradley must be positioned so that no personnel, unarmored vehicles, or obstructions (such as walls, embankments, or large trees) remain in the backblast area for its missile.

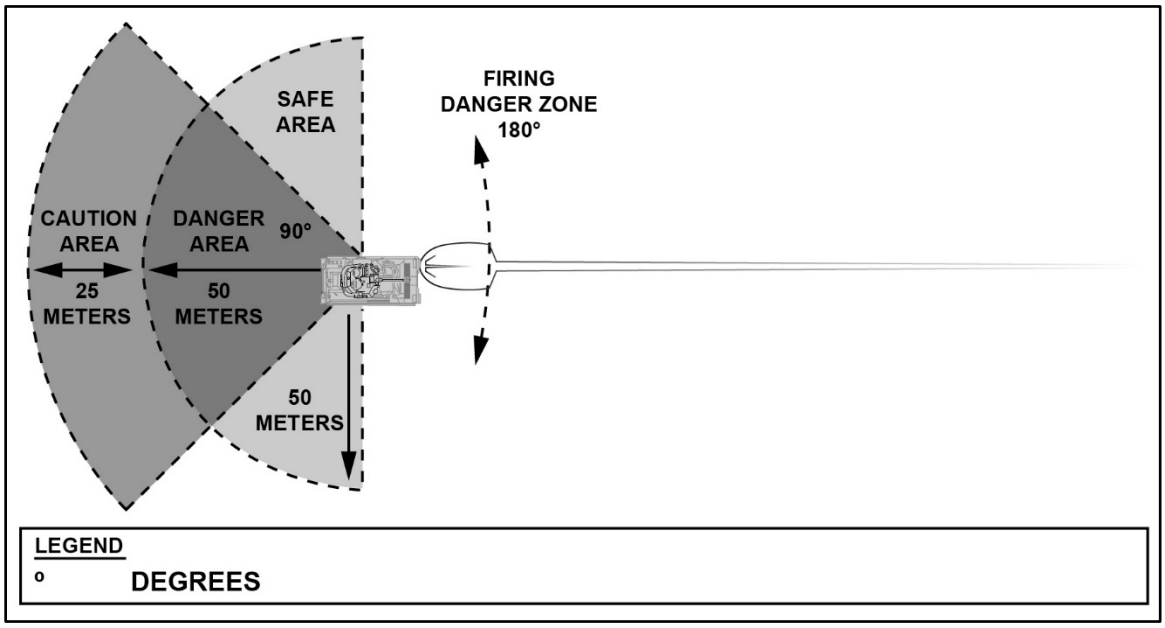


Figure B-14. Danger zone

STRYKER INFANTRY CARRIER VEHICLE

B-129. The ICV can support the infantry with suppressive fire and provide protection by negating the effects of enemy small-arms weapons, either by driving Soldiers up to a building or by acting as a shield while the infantry moves behind it along a street.

ARMAMENT

B-130. The main armament of the ICV is the remote weapon system, which accommodates either an MK19 40-mm grenade machine gun or a .50-caliber M2 heavy barrel machine gun. Both weapons can be controlled under the vehicle's protective armor. Some ICVs are equipped with a 30-mm chain gun as the primary weapon and a M240 7.62mm medium machine gun. This weapon system can be fired remotely while on the move or stationary with hatches closed to protect the gunner from urban threats.

EFFECTS

B-131. See section IV above for more information concerning heavy machine guns and grenades. The 30 mm equipped ICV will produce similar effects on urban structures to the 25-mm. (see tables B-8 through B-10).

PROTECTION

B-132. While the ICV is not vulnerable to small-arms weapons, some can be vulnerable to most other weapons systems, particularly antitank weapons. Some ICVs are equipped with ceramic applique armor that protects against 14.5mm machine gun and 152mm artillery fragmentation when applied to the basic steel body. Most ICVs feature a double V-hull which provides additional crew protection against mines and IEDs.

MINE RESISTANT VEHICLES

B-133. The Joint Light Tactical Vehicle (known as JLTV) and mine resistant ambush protected (known as MRAP) vehicles' mission roles are similar to the Stryker in many respects. The JLTV and MRAP provides small units with protected mobility and mounted firepower. Squads and platoons use JLTV and MRAP vehicles to conduct both mounted and dismounted missions (see TC 21-305-7 and TC 7-31 for additional information).

ARMAMENT

B-134. Armament may include an M2 50-caliber heavy machine gun, MK-19 automatic grenade launcher, or M240 medium machine gun.

EFFECTS

B-135. See section IV for more information regarding heavy machine guns and grenades.

PROTECTION

B-136. The JLTV and MRAP are designed for the distinct purpose of increasing the protection of Soldiers against small-arms fire and the detonation of mines or IEDs employed singularly or in combination. With increased protection, a JLTV or MRAP vehicle can reduce standoff to potential threats or move through potential danger areas when the mission, enemy, terrain and weather, troops and support available, time available, civilian considerations, and informational considerations, (mission variables) dictate the increased risk.

B-137. Units successfully employ JLTV and MRAP vehicles by understanding the vehicle's capabilities and limitations while integrating protection with training to standard, detailed planning, smart tactics, and well-rehearsed drills. JLTV and MRAP vehicles operate under the full spectrum of weather and terrain conditions, to include limited off-road operation across firm soil and obstacles such as debris.

B-138. Exiting the vehicle in response to an ambush and loading or unloading equipment and casualties are difficult due to the steps and back hatch on some MRAP variants. Units must train and rehearse individuals and teams to streamline the process for mounting and dismounting operations under various conditions, especially in an emergency.

B-139. The field of view from the armored windows is limited for Soldiers, which results in blind spots and overall poor visibility, especially upwards.

WARNING

Operating on single- lane and/or steeply crowned rural roads, roads with no shoulders, roads with soft shoulders and/or washouts around culverts, and especially any road bordering water (such as canal, irrigation ditch, or pond) requires extreme caution. Most MRAP vehicle rollovers are due to road, shoulder, or bridge approaches giving way under the MRAP vehicle's weight and high center of gravity.

B-140. Trafficability studies/products must be available to the leaders and Soldiers operating MRAP vehicles. They can factor assigned area-specific trafficability and terrain limitations into their composite risk management and combat planning processes.

SECTION VI – INDIRECT FIRE WEAPONS

B-141. This section discusses mortars, artillery, and naval gunfire effectiveness in urban areas. HE fragmentation is the most used round. White phosphorus is a type of smoke projectile used for smoke missions and incendiary effects against materiel targets such as buildings. It is also the most effective mortar round against dug-in tanks. Even near-misses blind and suppress the tank crew, forcing them to close their hatches. Fires Cell planners must consider that white phosphorous may create unwanted fires and smoke effects in urban areas. GPS enhanced munitions, such as the 155-mm Excalibur HE and guided multiple launch rocket system or high mobility artillery rocket system unitary HE warhead rounds may be employed against well-located targets. Their near-vertical attack trajectories make them suitable for employment in urban terrain.

GENERAL

B-142. While mortars and artillery are clearly different as indirect fire weapons, they do share common considerations. The considerations are described below.

DEAD SPACE

B-143. Enemy targets on the far side of buildings cannot be effectively engaged if they are in the dead space created by the height of the building. As a general principle, for mortars and high-angle artillery fires, the dead space is about one-half the height of the building. For low-angle artillery fires, the dead space is about five times the height of the building behind which the target sits. By firing at maximum elevation, the size of this dead space can be reduced to about half, but it cannot be eliminated.

CREST

B-144. A crest is a terrain feature of such altitude (tall buildings) that it restricts fires into an area. It may limit the minimum elevation of a weapon, create dead space, or both (see FM 3-09 for additional information). These features can interfere with a round's trajectory, especially low-angle fire, causing premature impact, detonation, or round deflection.

OBSERVATION

B-145. Observation in urban terrain is severely restricted. Enemy targets are often only visible when they are within one block of the observer or on the same street as the observer. Positions in tall buildings can provide long-range observation but normally only from the tops of buildings. To engage the enemy, the forward observer should be positioned well forward. Many fire missions are either on streets that lead up to friendly positions or on targets that are within one block of the observer or friendly positions. Select and construct positions with the understanding that probable errors associated with indirect fire occasionally cause rounds to strike the top or rear of any nearby tall buildings.

Accurate Target Location and Size

B-146. Accurate target location is critical to achieving effects on targets in urban areas when using precision guided munitions. The use of position locating systems, mensuration tools, and laser rangefinders designators operating from known locations are critical to precisely locating targets. Mensurated grids are a useful tool when engaging enemy in or on top of buildings. *Mensuration* is the process of measurement of a feature or location on the Earth to determine an absolute latitude, longitude, and elevation (JP 3-60). Target coordinate mensuration is the process of measurement of a feature or location on earth by certified personnel using National Geospatial Intelligence Agency-validated tools to determine an absolute latitude, longitude, and elevation to support the employment of coordinate-seeking munitions (Chairman of the Joint Chiefs of Staff instruction 3505.01D).

Shapes of Targets

B-147. There are three basic shapes of targets in urban terrain.

Point

B-148. Point targets are less than 200 meters wide. They are the most common type of target due to the restricted sight lines, the use of street intersections as adjustment points, and the typical kill zones being no wider than a single street or building. Point targets can be engaged by a single gun, a section, or platoon. Using a high rate of fire from a single tube puts a higher percentage of rounds in a small target area as opposed to using the same number of rounds from multiple tubes. Maximum effect, however, can be achieved through accurate initial and massed fires that surprise and shock the enemy.

Linear

B-149. Linear targets are more than 200 meters but less than 600 meters long. In UO, they typically occur along streets. Due to the layout of the streets, they are normally either perpendicular or parallel to the gun-target line. However, occasionally they approach at some other angle. For linear targets, the forward observer

includes the attitude of the target with the call for fire. The fire direction center may have to issue separate gun data to each tube to orient the sheaf correctly to bring effective fire on the target.

Area

B-150. Area targets are not as common in urban terrain as point or linear targets. However, area targets are common for parks, plazas, or other large open areas. They may also occur over a group of similar buildings where the enemy is suspected of massing or assembling their forces.

RUBBLING

B-151. Indirect fires may create unwanted rubble. Rubble can provide substantial cover for dismounted Soldiers and act as a severe obstacle to vehicular movement. The proximity of friendly Soldiers requires careful coordination.

AMMUNITION

B-152. ATP 3-09.32 contains extensive information on delivery systems and munitions available for them. When viewing this data from UO perspective, remember that the risk estimates are based on open field environment and must be adapted for the urban environment. The desired target area effects drive the fire support effort. The mix of munitions used by indirect fire systems will change somewhat in urban areas. Unit commanders will rely on their fire support officers to understand ammunition effects and to correctly estimate the number of volleys needed for the specific target coverage. Increased use of certain munitions (for example, smoke, precision guidance kit, delay, and concrete-piercing fuse) should be anticipated. Planners first identify munitions that provide the desired effects and then select the delivery systems to deliver those munitions that minimize the undesired effects. Give special consideration to fuse and shell combinations when buildings and the ROE limit the effects of munitions.

FUSE TYPES

B-153. A fuse is a device used to explode a projectile. Mortar and artillery fuses have similar actions that include:

- Proximity or variable time fuses are radio-activated fuses that detonate at a predetermined height of burst:
  - Combined with an HE shell, they can clear enemy positions, observers, and antennas off building roofs.
  - However, the varying heights of nearby buildings may cause the premature detonation of proximity fuses.
- Point detonating fuses function on impact:
  - They are effective against exposed personnel, unarmored vehicles, and light material.
  - They are less effective against personnel under cover or in buildings.
- Delay fuses function a set time after impact and are effective in penetrating walls or roofs of buildings before detonating.
- Multi-option fuses are manually set prior to firing and function in any one of the above categories.
- Concrete piercing fuses are used on artillery rounds to penetrate concrete and earth structures.

SHELL TYPES

B-154. Mortar and artillery shells fall into the same general categories described below.

High-Explosives

B-155. HEs are the most used type of indirect fire round during urban combat. They give good results against all lightly built structures. For more sturdy structures, the 105-mm artillery and 120-mm mortar are best, while well-built reinforced concrete structures may require 155-mm artillery for maximum effectiveness.

B-156. Accurately adjusted, concentrated artillery fire (HE fused with quick and delay) at breach sites is effective in obstacle reduction. These fires significantly weaken wire obstacles with mines and booby traps. They do not significantly affect metal tetrahedrons or concrete dragon's teeth.

Family of Scatterable Mines

B-157. Use a family of scatterable mines to impede enemy movements. The effectiveness of the mines is reduced when delivered on a hard surface.

Illumination

B-158. The presence of buildings greatly influences the effects of illumination rounds. Deep canyons formed by buildings severely limit the effect and duration of illumination on the target even if properly placed. Use of illumination tends to favor the defender. Illumination rounds can ignite fires that may burn or smoke enemy out of buildings. Because of heat, the building may be unusable to the enemy for days. Consider the following effects before using illumination:

- Friendly casualties from stray rounds, large fires, and the impact of illumination round canisters.
- Effect on planned operations resulting from burning buildings or heavy smoke.
- Collateral damage and civilian casualties; know the failure to function grid.
- Limitations placed on the use of illumination by the ROE.
- Placement.
- Behind the objective during the offense may put the enemy in shadows rather than in the light.
- Behind friendly troops in the defense may put them in the shadows while placing the enemy troops in the light.
- Short duration of effective illumination because of the shadows produced by the buildings and the drift of the illumination round.
- Infrared illumination

B-159. Infrared illumination rounds significantly enhance the available level of light used by night observation devices. This allows friendly forces the capability to better negotiate terrain, improve targets acquisition, and to effectively engage targets at night. Looking through night observation devices using infrared illumination rounds provides a clearer and sharper image of objects than observing with the naked eye using white light illumination rounds. Infrared illumination rounds also do not create enhanced areas of shadows as white light illumination rounds do. Rather, they only create areas where less infrared illumination is present.

Smoke

B-160. Smoke missions are vital in UO to provide obscuration for assaulting or withdrawing forces. Planners should account for the duration the smoke lasts when planning for white phosphorus smoke. It is important to remember that mortars use white or red phosphorus rounds for smoke missions. These rounds burn until all the oxygen in the immediate area, or the phosphorus is exhausted. The man-made topographical relief of urban terrain reduces wind speed and increases atmosphere mixing. As such, smoke tends to persist longer and give greater coverage than in open terrain.

SPECIAL TARGETS

B-161. Certain targets, such as armored vehicles, the tops of buildings, and the front of buildings require special considerations to ensure effectiveness.

Armored Vehicles

B-162. While artillery fire can disable armored vehicles, it is difficult to hit an armored vehicle in urban terrain. Mortars also have difficulty hitting an armored vehicle and, except for the 120-mm mortar, cannot normally disable armored vehicles. Artillery and mortar fire can, however, be a combat multiplier when used with direct fire weapons. Indirect fire is effective when—

- Forcing the enemy to close their hatches during movement.
- Slowing the enemy's advance.

- Making it hard for the enemy to determine friendly force's exact location.
- Decreasing the probability that the enemy sees obstacles or mines.
- Masking friendly antiarmor weapons fire against enemy armor.

Tops of Buildings

B-163. Enemy soldiers can be forced off building roofs by using HE rounds with proximity fuses or, if rounds are prematurely detonating, time fuses. When firing at the top or upper stories of buildings, the forward observer must provide the vertical interval. Enemy located in an attic or on the floor immediately below in mass construction buildings can be engaged with delay fuses. Mass construction buildings have weak roofs and attic floors. Because these are point targets, use only one gun.

Fronts of Buildings

B-164. Enemy hasty positions or observers in the front side of buildings, or in a large open area in front of a building, can be engaged using proximity fuses. Effectiveness depends on the amount of window surface. Shell fragments normally will not penetrate walls. Most casualties are caused by the secondary hazard of flying glass. For maximum effectiveness, the trajectory of the rounds should be the lowest point possible that clears the buildings along the gun-target line and enables the rounds to impact far enough down the building to hit the target. If the goal is to blow building fragments into the street to cause casualties, employ delay fuses. The 60-mm mortar in the handheld mode can be effective against this type of target.

ANGLE OF FIRE

B-165. The angle of fall of indirect fire rounds tends to cause the rounds to impact on the roofs or upper stories of buildings. As such, the urban terrain greatly restricts low-angle artillery and naval fires because of overhead masking, which creates dead space behind buildings. High-angle fires are the normal method of engagement during combat in urban terrain. They can be fired by both mortar and field artillery weapons and are less affected by urban terrain due to their higher trajectory. For low-angle fire, dead space that cannot be struck is about five times the height of the building behind which the target sits. For high-angle fire, dead space is only about one-half the height of the building (see figure B-15).

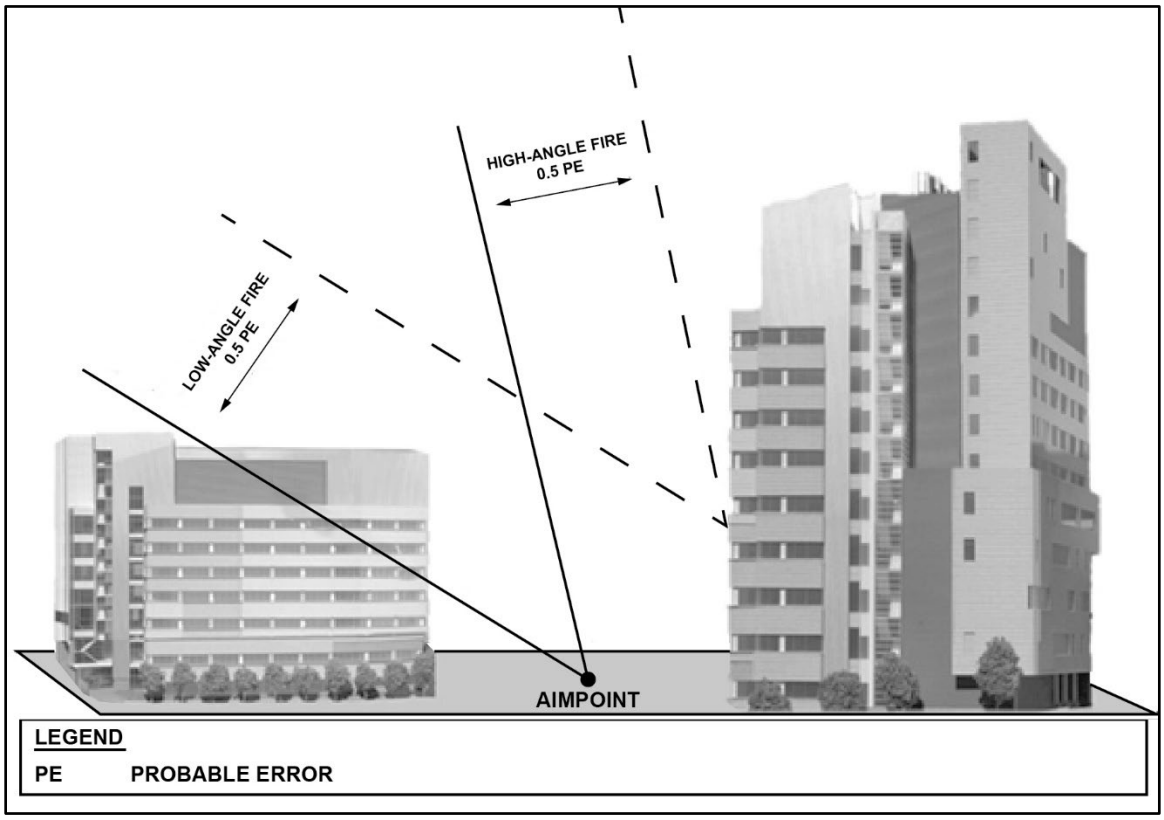


Figure B-15. High-angle and low-angle trajectories

MORTARS

B-166. Mortars are well suited for urban combat because of their high rate of fire, steep angle of fall, and short minimum range. Commanders should plan mortar support as part of the total fire support system (see ATP 3-21.90 for additional information).

B-167. Mortar rounds that do not directly impact a structure, such as proximity fused rounds, cause minimal structural damage and few interior casualties. Proximity fuses may detonate prematurely if the round passes too close to a building. As such, to be effective, rounds or their effects must penetrate the structure. Due to the high angle of mortar fire, the only practical structural target on a building is the roof. However, the structure can be affected by mortar hits on nearby ground. If the goal is to create building fragments or interdict personnel using select apertures, aerial burst can be of value.

B-168. The roofs of mid- and high-rise buildings are typically concrete, while the roofs of low-rise buildings are extremely varied. Concrete roofs are difficult to penetrate with mortar rounds. Mortar rounds with delay fuses can penetrate the top floor. However, additional penetration is rare since each additional floor is also concrete. Roofs not made of concrete are easier to penetrate. Depending on the type of building construction material, mortar rounds can penetrate multiple floors, especially wood floors. Interior damage is significant in the room of impact but limited outside that room due to interior walls. Use HE delay fuses for deeper penetration and to maximize interior effects. Use HE point detonating rounds to maximize the effect against the structure. HE point detonating rounds are effective against flimsy construction, especially that found in shantytowns.

60-MM MORTAR

B-169. The 60-mm mortar has a limited effect on structural targets and cannot penetrate most rooftops even with a delay setting. The mortar can cause a suppressive effect on exposed personnel despite the limitations on penetration The 60-mm round at terminal velocity and 0-degree obliquity is expected to penetrate nearly

4 inches of reinforced concrete. Fragments from 60-mm HE rounds landing as close as 10 feet away cannot penetrate a single sandbag layer or a single-layer brick wall. Normally, the blast will not collapse a properly constructed bunker but can cause structural damage. Normally, the 60-mm mortar will not crater a hard-surfaced road.

81-MM MORTAR

B-170. The 81-mm mortar has limited effect on structural targets and cannot significantly crater a hard-surfaced road. With a delay setting, the 81-mm round can penetrate the roofs of light buildings. The 81-mm round at terminal velocity and 0-degree obliquity is expected to penetrate up to 6 inches of reinforced concrete.

120-MM MORTAR

B-171. The 120-mm mortar is effective against structural targets. With a delay fuse setting, it can penetrate deep into a building and cause extensive damage. The 120-mm round at terminal velocity and 0-degree obliquity is expected to penetrate up to 12 inches of reinforced concrete. A minimum of 18 inches of packed earth or sand is needed to stop the fragments from a 120-mm HE round impacting 10 feet away. The effect of a direct hit from a 120-mm round is equivalent to almost 10 pounds of explosive material, which can crush fortifications built with commonly available materials. The 120-mm mortar round can create a large but shallow crater in a road surface, but it is not deep or steep-sided enough to block vehicular movement. However, craters can be deep enough to damage or destroy storm drain systems, water, and gas pipes, and electrical or phone cables.

ARTILLERY

B-172. Artillery support is significant to the combined arms concept if the ROE allow its use. Use artillery rounds with delay fuses to penetrate buildings and cause interior casualties or with variable time fuses to clear rooftop observation and weapons positions with relatively little collateral damage. Use terminally guided rounds, such as the 155-mm Excalibur or guided multiple launch rocket system or high-mobility artillery rocket system munitions, to effectively destroy enemy occupied buildings while minimizing collateral damage. Artillery in the direct fire role is extremely effective in reducing strongpoints, breaching sturdy buildings, and isolating an objective. In other than high-intensity conditions, artillery typically employ terminally guided munitions to reduce collateral damage.

105-MM ARTILLERY ROUND

B-173. While the target effects of the 105-mm round are much less destructive than larger caliber weapons, it is still a valuable urban weapon. It will cause significant damage to buildings constructed with lightweight material and even penetrate single layer stone and brick walls or lightweight reinforced concrete.

155-MM ARTILLERY ROUND

B-174. Heavy artillery rounds are necessary to penetrate thick reinforced concrete, stone, or brick structures. Even with heavy artillery, large expenditures of ammunition are required to knock down buildings of any size. HE 155-mm rounds can penetrate up to 38 inches of brick and nonreinforced concrete and up to 28 inches of reinforced concrete with considerable damage beyond the wall. HE rounds with concrete-piercing fuses provide an excellent means of penetrating strong reinforced concrete structures. One round can penetrate up to 46 inches. Five rounds are needed to create a 1.5-meter breach in a 1-meter-thick wall. About 10 rounds are needed to create such a breach in a wall 1.5 meters thick.

MULTIPLE LAUNCH ROCKET SYSTEM GUIDED UNITARY ROCKET

B-175. The M31A1 guided multiple launch rocket system-unitary rocket contains a 200-pound class preformed fragmentation warhead and has a range of 15 to 70+ kilometers. The combination of range, accuracy, and fuse settings allows this rocket to be effective in an urban environment with low collateral damage.

ARTILLERY DIRECT FIRE

B-176. Self-propelled artillery pieces can provide long-range direct fire against tough or important urban targets during urban combat. This may also occur when supporting tanks are unable to elevate sufficiently to engage a target on the upper floors of a building or where larger caliber, HE fires are needed. It is best to use self-propelled field artillery in this role but only after an analysis of the need for heavy HE direct fire. The tradeoff is the extreme decentralization of artillery firepower. Self-propelled artillery pieces are not as heavily armored as tanks, and towed artillery has no crew protection. Both self-propelled and towed artillery have the same need for ground security and target designation as tanks. Towed artillery is more difficult to employ in the direct fire mode if the maneuverability of the towing vehicle is affected by limited clear spaces. Light artillery (105-mm) may be moved by the crew for short distances.

B-177. Normally, only employ field artillery in the direct fire role when tanks, BFVs, and other direct fire systems are not available or are not able to achieve the desired effects on the target.

B-178. Large-caliber artillery rounds provided by direct fire are effective for destroying targets in buildings. Self-propelled 155-mm howitzers can use direct fire to destroy or neutralize bunkers, heavy fortifications, or enemy positions in reinforced concrete buildings.

Positions

B-179. The infantry needs to reconnoiter and occupy positions where the howitzer can provide direct fire support. These positions should be free from enemy direct fire but still allow direct fire by the howitzer on the target. Although these systems seem formidable, they provide less crew protection than a BFV and contain large amounts of onboard ammunition and propellant. They are susceptible to catastrophic destruction by heavy automatic weapons, light cannon, and antitank fire.

Protection

B-180. Infantry should provide local security and prevent enemy ground assault, sniper fire, and antitank fire.

NAVAL GUNFIRE

B-181. Because of its flat trajectory, naval gunfire is affected by terrain masking. It is usually difficult to adjust onto the target because the gun-target line is constantly changing. The most common naval cannons used to support ground troops are the 5-inch .54-caliber gun and the newer 5-inch .62-caliber gun. Both have a high rate of fire and are roughly equivalent to the 155-mm howitzer in target effect.

SECTION VII – AIR-DELIVERED MUNITIONS

B-182. This section discusses munitions that are deliverable by rotary-wing and fixed-wing aircraft (see ATP 3-06.1 for additional information).

ROTARY-WING AIRCRAFT

B-183. Ground units may receive support from a variety of attack reconnaissance helicopters, including the AH-64 and AH-1. Attack reconnaissance helicopters can provide area fire to suppress targets and precision fire to destroy specific targets or breach structures. Attack reconnaissance helicopters can also assist with surveillance and communications using their advanced suite of sensors and radios.

B-184. Other supporting (lift) helicopters, such as the UH-60 and CH-47, may also have weapon systems that aid in the suppression of enemy forces when conducting UO. However, their primary role is to transport personnel, equipment, and supplies to those critical urban areas that may be inaccessible to ground transportation. Lift helicopters can provide a distinct advantage by placing personnel and weapon systems at critical locations at critical times to surprise and overwhelm the enemy.

B-185. Rotary-wing weapons systems will vary depending on aircraft. The weapons systems on aircraft are equipped with missiles, rockets, machine guns, and canons.

HELLFIRE MISSILES

B-186. Hellfire missiles have larger warheads, with several warhead options, and greater range than TOW missiles. The primary warhead uses a shaped charge with a contact fuse to defeat heavy armor. A second option uses a shaped charge, a contact fuse, and a fragmentation sleeve to produce an antipersonnel, antivehicle effect against troops and vehicles in the open. A third warhead variant uses a metal augmented blast fragmentation warhead with a delay fuse to perforate typical urban structures to provide antipersonnel effects inside a structure. Laser target designation is an option for the Hellfire missile, but it may not be possible due to laser reflections off glass and shiny metal surfaces. Therefore, visual acquisition by the aircrew is the primary method of target identification. The use of a Hellfire missile against targets in the upper stories of high buildings can be highly effective while producing minimal collateral damage.

ROCKETS

B-187. Rockets, 2.75-inch are effective against enemy forces and light vehicles in the open or under light cover. They only provide a suppressive effect against enemy in well-built masonry or concrete structures. Other warhead options include red and white phosphorus smoke and overhead covert and overt illumination.

MACHINE GUNS

B-188. Machine guns, .50-caliber are effective against enemy forces and light vehicles in the open or under light cover, with similar effects as ground mounted variants.

CANNONS

B-189. Cannons, 20mm found on U.S. Marine Corps helicopters are effective against enemy forces and light vehicles in the open or under light cover. They are ineffective against well-built masonry or concrete structures. The 20-mm cannon ammunition produces many ricochets, especially when fired into urban areas. Cannons, 30-mm are accurate weapons and can penetrate standard masonry and concrete structures. They are effective against personnel and light armored vehicles.

FIXED-WING AIRCRAFT

B-190. Fixed-wing close air support can come from the Army, Air Force, Marine Corps, Navy, or another nation's forces. Close air support to ground forces fighting in urban areas may be difficult for fixed-wing aircraft. Targets may be hard to locate and identify, enemy and friendly forces may be intermingled, and enemy short-range air defense weapons may be hard to suppress. Because enemy and friendly forces may be separated by only one building, accurate delivery of ordnance is required. Units can use marking panels, lights, electronic beacons, smoke, or other means to identify friendly forces but must ensure their method of marking is visible in the firing aircraft's optics. Fixed-wing aircraft can carry a wide variety of weapons, to include—

GENERAL-PURPOSE BOMBS

B-191. General-purpose bombs from 500 to 2,000 pounds can be effective in creating casualties among enemy troops located in large buildings, although they are rarely used due to collateral damage concerns using non-precision weapons. High-dive angle bomb runs increase accuracy and penetration but also increase aircraft exposure to antiaircraft weapons. Low-dive angle bomb runs using high drag bombs can place bombs into upper stories, but with poor penetration. These bombs can pass through lightly clad buildings and explode on the outside. Both types of delivery (high angle or low angle) with non-precision weapons increase aircraft exposure to small arms fire, antiaircraft weapons, and shorter-range missiles such as man-portable air defense system (MANPADS).

PRECISION LASER-GUIDED BOMBS

B-192. Precision laser-guided bombs also range from 500 to 2,000 pounds and are one of the main weapons used in modern combat. The 500-pound laser-guided bomb is useful against a moving vehicle, provided the air or ground designated laser is able to track the vehicle through impact. The 500-to-2,000-pound laser-guided bomb is useful against enemy forces, buildings, compounds. The 2,000-pound BLU-109 bomb body has the ability to penetrate hardened weapons emplacements. If the launching aircraft can achieve a

successful laser designation and lock-on, these weapons have devastating effects, penetrating deep into reinforced concrete before exploding with great force. Dense smoke and dust clouds hanging over an urban area and laser scatter can disrupt tracking. If the laser spot is lost due to smoke or haze or laser fail, whether by aircraft or ground-designation, the weapon will continue to travel ballistically and be less precise at impact.

JOINT DIRECT ATTACK MUNITIONS

B-193. Joint Direct Attack Munitions are precision weapons that are Inertial Navigation System-guided and GPS-aided weapons. They also range from 500-2,000 pounds and are very adept at urban combat provided accurate coordinates can be obtained. Once released from the aircraft, these weapons home in on the coordinates and their impact angle can be adjusted before they are released. One benefit of employing this weapon is there is no requirement for the aircraft to track the target after release. One disadvantage of this weapon is it is not very useful against a moving target.

20-MM CANNON

B-194. The 20-mm cannon is accurate and effective for strafing exposed enemy personnel and non-armored or thin-skinned vehicles in urban areas but lacks the penetration necessary against armored vehicles and tanks. The 20-mm cannon rounds penetrate slightly better than the .50-caliber round but can ricochet, and tracers can start fires.

30-MM CANNON

B-195. The 30-mm cannon is accurate and provides close air support to friendly ground troops by attacking armored vehicles, tanks, and other enemy ground forces. It is effective against targets in urban areas and can penetrate most masonry and concrete structures.

AC-130 WEAPONS

B-196. The weapon systems on the AC-130 aircraft can be very effective during UO. However, it is important to understand the AC-130 typically only flies at night, it only flies where there is already consistent air superiority, and it belongs to the Commander Joint Special Operations Task Force vice the Joint Force Air Component Commander. It can deliver accurate fire from its various weapons systems. The aircraft is effective against the roof and upper floors of buildings. Urban canyons may restrict the AC-130's firing arcs depending on the depth or width of the canyon. The cover provided by the urban environment can allow safe engagements closer to friendly forces than normal. The AC-130 provides ground forces an expeditionary, direct-fire platform that is persistent, ideally suited for UO and delivers precision low-yield munitions against ground targets.

SECTION VIII - EXPLOSIVE BREACHING HAZARDS

B-197. There are many hazards that come into play when dealing with urban breaching. Two of the hazards are impact and debris.

IMPACT

B-198. Impact injuries can cause serious injury and can be fatal. The two types of impact injuries are acceleration and deceleration:

- Acceleration injuries can be produced in two ways:
  - First, the body or a body part is impacted by a projectile or fragment, which is called blunt trauma.
  - Second, the victim is hit with a blast pressure wave that can throw the body through the air, which results in blunt force injuries.
- Deceleration injuries occur when a victim impacts a surface, and injuries can range from lacerations to massive brain injury.

DEBRIS

B-199. Debris is anything that impedes movement through the entry point. For example, doors lying inside or outside of the entry point or portions of the door frame or other parts of the opening that has been created by the explosions.

OVERPRESSURE

B-200. The hazards associated with explosive breaching in confined spaces are unique to the urban environment and deserve special consideration during planning. Explosive breaching inside of enclosed spaces creates excessive overpressure, peak overpressure, and impulse pressure compared to those not within a confined space. These three pressures are described in the following list:

- Overpressure is the pressure resulting from the blast wave of an explosion:
  - It is positive when it exceeds atmospheric pressure.
  - It is negative during the passage of the wave when resulting pressures are less than atmospheric pressure.
- Peak overpressure is the maximum value of overpressure at a given location, usually experienced at the instant the blast wave reaches that location.
- Impulse pressure is the duration of the raised positive pressure.

B-201. All of these various types of pressure can create dangerous and potentially lethal effects for Soldiers inside of the enclosed spaces during a detonation. The size of the breaching charge, distance from the charge, and the size and construction material of the confined space (tunnel or room) all influence the level of pressure generated by the detonation.

B-202. When explosive breaching inside a facility or subterranean networks, the initiation point for the breach should be outside and away from any portal. Soldiers must take additional care in oxygen rich environments, such as in a laboratory, as a thermobaric effect creates an oxygen-depleted environment and may weaken structural members inside of an underground facility. Figure B-16 depicts the effects of an explosive breach in a 10-foot-by-10-foot enclosed space compared to the same detonation in a free field environment (sensors recording the data were 83 meters from the point of detonation in both cases).

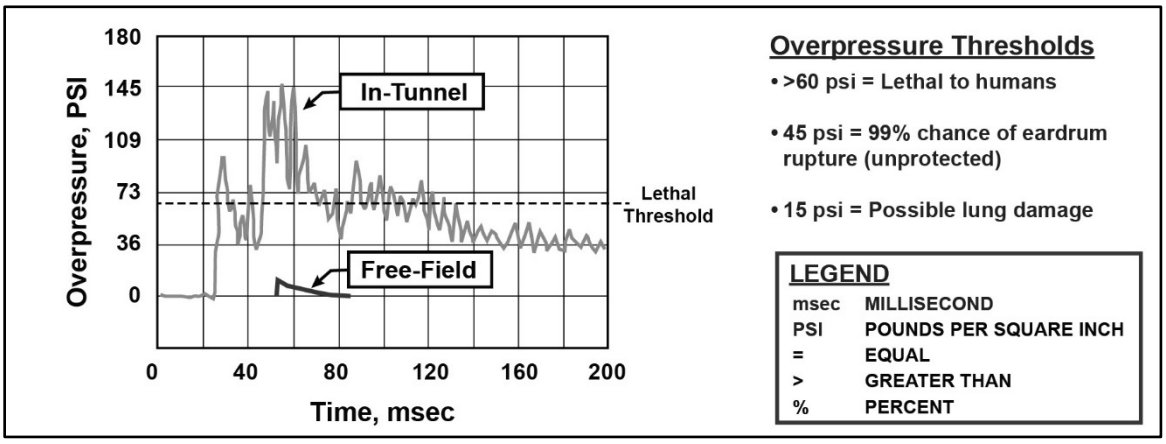


Figure B-16. Blast effects in open air and enclosed spaces, example

BLAST INJURIES

B-203. Blast injuries, especially blast overpressure injuries, present unique challenges to leaders and medical personnel conducting combat operations in underground facilities and subterranean environments. Anytime Soldiers are in close proximity to an explosion in an underground facility or subterranean environment, personnel must be suspected as having sustained blast overpressure injuries (see table B-11).

B-204. In a subterranean environment, with substantial risks for overpressure injuries, it is crucial to perform traumatic brain injury screenings as quickly as possible. It can often be underrecognized, given the more

obvious severity of other injuries which are likely to be incurred. When exposed to a potentially traumatic brain injury causing event, it is imperative for Soldiers to be quickly evaluated and evacuated to an appropriate role of care to minimize brain damage and potentially death (see table B-12 on page 226).

Note. Up to ten percent of all blast survivors have significant eye injuries. These injuries involve perforations from high-velocity projectiles that can occur with minimal initial discomfort, and may present days, weeks, or months after the event. Symptoms include eye pain or irritation, foreign body sensation, altered vision, periorbital swelling, or contusions. Findings can include decreased visual acuity, hyphemia, globe perforation, subconjunctival hemorrhage, foreign body, or lid lacerations. Liberal referral for ophthalmologic screening is encouraged.

Table B-11. Medical considerations for blast injuries

Clinical signs of blast-related abdominal injuries can be initially silent until signs of acute abdomen or sepsis are advanced.
Standard penetrating and blunt trauma to any surface of the body is the most common injury seen among survivors. Primary blast lung and blast abdomen are associated with a high mortality rate. “Blast lung” is the most common fatal injury among initial survivors.
Blast lung presents soon after exposure. Confirmed by finding a “butterfly” pattern on chest X-ray. Prophylactic chest tubes (thoracotomy) are recommended prior to general anesthesia or air transport.
Medics may overlook auditory system injuries and concussions.
The symptoms of mild traumatic brain injury (TBI) and post-traumatic stress disorder (PTSD) can be identical.
Isolated tympanic membrane rupture is not a marker of morbidity; however, traumatic amputation of any limb is a marker for multi-system injuries.
Air embolism is common, and can present as stroke, myocardial infarction, acute abdomen, blindness, deafness, spinal cord injury, or claudication. Hyperbaric oxygen therapy may be effective in some cases.
Compartment syndrome, rhabdomyolysis, and acute renal failure are associated with structural collapse, prolonged extrication, severe burns, and some poisonings.
Consider the possibility of exposure to inhaled toxins and poisonings (for example, carbon monoxide and tear gas) released by explosives.
Wounds can become contaminated. Consider delayed primary closure and assess tetanus status. Ensure close follow-up of wounds, head injuries, and eye, ear, and stress-related complaints.
Medics may need to write instructions to communicate with patients due to tinnitus and sudden temporary or permanent deafness.

Table B-12. Mechanisms of blast injury quick reference chart

CATEGORY	*CHARACTERISTICS*	*BODY PART AFFECTED*	*TYPES OF INJURIES*
Primary	• Is unique to high explosives, results from the impact of the over pressurization wave with body surfaces.	• Gas-filled structures are most susceptible and include— ▪ Lungs. ▪ Stomach and intestine. ▪ Middle ear.	• Blast lung (pulmonary barotrauma). • Tympanic membrane rupture and middle ear damage. • Abdominal hemorrhage and perforation. • Globe (eye) rupture. • Concussion (TBI without physical signs of head injury).
Secondary	• Results from flying debris and bomb fragments.	• Any body part may be affected.	• Penetrating ballistic (fragmentation) or blunt injuries. • Eye penetration (can be occult).
Tertiary	• Results from individuals being thrown by the blast wind.	• Any body part may be affected.	• Fracture and traumatic amputation. • Closed and open brain injury.
Quaternary	• Includes all explosion-related injuries, illnesses, or diseases not due to primary, secondary, or tertiary mechanisms. • Includes exacerbation or complications of existing conditions.	• Any body part may be affected.	• Burns (flash, partial, and full thickness). • Crush injuries, closed and open brain injury. • Asthma, COPD, or other breathing problems from dust, smoke, or toxic fumes. • Angina, hyperglycemia, hypertension.
Legend: COPD—chronic obstructive pulmonary disease, TBI—traumatic brain injury			

SAFETY

B-205. There are several measures that must be taken into consideration when dealing with explosive breaching charges in urban terrain. These measures include calculating the molten salt destruction- process, the charge placement, and proper positioning (see TC 3-34.85 for additional information).

Appendix C

Clearing Buildings

Clearing a building requires units to systematically eliminate threats from the internal and external spaces of a structure. This means all the rooms and hallways, but also any stairs, basements, crawl spaces, and the roof. The particulars of a situation or mission will dictate the thoroughness of the search and the degree of force clearing elements will use. Some objectives will only require the clearance of a single room while others the entire building or even a series of buildings. Units can knock on a door and ask to enter, blow the door off its hinges and lead with a fragmentation grenade, or anything between based on the threat and presence of civilians. This appendix describes various techniques for entering and clearing buildings based on the situation.

SECTION I – PLANNING AND PREPARATION

C-1. Clearing a building is a high-risk operation as even minimal defensive preparation can create situations that are difficult for an attacking force to overcome. Units should consider the range of options, both lethal and nonlethal, to neutralize the threat before initiating a direct assault. Lethal options include engaging enemy in windows using long-range precision fires or destroying the building using massed direct and indirect fires. Nonlethal options include isolation, tactical callout, and negotiation.

C-2. Attackers should plan to avoid enemy defensive positions and prevent enemy forces from repositioning. Effective shaping operations include conducting false breaches, disrupting communications, and fixing enemy forces that are out of position. While planning is important, preparation is often critical to the success of small units clearing buildings. Clearing forces are constantly reacting to a changing situation. This requires highly proficient teams that can adapt with minimal direction, have the ability to communicate changes, and have access to the right equipment at the right time.

TASK ORGANIZATION

C-3. The size of the force required to clear a building will vary significantly based on the size and complexity of the building and capabilities of the enemy force. A force planning to clear a building will organize like a standard attack with designated forces for security, main body (including assault, support, and breach elements), reserve, and sustainment. The assault force that conducts the clearance and continues to breach interior obstacles will generally be much larger while the support is smaller than offensive operations under most other conditions. This is because the clearance is very Soldier-intensive while the structure of the building limits the effectiveness of the support once the assault force has entered. In general, the assault force should consist of at least one Infantry squad per floor to maintain momentum during the clearance. This means a single building can require a squad, platoon, company, or even an entire battalion to clear.

PLANNING CONSIDERATIONS

C-4. Leaders need to first consider the level of intensity discussed in chapter 1, section II before planning building clearances. For example, during high-intensity conflict Soldiers might use grenades to clear a room. This will determine a start point for how the unit clears buildings and the level of force they will apply. The basic factors that will influence the level of force are, strategic context, relative capabilities of the enemy force, and level of support the unit has within the assigned area.

C-5. The main considerations for leaders planning a building clearance are the building construction and layout, the disposition of enemy forces both inside and outside the building, and the presence of any hostages or other noncombatants. These factors are critical to determining the route to the building, entry point, and approach Soldiers will take when clearing.

C-6. Building layouts can be confusing and cause disorientation in Soldiers. Precise action is not generally possible without detailed knowledge of the building layout. This knowledge is also helpful for a general

clearance as it enables leaders to direct the flow in a way that reduces the risk of two clearing elements engaging one another. Aperture analysis helps determine the best entry points for attacking forces as well as potential escape routes for the enemy. It can also highlight dead space by identifying potential enemy observation and firing points.

C-7. Leaders need to consider the capabilities and disposition of enemy forces both outside and inside the building as well as the ability of enemy forces inside to engage friendly forces outside. Units should maintain stealth as long as possible to minimize the time the enemy has to react. This can enable forces to move through the more dangerous parts of the operation before the enemy can provide effective resistance.

C-8. Once the enemy is aware of the attack, efforts should focus on keeping the enemy off guard through active disruption and violence of action. Maintaining the tempo of the clearance requires adequate force size and supplies, but also controlling the flow of forces into and throughout the building. Even a short delay can cause the attack to falter and allow enemy forces to rally. Casualties are normally higher for building clearances than other types of operations. Leaders need a plan to extract wounded and exhausted Soldiers from the building while maintaining a flow of fresh units in. They must make every effort to avoid massing many Soldiers in a single location as it creates congestion and allows a single counterattack to have catastrophic consequences. This generally requires the use of multiple staging areas and positioning leaders at key points to control movement.

C-9. The presence of noncombatants greatly increases the difficulty of an already challenging operation by limiting fires and increasing Soldier reaction time. Explosive munitions are highly effective in enclosed spaces, but risk injuring noncombatants and the Soldiers employing the weapons (see appendix B for additional information). The visual differences between an enemy and a noncombatant can be subtle and hard to discern, especially in poor lighting. This makes every engagement take longer for Soldiers to process, exposing them to fire while they determine which personnel are valid targets. Leaders can improve Soldier reaction time and decision-making through realistic training, clear ROE, and repetition during rehearsals.

COMMUNICATION

C-10. Effective communication is critical when clearing buildings to maintain tempo and prevent fratricide. Clearing forces use a combination of verbal, visual, and tactile commands and signals as needed to quickly communicate relevant information and synchronize efforts. Verbal communication can reach the entire element, but it may reveal the location and immediate intent of friendly forces to the enemy. Hand and arm signals can be useful for maintaining surprise, but Soldiers can miss them during execution, especially when observing different sectors of fire. Tactile signals are harder to miss and maintain surprise, but the leader can only really use this to signal a single Soldier in their proximity. The bottom line is that leaders must use sound judgement when transitioning between different communication methods. Table C-1 contains examples of verbal commands that Soldiers can use to quickly issue instructions and pass relevant information. Unit SOPs should also include the means to mark cleared rooms, floors, and buildings. Units should integrate these commands and signals into urban training and full-dress rehearsals.

Table C-1. Example verbal commands

Term	*Explanation*
CLEAR	Given by an individual to report their assigned area is clear.
UP	Given by an individual to report they are ready to continue the mission.
ROOM CLEAR	Given by the team leader to team members, squad leaders, and follow-on teams to report the room is clear and secured.
COMING OUT (COMING IN)	Given by an individual to inform another element that they are about to exit a room or building or enter a room or building.
COME OUT (COME IN)	Given by another element to acknowledge that it is safe to exit a room or building or enter a room or building.
COMING UP (COMING DOWN)	Given by an individual to inform another element that they are about to ascend or descend stairs.
COME UP (COME DOWN)	Given by another element to acknowledge that it is safe to ascend or descend stairs.
SHORT ROOM	Given by an individual (Soldier 1 or Soldier 2) to inform other team members that the room is small, and Soldier 3 and Soldier 4 should not enter.
SOLDIER DOWN	Given by an individual to inform other team members that a Soldier is down (wounded or injured) and cannot continue the mission.
FRAG OUT	Given by an individual to warn others that someone has thrown a grenade, and everyone should take immediate action. If possible, include location of the grenade.
GO LONG	Given by the team leader to a team member to direct the team member to take up security farther into the room or farther down a hallway.
GUN DOWN	Given by an individual to inform other team members that their gun has malfunctioned. These Soldiers should simultaneously kneel while fixing the problem to keep out of the line of fire and allow others to cover their sectors.
GUN UP	Given by an individual to inform other team members that their previously malfunctioning gun is operational again. These Soldiers should allow other Soldiers to pull them up to ensure they do not move into lines of fire.
RELOADING	Given by an individual to inform other team members that they are reloading their weapon. As with GUN DOWN, the Soldier should kneel. Follow with GUN UP when ready.

C-11. Units regularly use chemical lights, signal panels, and other physical devices to communicate status, such as when a room, floor, or the entire building is clear. This can help keep supporting and following forces from making assumptions about the progress of an operation or the locations of forces. Unit SOPs will dictate what signals to use and their meaning. For example, a fire team might leave a chemical light in a room or mark it with chalk to signal that it is clear without having to leave Soldiers behind. A squad leader might hang a signal panel out of a window to let the support element know a floor is clear so that they shift fires away from the floor above. These kinds of signals can be effective, but they create an additional logistical burden on the clearing force. Leaders must also consider the spectrum Soldiers are using to perceive the area. Chalk works well in daylight or when using white light, but units relying primarily on thermal devices require signals that produce thermal signatures.

EQUIPMENT AND SUPPLIES

C-12. Clearing buildings often requires significant horizontal and vertical movement, negotiating obstacles, and traveling through small spaces. Any unnecessary equipment hampers movement, increases the rate of fatigue, and can make sounds that alert the enemy; however, individual actions often happen quickly and require specific supplies and equipment close by. Tying down, taping, or otherwise silencing equipment can help reduce noise, but does not reduce weight. Previous chapters have described how units consume many supply types at greater rates during UO. This combines to create dilemmas for leaders as they try to prepare for likely contingencies while minimizing Soldier load.

C-13. Breaching equipment tends to be heavy, awkward to carry, and only useful in specific circumstances. Given those circumstances, they can be essential to mission accomplishment. For example, a ram is a great

tool for knocking open a series of locked doors; however, they are of little use for breaching walls, barred doors, or doors that open outward. Explosives work well in many situations; however, they cause more damage and require single-use supplies that can rapidly deplete. If the unit SOP requires visual signals like panels and chemical lights, then clearing elements will need enough to complete the mission. Running out of signals before the end of the clearance can create greater confusion than not using them from the start. Other specialized requirements include the means to lift Soldiers to higher entry points (such as ropes or ladders) and transport casualties from upper floors. Leaders must assess the size, layout, and construction of relevant buildings to determine what the unit will need.

C-14. Combat vehicles can be great assets for carrying additional supplies and equipment to an objective building or from one building to another. Leaders must think through the vehicle's route, positioning, and protection since it may not be able to maneuver if engaged while Soldiers are loading or unloading. This still requires units to get the supplies where needed within the building. In some situations, it may be better for a unit to drop supplies on the roof of a building using rotary-wing assets.

REHEARSALS

C-15. Clearing buildings requires units to conduct tasks and employ techniques that are very different from how units operate in other environments. Minimizing casualties requires speed, synchronization, and maintaining surprise. Units achieve this through effective unit SOP and rehearsing all actions to the point that all Soldiers can execute their tasks and adapt to likely contingencies with minimal direction.

C-16. Units should always conduct full-dress rehearsals of fire-team movement, breaching, and room clearing. These tasks serve as the base for any building clearance. While conducting these rehearsals in an actual building that shares characteristics with the objective is best, even creating a "glass house" outline of rooms using engineer tape, or the like can be effective. This low-cost solution allows many teams to rehearse various actions simultaneously. Though the following section describes Soldier actions in terms of their position within the team, all Soldiers need to be able to fill any role as their position within the team will likely change at various points during the clearance. They may also have to fill in on another team with little notice, further reinforcing the need for a single standard across all elements.

C-17. Units must have a plan for how the unit will move through the building while maintaining security, but always be ready to adapt to the situation. Better intelligence will result in a better plan, but units have limited means to acquire this. Multiple clearing teams will often clear different rooms simultaneously, so everyone needs to understand where the other elements are going to be and how the unit will communicate changes. This reduces the chances of fratricide and missing a room that allows the enemy to get behind the clearing force. Teams should also rehearse how they will support each other to clear larger rooms or defeat more determined enemy resistance.

C-18. In addition to rehearsing the actions of clearing teams inside the building, leaders should rehearse the flow of forces into the building, communication and integration with supporting fires from outside the building, and MEDEVAC. Leaders also need to rehearse movement techniques to the target building which include movement down streets, alleys, and intersections while providing 360-degree three dimensional security. (See TC 3-21.75 for more information on movement techniques in an urban area.) Marking systems provide supporting forces a way to track the progress of clearing elements so they can provide effective support without concern they will engage a friendly element. Clearing elements need to understand where their staging areas are and what the triggers are to move to the next location to avoid congestion. Leaders must synchronize this with CASEVAC to ensure elements moving in and out do not block each other. CASEVAC may also require employing equipment and techniques that are not standard for unit training, such lowering a casualty from an upper story window.

SECTION II – EXECUTION

C-19. Before clearing a building, leaders must consider how they will move to the building, where and how they will enter, and then the techniques forces will employ to overcome the various challenges they will face inside. At the same time, assault and support elements must maintain continuous effective communication. These require units to employ techniques that are unique to UO.

APPROACH

C-20. Moving in an urban area exposes Soldiers to fire from many directions and angles that they would not normally need to consider when moving in other environments. Leaders must ensure that the support element has the means to suppress enemy within the objective building, within nearby buildings, on the ground, and on rooftops. This generally requires a mix of direct and indirect fire weapon systems oriented on likely enemy positions. Supplement with aerial capabilities to observe and engage enemy from angles not possible from the ground.

C-21. At all times, Soldiers must balance the needs to avoid open areas, not travel along walls, and prevent silhouetting themselves. This requires careful selection of the next covered position and route between before moving (see TC 3-21.75 for additional information). Soldiers may also have to cross over walls or other structures during the approach to the building. Figures C-1 to C-4 on pages 231 to 233 contain techniques that units can apply to lift Soldiers over tall obstacles such as a wall or to get to the next floor. They can also use ladders or even combat vehicles parked next to the obstacles to assist. Obscurants can also be critical for mitigating the dangers of open areas and allowing the assault force to reach the objective without receiving effective fire.

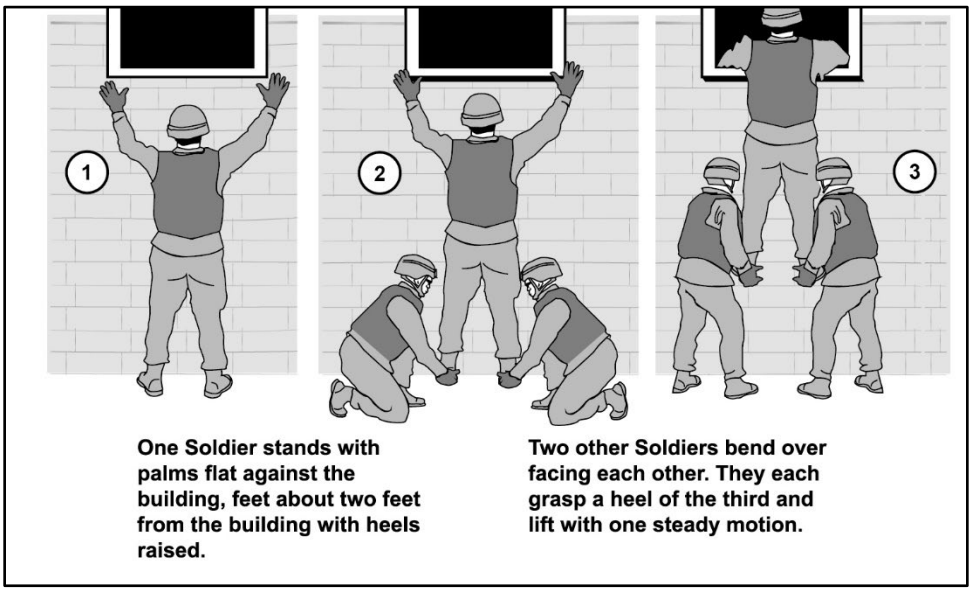


Figure C-1. Unsupported two-Soldier lift

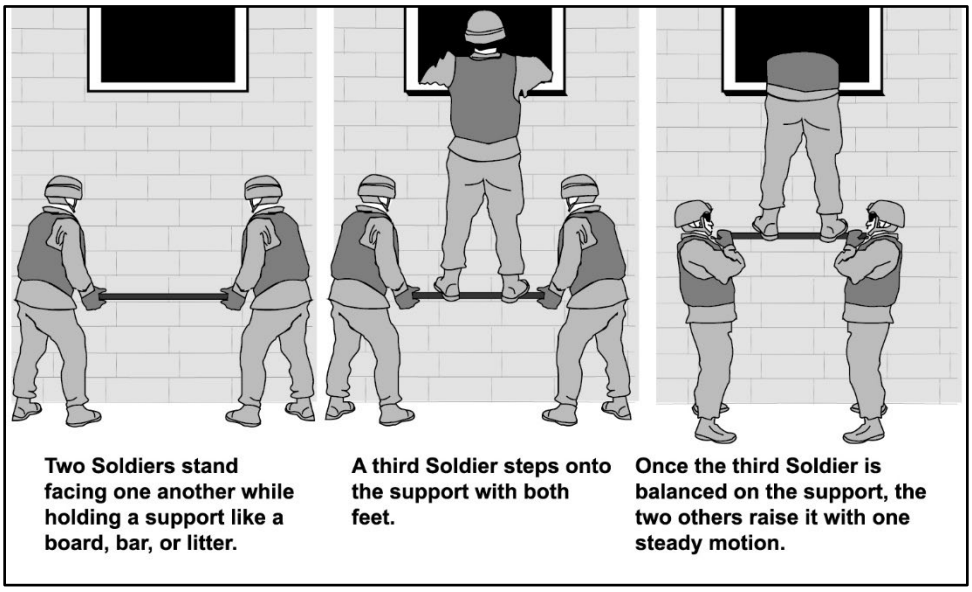


Figure C-2. Supported two-Soldier lift

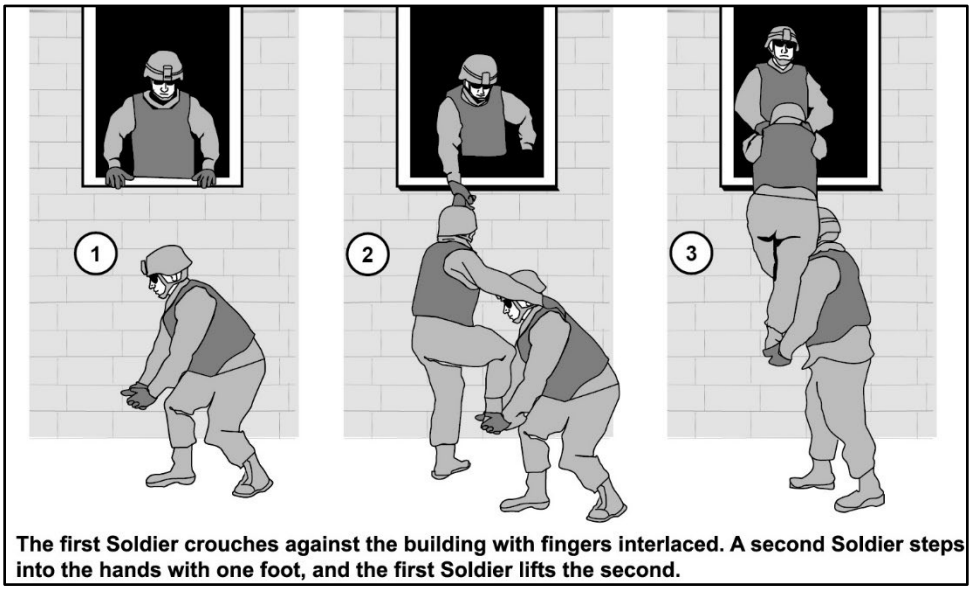


Figure C-3. One-Soldier pull

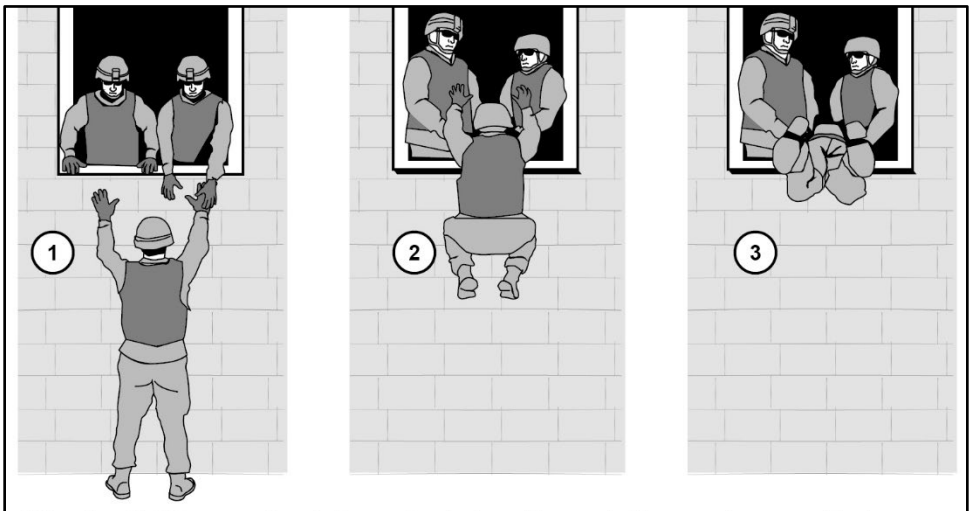


Figure C-4. Two-Soldier pull

CHOOSE AN ENTRY POINT

C-22. Upon deciding to clear a building, the immediate goal is to secure a foothold. This generally requires an initial entry into the building and clearance of the first room. From this secure room, the force can continue the clearance of the rest of the building. Selecting a poor entry point can be devastating, leading to high casualties with no discernable gain. The best entry points are large enough to allow a Soldier to pass through in an upright position and another Soldier to follow rapidly. The more restrictive the entry point, the slower the entry and the more risk to the clearing element. Preparing the entry point will likely require a breach of some kind. Units will normally conduct breaches incorporating main gun rounds, missiles, or rockets before moving to the entry point to reduce risk to the Soldiers. For most other types, the breaching element will move to the building first to set up and conduct the breach.

C-23. Enemy forces are likely to barricade and overwatch obvious entry points, so leaders often have to compromise easy access for surprise. While employing multiple simultaneous entry points into a building can create confusion in the enemy and allow a force to overwhelm resistance, success relies on highly proficient Soldiers with detailed knowledge of the building layout. Using multiple entry points into the same room is highly dangerous, and leaders should only attempt this if the situation requires it, and they are sure of the location of each enemy. This can cause Soldiers to miss an enemy or allow an enemy to get between two elements, greatly increasing the chances of fratricide.

C-24. The entry point or points become the focus of all enemy in the room and the likely aim points for return fire. Soldiers often call the entryway the “fatal funnel” because it is the most dangerous location and where they are most likely to take fire. This makes it imperative that Soldiers move out of the entryway as quickly as possible. To minimize vulnerability, Soldiers entering the room must pass smoothly through the entry point and then away while engaging enemy combatants. This gets them out of the line of fire and opens the entry point for the next Soldier to enter. Each additional Soldier successfully moves through and away from the entry point increasing the unit’s ability to control the room.

DOORWAY

C-25. The most common and easiest way to enter a building is through a door. Because they are designed to permit access to the structure, even smaller doors are generally large enough to permit a Soldier to traverse quickly while standing. Though doors often have a means to lock or otherwise secure themselves, even a locked door tends to be far weaker than the walls around it. Because doorways are such obvious entry points, they are where enemy forces are likely to focus their defensive efforts. Defenders can bar and barricade doors

to defeat typical breaching techniques and disrupt movement into the room. Doorways also facilitate easy installation of booby traps and signaling devices. Soldiers should look for these before attempting a breach.

GROUND-FLOOR WINDOW

C-26. Window entries can potentially allow clearing Soldiers to bypass primary defenses but leaves them much more vulnerable to enemy in the room. Treat a window that a Soldier can enter in an upright position like a door. Most windows are smaller than doors, which can be very difficult or impossible for even a single combat equipped Soldier to pass through. Window entries generally require the use of at least one hand, making it very difficult for that Soldier simultaneously engage enemy in the room. Even ground-floor windows are generally some distance off the ground and require a ladder or some other means of lift assist to get the entering Soldier over the windowsill. Soldiers can apply the techniques in figures C-1 through C-4 on pages 231 to 233 to facilitate entry into a window.

C-27. When possible, units should employ stealth to enter and seize an unoccupied room undetected. The need to avoid broken glass and the numerous protrusions or other obstacles that can catch their equipment further slows Soldiers and makes them vulnerable to enemy fire. Soldiers should never attempt to enter an enemy-occupied room through a window without some kind of distraction, such as a grenade. As with doors, window design generally facilitates enemy use of booby traps and signaling devices to provide warning of an intrusion. In addition to directly causing casualties, this can enable nearby enemy forces to reposition against the disrupted attacking force.

UPPER-FLOOR WINDOW

C-28. Entering an upper-floor window has the same problems as one on the ground-floor, but with the added complication of increased height. This makes it harder to see into the room before entry, and makes small ladders and Soldier assisted lifts inadequate. Entering an upper-floor window from the ground will generally require either a tall ladder or scaling using a grappling hook and rope. Though the ladder is better, both are slow and expose climbing Soldiers to enemy fire. A Soldier can enter from the top-down by rappelling or using an assault lowering technique. This requires access to the roof, exposes the descending Soldier to enemy fire, and is generally only useful for one Soldier per window, forcing the use of multiple entry points into the same room. Units should not attempt to enter a building through an upper-floor window when there are other options unless they can do so undetected.

BASEMENT

C-29. A basement entry can be an effective way to bypass primary defenses but is only an option under very specific circumstances. The first is a direct connection to an adjacent subterranean structure that the clearing force has access to, like another building or a tunnel. The clearing force can also create this connection by breaching a shared wall. The second is through a window, door, or other prepared access point. These follow the same steps and have the same considerations as a ground-floor entry of the same type, but leaders should note that basement windows tend to be smaller than on the ground floor with a significant drop from the windowsill to the floor. A force may be able to tunnel from an adjacent structure, but this requires time and tools not found in most Army units.

ROOF

C-30. In addition to requiring roof access, a roof entry requires a door, window, or other means to access the building. It is possible to gain access to the roof by scaling an exterior wall, but better options are climbing attached stairs or ladders, helicopter insertion, or crossing over from an adjacent building. The additional challenge of getting to the roof can cause enemies to overlook this option and leave it less defended. Entering the building from the roof results in the unit clearing the building from the top-down instead of the bottom-up, which has its own positive and negative considerations. It is less physically demanding and can allow elements to approach defensive positions from the rear, making them much easier to clear. It can also make it harder for enemy forces to get behind the clearing element or even drive the enemy out of the building where the support element can engage them. For the negative, force size is more limited, and it is more difficult for the clearing element to get support from the outside. This makes a determined enemy better able to halt and isolate an understrength attacking force.

GROUND-FLOOR WALL

C-31. Entry through a ground-floor wall involves creating access through an explosive or ballistic breach. This provides many options to surprise enemy forces and bypass traps and other defenses, but also damages the structure and risks injury to any noncombatants on the far side. Leaders can also use a combat vehicle to ram a hole into the wall, but this is only effective with certain building materials and risks damaging the vehicle and injuring the Soldiers within. After breaching the wall, Soldiers should treat the entry point like a doorway.

ENTER AND CLEAR A ROOM

C-32. Room clearing involves seizing control of a room and its inhabitants (whether hostile or not) rapidly and methodically by eliminating the enemy, dominating the room, and controlling the situation. It relies on surprise, tempo, and controlled violence of action to shock the enemy and prevent them from effectively responding. This allows the clearing force to overcome enemy defensive advantages. The base element for clearing rooms is the four-Soldier fire team. This does not mean that all four members of the team must enter each room, nor does it prevent more than four Soldiers from entering a particular room; however, a Soldier should never attempt to clear a room alone if avoidable. The fire team typically breaks out in the following manner:

- Soldier 1:
  - First Soldier to enter the room.
  - This can be a rifleman or the team leader but should not be someone carrying an open-bolt weapon.
- Soldier 2:
  - Team leader, normally, and initiates entry with a signal to Soldier 1.
  - Normally responsible for throwing a grenade into the room before entry.
  - Grenade type (fragmentation, offensive, or nonlethal) depends on the ROE and the building structure.
- Soldier 3:
  - Rifleman or grenadier, normally
  - Responsible for any breaching.
  - This Soldier should either carry breaching tools and supplies or have ready access to whomever does.
  - The squad leader may also choose to have another element conduct the breach to reduce the requirements on the clearing team.
- Soldier 4:
  - Automatic rifleman.
  - Generally, moves into the room last.
  - Responsible for rear security while staged for entry.

C-33. Before attempting to enter a room, the squad leader must determine the entry point. As mentioned with entering the building, units should not use multiple entry points for the same room. Soldiers should assume that any closed door is locked, and they must breach to gain entry. Attempting to turn the knob (whether locked or not) can give away surprise and draw fire. This means for anything other than an open doorway entry requires the unit to conduct a manual, mechanical, ballistic, explosive, or thermal breach.

C-34. Because surprise is so critical to a successful room clearance, Soldiers should avoid providing any indicators to the enemy of where they are, what room they will enter next, where they will enter, or when they will enter. This means silencing equipment, not brushing against walls or obstacles, and ensuring communication outside the room is nonverbal. This can be especially difficult when setting up an explosive breach.

C-35. Units should train and rehearse stacking on the move. A well-rehearsed clearing team will be stacked as soon as they approach the entryway. This limits the chance of being targeted while stacked on the wall and in front of the entryway.

STACK

C-36. The stack refers to the tight formation a clearing team assumes immediately prior to clearing a room. The team normally positions on the opposite side of the hinges for an outward opening door so that the team is not forced to walk around the door to enter. On the contrary, positioning on the same side as the hinges of an inward opening door tends to allow for a smoother entry.

C-37. The side is irrelevant if there is no door or if the breach will blow the door off its hinges completely as long as the team does not cross the open entryway (see figure C-5). The following is the stack lineup, orientation, and pre-entry procedures:

- Soldier 1 normally stands next to the wall on one side of the entryway ready to engage anyone that might exit the room.
- Soldier 2 stands immediately behind Soldier 1 oriented down the hall ready to engage anyone that might enter the hall from another room or intersection.
- Soldier 3 stands immediately behind Soldier 2 and either orients to engage threats above the team or covers the same sector as Soldier 2.
- Soldier 4 stands immediately behind Soldier 3 while remaining in physical contact, and Soldier 4 then faces to the rear to engage threats that approach from behind the team unless there is another friendly unit already there.
- When ready to enter, Soldier 4 will signal Soldier 3 who signals Soldier 2, and Soldier 1 moves to enter the room immediately after receiving the signal from Soldier 2.
  - Units commonly use a squeeze of the shoulder or arm for this signal as it is silent, clear, and does not require taking eyes off the sector of fire (do not use a tap as a Soldier might mistake an accidental bump as the signal).
  - All Soldiers should be in physical contact so that they are aware if the team moves even if they miss a signal.
- Additional Soldiers entering after first four:
  - If more than four Soldiers are entering the room, then the additional Soldiers continue to stack behind the first four.
  - The sequence remains the same with the ready signal starting from the last Soldier in line and continuing to the first.

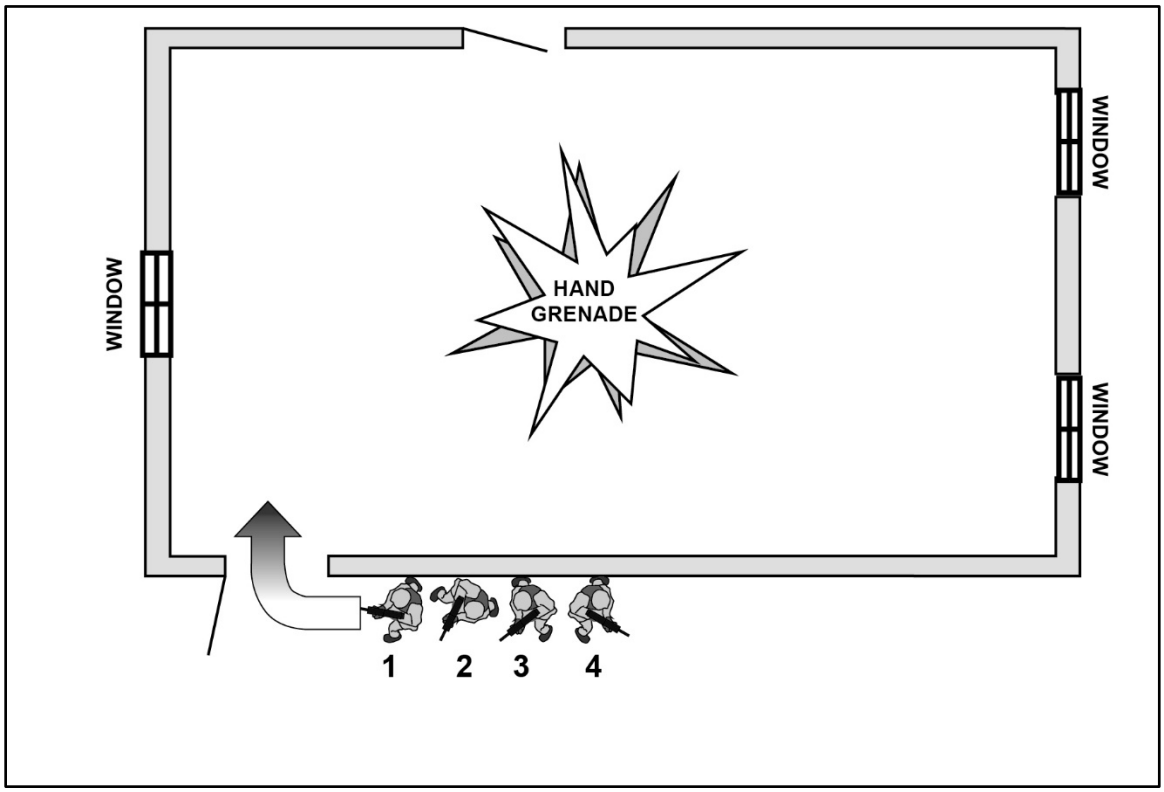


Figure C-5. Stack adjacent to door

C-38. Soldiers 2 or 3 may temporarily position themselves outside of the stack to breach the entryway or employ a grenade. The completion of the breach or detonation of the grenade then becomes the signal for Soldier 1 to enter. The Soldier who stepped out of the stack to breach the entryway or employ a grenade will seek cover prior to detonation, assume Soldier 4 position, and follow the stack as they enter the room. Soldiers should not use smoke grenades inside of a building as confined spaces can make the smoke too dense to breathe. Fragmentation grenades can be an option, but generally only in high-intensity conflict when the ROE permit their use. Nonlethal grenades may be the better choice in many situations, though they can still be dangerous within enclosed spaces.

C-39. With Soldiers so close together, a single explosive round or burst from a machine gun can kill an entire team in a stack. The longer the team stays in a stack directly outside the room, the more likely they will receive fire from either outside or through the wall from someone within. Teams must be efficient in their actions to minimize exposure time.

C-40. The team may stack in a covered position away from the entry point if conducting an explosive or ballistic breach. In this case, the team moves immediately upon initiation of the breach and continues through the entryway rather than stacking again unless someone is also going to throw a grenade. The team should move in a tight formation to minimize delay going through the entry point, but this takes practice to prevent tripping Soldiers in front or behind (see figure C-6 on page 238).

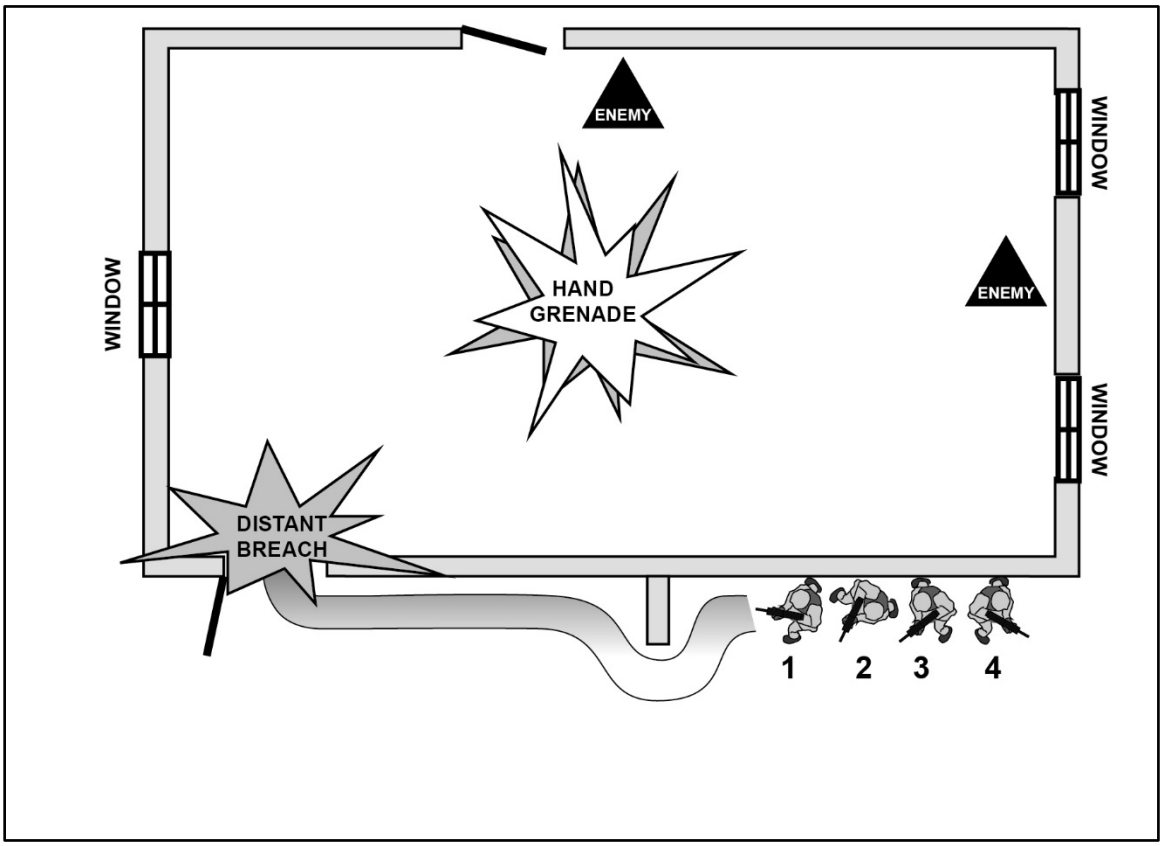


Figure C-6. Stack away from door

BREACH

C-41. Clearing buildings, floors, and rooms requires units to access defended areas. Breaching techniques for building or room entry points vary based on the mission; construction of the entry point; and the availability of breaching equipment, munitions, or demolitions. They can range from kicking in a door to the complex use of specialized demolitions. Leaders should breach with a separate element that is not part of the team about to clear the next room when possible.

C-42. Before breaching a building, leaders should consider the effects of the breach on the building and adjacent buildings. This is especially true for explosive breaches. They can start fires or cause all or part of the building to collapse. Breaching techniques can also be hazardous to civilians in or around the building. Units should use select the breaching method that best meets the requirements of the situation.

C-43. Breaching elements must remain especially careful of traps or explosives devices when breaching into and within buildings. Doors and windows are obvious entry points, and common designs facilitate the use of such devices.

Note. Units conducting a breach into a building may need to suppress enemy positions on top of the building or in adjacent structures.

C-44. When breaching into a building, hand-emplaced smoke is generally the most responsive and effective obscurant as long as it does not degrade friendly operations. Obscurants are normally detrimental for internal breaches as they degrade the vision and breathing of the breach force while walls and doors already conceal the force from the enemy. Forces should just take care to avoid silhouetting in front of open doorways, windows, and holes while minimizing noise during breach preparations.

Door Breach

C-45. While exterior doors are generally the easiest places to breach into a structure, they are where enemy forces are most likely to focus their defenses. In many cases, it is better to enter through a wall, window, or even the roof, all of which require specialized equipment.

Manual

C-46. This generally involves kicking the door near the lock or ramming it with a shoulder. Manual breaches can be effective against light doors, like generally found in single-family dwellings. Failed attempts can injure the breaching Soldier and alert enemy inside.

Mechanical

C-47. A ram is a very effective tool for breaching an inward opening door given there is enough space to facilitate its use. The breacher should aim directly for or just to the side of the doorknob. The breacher can also try kicking the door in or ramming it with a shoulder, but this is far less effective, may result in injury, and failed attempts will likely alert enemy in the area. An outward opening door will require the use of a hooligan tool or pry bar.

C-48. Securing an exterior door to a vehicle using a chain or rope and then accelerating can be an effective way to pull the door off its hinges as long as it does not break off the anchor points on either side. While units can also ram a door with a vehicle to open it inward, this is far more likely to cause damage to the frame around the door and the vehicle itself. There is also the chance that the vehicle becomes stuck, requiring another breach or another vehicle to pull the first out of the way.

Ballistic

C-49. Small-arms weapons other than shotguns have limited breaching value and produce ricochets that can injure breachers. Shotguns can be effective tools for quickly breaching interior wooden doors by destroying either the hinges or locking devices. They can be effective for metal and exterior wood doors, but this will likely require more shots. They can also defeat other kinds of locking mechanisms, including those for windows, fences, and vehicle trunks. Unlike demolitions, Soldiers can employ shotguns quickly and they do not require much training to be effective. Shotgun breaches consume multiple rounds per door, risks injury to anyone standing close behind, and is only effective against weaker doors that lack reinforcement. While mechanical breaches tend to be more effective in most situations, Soldiers can use shotguns in places where they do not have the space or cannot apply the right leverage for a ram or hooligan tool. They can also be faster and easier than a mechanical breach, especially for an outward-opening door. A properly executed shotgun breach will not damage the frame, so repairing the damage just requires replacing the door.

C-50. Other forms of ballistic breaching include the use of the M100 grenade rifle entry munition and large-caliber weapon systems. The grenade rifle entry munition is a rifle-launched entry munition mounted on an M16 or M4 designed to breach doors as an alternative to close-proximity methods (see TM 9-1330-210-10 for additional information). While it can be effective against metal or wooden doors, it can also bend a reinforced metal door rather than breaching and cause it to get stuck in the frame. Large-caliber munitions, such as the 25mm chain gun or 120mm main gun, readily opens all but the most heavily reinforced doors, but with the potential for extensive collateral damage.

Explosive

C-51. A demolition door breach requires a relatively small number of explosives as the charge can be focused to defeat either the locking mechanism or the hinges. A unit with good intelligence can tailor their charges before the operation to provide enough force in the right location to breach the door with minimal collateral damage.

Thermal

C-52. Using an acetylene torch or other thermal cutting instrument is going to be much slower than other breaching methods, but it may be the only way to get through the most heavily reinforced doors. This can be especially useful in subterranean areas where explosives are not suitable.

Wall Breach

C-53. Exterior wall breaches can be very effective but are normally more resistant than doors. This limits breaching options, generally requiring the use of main gun rounds, missiles, or large quantities of explosives. This can create significant damage to the wall and area behind the wall that is not easy to repair. In all cases, units need to be careful not to damage load-bearing walls to maintain structural integrity. Wall breaches do provide more options to attacking forces, making it harder for the enemy to predict and prepare for. Some buildings may have a security wall or fence, requiring the unit to breach to get to the structure.

Note. While interior wall breaches are possible, they are harder to accomplish than exterior. Positioning weapon systems for a ballistic breach is not normally feasible, mechanical breaches are slow and noisy, and explosive breaches consume large quantities of demolitions, especially if conducted repeatedly. Entering rooms through an existing doorway is usually going to be the best option once inside the building.

Manual

C-54. Manual wall breaches are ineffective except against the least durable materials. Even then, breaching Soldiers risk injury, especially if they hit a beam or part of the frame.

Mechanical

C-55. Mechanical wall breaches using handheld tools are generally slow, noisy, and not recommended when better options exist. Units may also choose to create an opening in a wall by ramming it with a combat or engineer vehicle. This method is generally fast and allows for a close breach. It also risks damaging the vehicle, getting it stuck, injuring passengers, and undermining the stability of the structure. A poorly placed breach can cause portions of the building to fall on the vehicle or those standing nearby. This may be the best option in some situations to enter a building quickly, but leaders must remain aware of the risks and be prepared to mitigate them.

Ballistic

C-56. Using small and medium caliber weapon systems to create holes large enough to pass through is generally ineffective, but larger caliber weapons and missiles can create effective breaches with relatively few rounds (see appendix B for additional information). This will generally require a distant breach to remain outside the surface danger zone of the weapon system.

Explosive

C-57. Demolitions can be very effective for breaching interior and exterior walls, but units must accurately assess the requirements to ensure they use the right amount and type of explosive charges to penetrate the wall without causing excessive damage to the rest of the structure.

Thermal

C-58. Thermal wall breaches are rare as using other methods or just going through the door are generally more effective and efficient.

Other Options

C-59. Window breaches are generally far easier and quieter than breaching through a wall, but they can be very slow, awkward, and require the means of getting to the window's height (such as an assault ladder). These work best for surprise when the enemy is not in the adjacent room.

C-60. Roof breaches are similar wall or door breaches, except that the force must have some way of getting to the roof. Helicopter insertions are common but using a tall ladder or crossing over from an adjacent building can accomplish the same thing.

ENTER

C-61. An open door provides situational awareness for clearing team to visually scan the room for threats prior to entering. When an open door exists, Soldier 1 will take a position with an unobstructed view. Soldier 1 will then quickly scan the room for enemy presence, visibly clearing observable points of domination, while maintaining the element of surprise. If Soldier 1 is compromised, the clearing team must be ready to enter and clear the room. After quickly scanning the room Soldier 1 will signal the team with visual scan results and adjust the plan, as necessary. Clearing procedures remains the same, whether it's an open or closed door.

C-62. Upon receiving the signal, Soldier 1 moves forward, turns into the entryway, steps through, engages any threats in the immediate entryway, and then turns either left or right. The first Soldier into the room should follow the path of least resistance. In most cases, this means crossing the entryway and continuing in the same direction the stack was facing to prevent having to buttonhook around the wall. These Soldiers will become the focus of enemy attention; therefore, it is critical that they not stop or slow down until reaching a point of domination.

C-63. The remaining Soldiers follow immediately behind the first. Soldier 2 also clears the entryway before turning in the opposite direction to reach a point of domination. Soldier 3 generally follows Soldier 1 while Soldier 4 follows Soldier 2. Should a Soldier fall in the entryway for whatever reason, they should stay down until the room is clear.

C-64. Units breaching into a building or room should enter immediately following the reduction to take advantage of any shock effects from the breach. Explosive or ballistic breaches in close quarters can have a strong effect on enemy near the breach point. This also applies to noncombatants in the room, so leaders must account for this when selecting the breach type.

DOMINATE

C-65. Soldiers dominate a room by engaging threats and moving to positions that allow them to control any occupants within.

Points of Domination

C-66. Points of domination refer to designated points within a room that, when occupied, can effectively control the room through observation and fire. The corners of a room are the preferred points of domination. From any of the four corners of a typical room, one gets the smallest angle that covers the whole room; however, the room layout, obstructions, and the clearing team size can affect which locations provide the best sectors of fire.

C-67. Points of domination should not be in front of doors or windows, so team members do not silhouette themselves to the outside of the room. No movement should mask the fire of any of the other team members nor should movement allow an enemy to get between team members. Most rooms have four points of domination based on the point of entry—the two corners on either side of the door and at least one meter to the left and to the right of the entry point. All points should be against the wall, though not necessarily the same wall (see figure C-7).

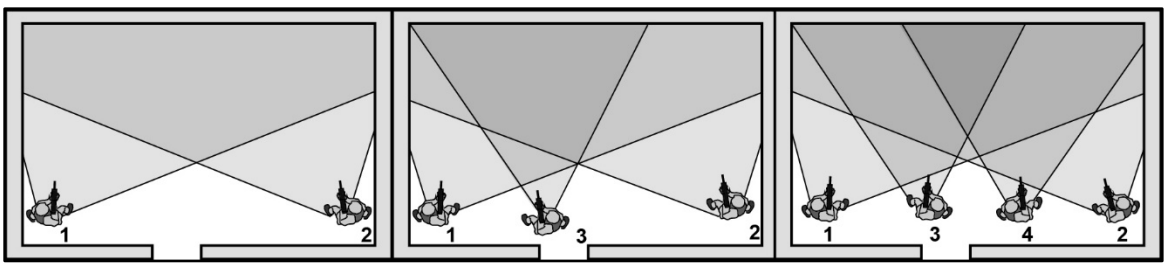


Figure C-7. Points of domination for center entry point

C-68. If the entry point is in the corner of a room, then using that corner as a point of domination is usually impractical as it hinders the movement and fire of the rest of the team. For rooms with a corner entry, the two points of domination on that side slide down the side wall (see figure C-8).

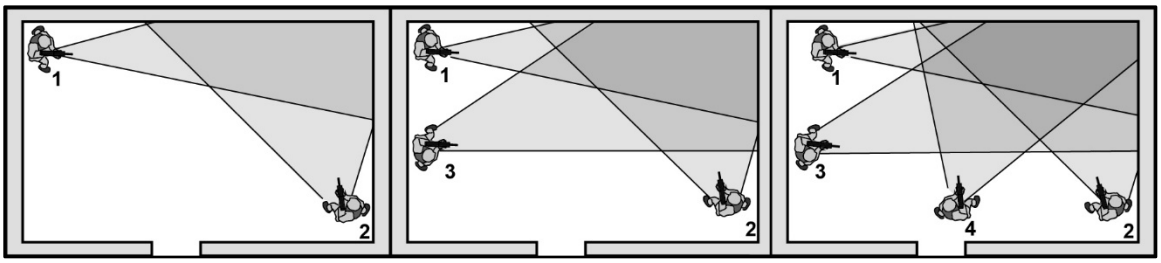


Figure C-8. Points of domination for corner entry point

Fire and Movement

C-69. The following example describes the strong wall technique. It assumes a center-fed, rectangular room, and Soldier 1 establishes a point of domination in the lower right corner (see figure C-9):

- Soldier 1 passes rapidly through the entry point and engages any immediate threat:
  - The Soldier then turns right and clears along the wall to the corner.
  - Without stopping, the Soldier clears the room traversing to the left while walking to the point of domination.
  - The Soldier ends in the lower right corner with a sector of fire that goes from the upper right to upper left corners.
- Soldier 2 passes through the entry point after Soldier 1 and engages any immediate threat missed by Soldier 1:
  - The Soldier then turns left and clears along the wall to the corner.
  - Without stopping, the Soldier clears the room traversing to the right while walking to the point of domination.
  - The Soldier ends in the lower left corner with a sector of fire that goes from the upper left to upper right corners.
  - When an inward facing door is present, Soldier 2 passes through the entry point after Soldier 1 and then buttonhooks through the open door, turns left, and moves along the wall, clearing to the corner.
  - Soldier 2 is responsible for driving the room's door all the way against the inner wall to clear behind it.
- Soldier 3 passes through the entry point after Soldier 2 and engages any threats in the middle of the room:
  - The Soldier then turns left and clears the wall to the left of Soldier 1.
  - Without stopping, the Soldier clears the room traversing to the left while walking to the point of domination.
  - The Soldier ends on the wall between the lower right corner and the entryway with a sector of fire that goes from the upper right to upper left corners.
- Soldier 4 passes through the entry point after Soldier 3 and engages any threats in the middle of the room:
  - The Soldier then turns left and clears the wall to the right of Soldier 2.
  - Without stopping, the Soldier clears the room traversing to the right while walking to the point of domination.
  - The Soldier ends on the wall between the lower left corner and the entryway with a sector of fire that goes from the upper left to upper right corners.

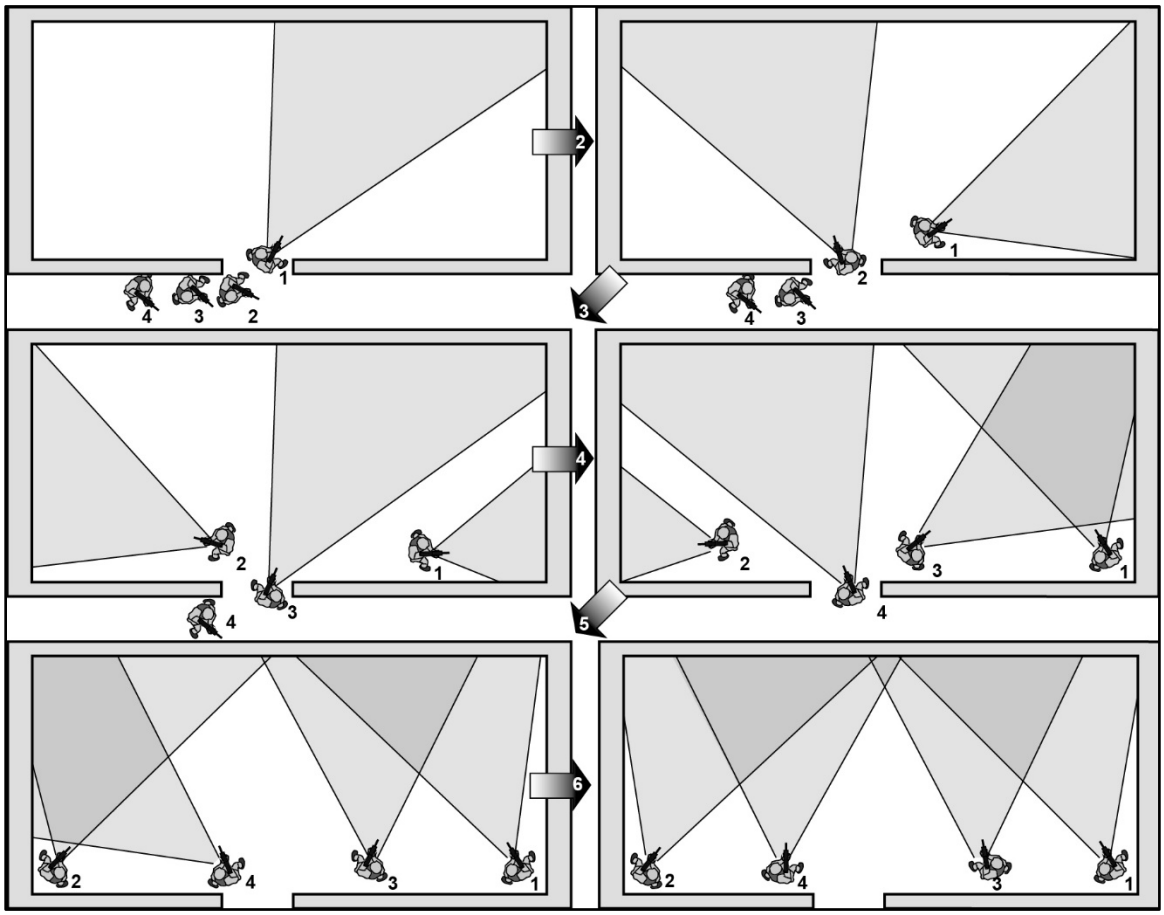


Figure C-9. Strong wall room clearing technique

C-70. The strong wall technique is best for inexperienced teams clearing open rooms with little clutter to mask visibility. For the opposing corner technique, Soldier 1 continues past the first corner and moves to the corner opposite of Soldier 2 (similar to the above description for a room with a corner entry point). This allows Soldiers to engage from different angles but requires a more experienced team to mitigate fratricide risk (see figure C-10 on page 244). For a long room, the team leader may also choose to have both Soldiers 1 and 2 continue up their respective walls to establish deeper in the room (midway works, but both should not go to the far corners as this would mask their fires). In the end, the size and shape of the room will dictate where Soldiers establish their points of domination. Soldiers must know all the team members' sectors of fire, how these sectors of fire shift as they enter the room, and the final sectors of fire from the points of domination. No movement should mask the fire of any other team member. All Soldiers must exercise fire control and discriminate between hostile and noncombatant occupants of the room.

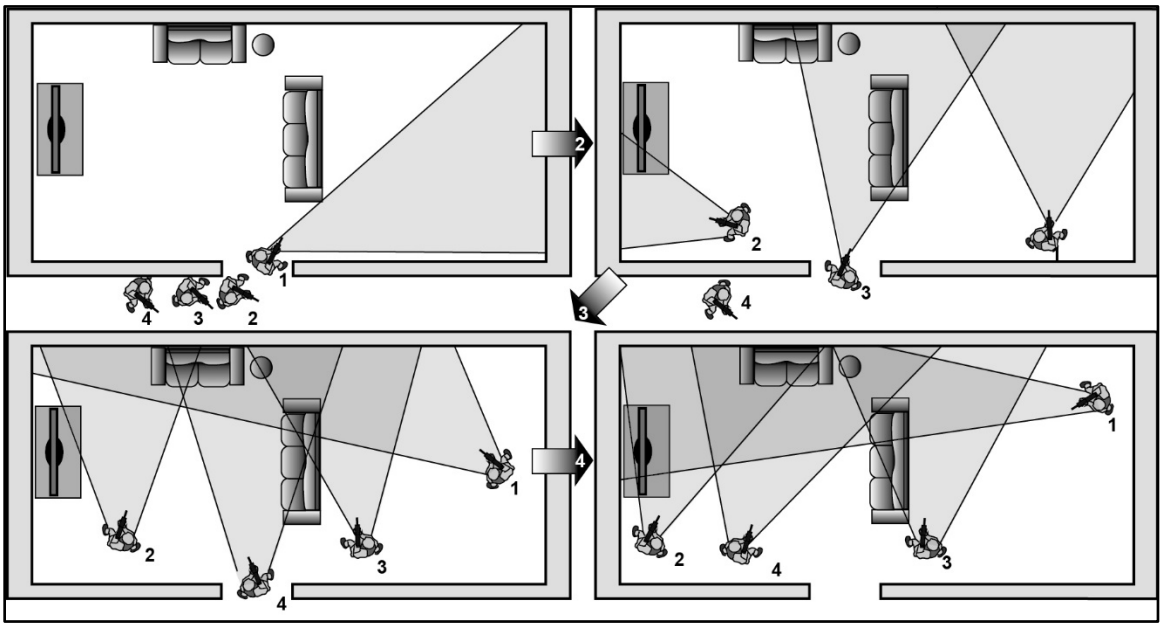


Figure C-10. Opposing corner room clearing technique

C-71. Inaction or slow execution allows any hostile element time to react. Unless restricted or impeded, clearing team members stop moving only after they clear the door and reach their designated point of domination. They conduct all movement during room clearing at a brisk walk that allows Soldiers to retain their ability to fire rapid and well-aimed shots at appropriate targets while moving. In addition to dominating the room, all clearing team members look for loopholes and mouseholes in the ceiling, walls, and floor. Once inside the room, avoid silhouetting or crossing in front of windows or open doors.

C-72. Team members should stay within one meter of the wall as they move. They must be careful to not brush against the frame, door, or wall with their bodies as equipment may catch and slow the team's movement. The first Soldier that moves past an inward-opening door should forcefully push the door all the way to the wall with a shoulder, foot, hand, or elbow to ensure no one is behind it and clear the path. Soldiers need to be prepared to go over or around furniture to maintain momentum and secure the room as rapidly as possible. If progress is blocked by something that would require the Soldier to move more than one meter from the wall, then the Soldier should stop and clear the rest of the sector from that position.

C-73. The clearing team leader directs additional clearing actions should there still be dead space in the room after all members have reached their points of domination and cleared their sectors. If Soldier 1 or 2 discovers the room is too small for the entire team, either can call out, SHORT ROOM. This tells the remaining Soldiers in the stack not to enter.

Common Challenges

C-74. Soldiers encountering unarmed people in their paths must clear them out of the way so that they do not hinder the movement of the rest of the team. The preferred method is to force any individuals into the center of the room, so they remain in the team's field of fire. If not possible, the Soldiers should push them into a position against the wall that allows the other members of the team to pass. Someone that initially appears to be a noncombatant may pull out a weapon or initiate other hostile action. Soldiers must maintain awareness and be ready to react as the situation changes.

C-75. Should any Soldiers' weapons malfunction during the clearance, they should attempt to get out of the way so that someone else can engage the threat. The Soldier drops to a knee, calling out GUN DOWN while attempting to clear the weapon. This clears the Soldier from the line of fire and alerts teammates of the problem. Once the weapon is operational, the Soldier should call out GUN UP while remaining on a knee. Another Soldier should move behind and help the original Soldier up to ensure that no one stands up into the

line of fire unexpectedly. If a weapon malfunctions while a Soldier is in close proximity to an enemy combatant, then that Soldier may have to quickly close and engage the enemy hand-to-hand.

C-76. If a Soldier becomes engaged in a hand-to-hand fight, the engaged Soldier's priority is to continue to fight long enough for the rest of the team to clear the room and then assist. The team's priorities are to clear the entry and dominate the room before providing aid to individual team members. While providing support, it is important that the team remains aware of the larger fight and maintains security.

CONTROL

C-77. The clearing team must control all live noncombatants, friendly personnel, and neutralized enemy (whether having surrendered or been incapacitated). The team leader should immediately direct, through a loud commanding voice and exaggerated hand signals, the actions those personnel should take. Priority is to disarm all personnel and ensure they assume a prone position. Soldiers must confirm the casualty status of all occupants.

Note. Verbal communication with the room's occupants may be challenging if they are experiencing a loss of hearing resulting from the use of explosives and firearms.

C-78. By eliminating known enemy and occupying points of domination, the clearing team seizes the initiative from any remaining enemy and establishes control of the room. Once the room is clear, the team immediately establishes security with particular focus on room entry points. While the team leader marks the room and reports status to the squad leader, the rest of the team should maintain security while taking care not to silhouette themselves in front of any doorways, windows, or holes. The team leader takes direction from the squad leader and initiates the next action. For a room with another unsecured exit, this can include stacking on that door and repeating the process to clear the next room.

INTERIOR MOVEMENT

C-79. As with the approach, moving within a structure requires awareness to avoid presenting a silhouette in front of doors and windows. Avoid operating in rooms closest to exterior walls or entrances with windows to reduce the chances of the enemy identifying your location and firing munitions into the structure being cleared. Soldiers should also stay 12 to 18 inches away from walls to avoid ricochets. While mission variables affect the particulars of movement, the base element for moving inside structures remains the four-Soldier fire team. Fire teams can move through buildings as separate entities, but can only secure where they are, not where they have been. The fire team itself typically breaks out in the following manner:

- Soldier 1 normally moves at the front of the team, and this can be a rifleman or the team leader but should not carry an open-bolt weapon.
- Soldier 2 is normally the team leader and initiates entry with a signal to Soldier 1.
- Soldier 3 is normally a rifleman or grenadier and is responsible for any breaching.
  - This Soldier should either carry breaching tools and supplies or have ready access to whomever does.
  - The squad leader may also choose to have another element conduct the breach to reduce the requirements on the clearing team.
- Soldier 4 is often the automatic rifleman, generally moves into the room last, and is responsible for rear security unless there is another friendly element directly behind.
  - The Soldier should not actually walk backwards as this could cause the Soldier to trip.
  - Instead, walk forward while continuing to scan the rear, and turn completely around when the element stops.

MOVING THROUGH HALLWAYS

C-80. The two basic techniques for moving through hallways are the serpentine and rolling-T (see figure C-11 on page 246).

Serpentine

C-81. The serpentine is most effective for Soldiers moving through hallways:

- Soldier 1 provides security to the front focused on any enemies who appear at the far end of the hall or from any doorways near the end.
- Soldier 2 and Soldier 3 cover the left and right sides of Soldier 1, and they engage any enemies who appear from nearby doorways on either side of the hall.
- Soldier 4 provides rear security against any enemies approaching from behind the team.

Rolling-T

C-82. The rolling-T is most effective for Soldiers moving through wide hallways:

- Soldier 1 and Soldier 2 move abreast on each side of the hall while securing the opposite side of the hallway.
- Soldier 3 moves between and behind Soldiers 1 and 2 while covering the far end of the hallway.
- Soldier 4 provides rear security.

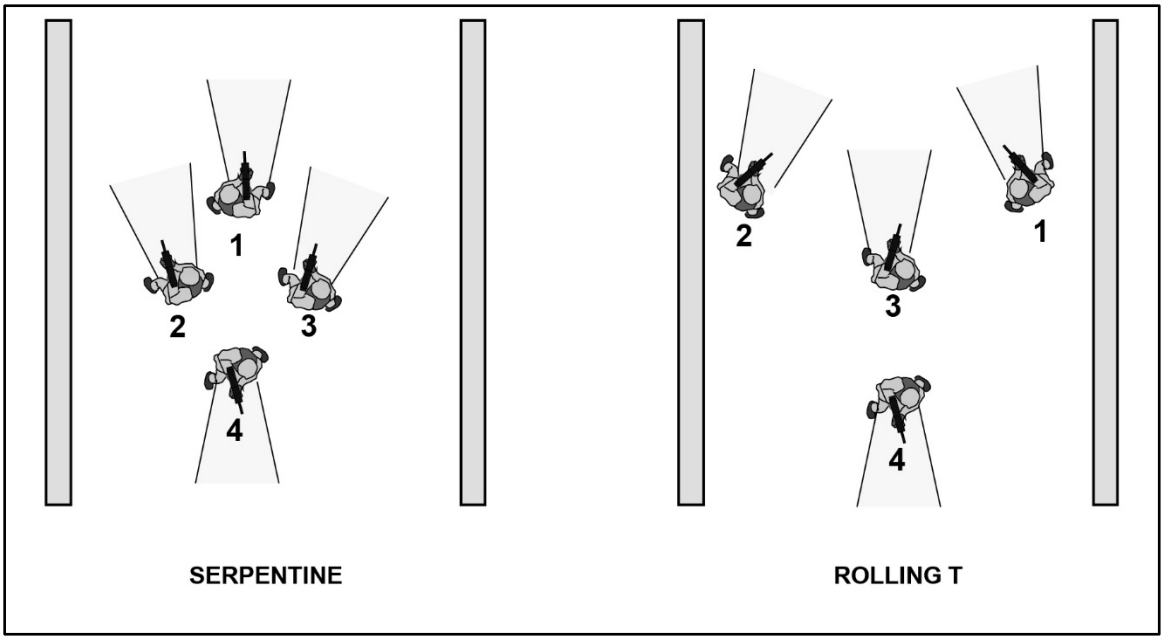


Figure C-11. Hallway movement techniques

MOVING THROUGH INTERSECTIONS

C-83. Hallway intersections are dangerous locations for an attacking force because they expose Soldiers while limiting the team's ability to mass fires. Units should employ techniques that allow multiple Soldiers to engage the enemy while limiting exposure. These techniques differ slightly based on the type of intersection. Leaders can use left-handed Soldiers to clear right-hand corners (or even right-handed Soldiers firing left-handed) with the following techniques as it helps in most situations.

Four-Way Intersection

C-84. Four-way intersections requires Soldiers to mitigate threats in four directions without sacrificing tempo.

Assume Start Position (Step 1)

C-85. Upon nearing the four-way intersection, the team performs the following steps:

- The team configures into a 2-by-2 formation.
- Soldier 1 and Soldier 2 move to the left side of the hallway.

- Soldier 3 and Soldier 4 move to the right side of the hallway.
- Soldier 1 and Soldier 3 move to the edge of their corners and assume a low crouch or kneeling position, while Soldier 2 and Soldier 4 remain standing (see figure C-12).

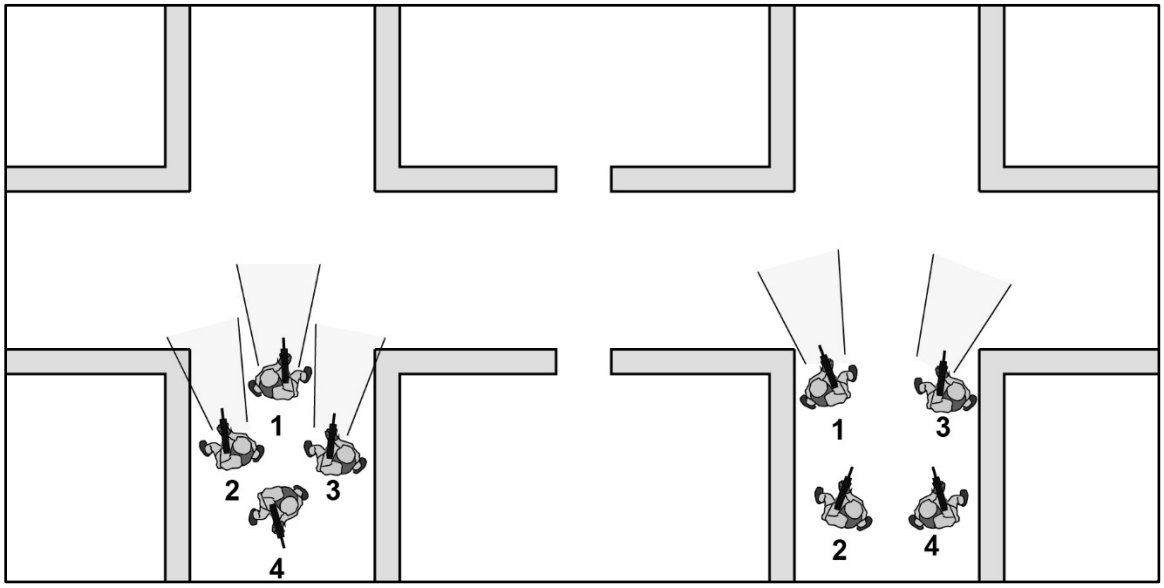


Figure C-12. Moving through four-way hallway intersection (Step 1)

Clear Around Corners (Step 2)

C-86. As the team moves into the intersection, Soldiers will perform the following steps:

- Simultaneously execute movement on a prearranged signal.
- Soldier 1 and Soldier 3 turn left and right, respectively, and cover the hallway from their low position.
- Soldier 2 and Soldier 4 step forward and turn left and right, respectively, maintaining their high position.
- The sectors of fire for all Soldiers cover the full width of their hallway.
- The low and high positions prevent Soldier 2 and Soldier 4 from firing at Soldier 1 or Soldier 3, respectively (see figure C-13 on page 248).

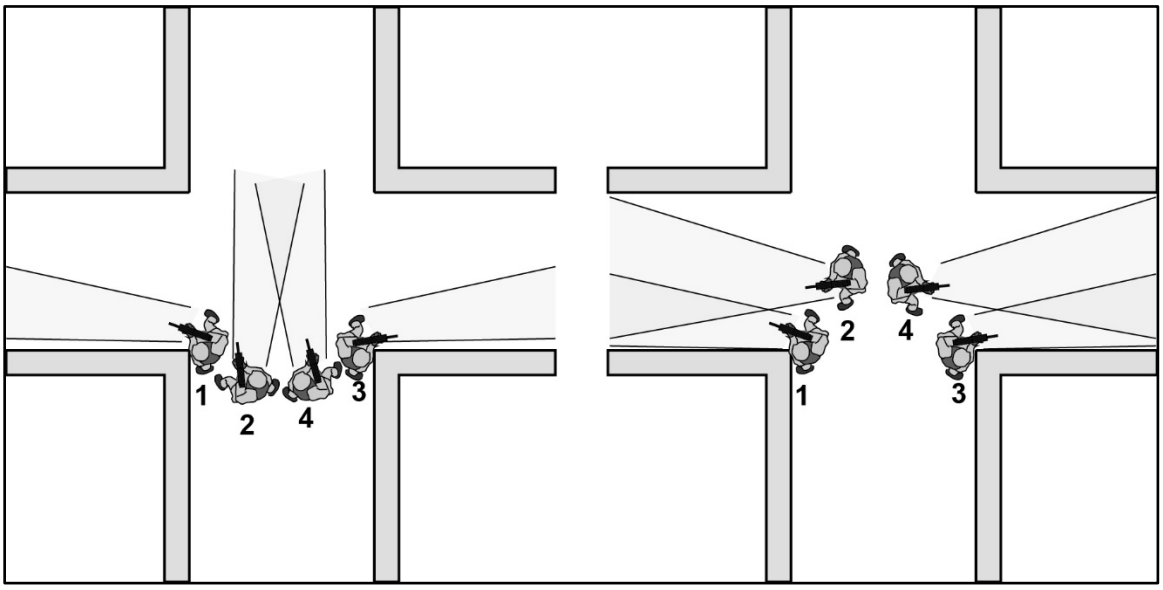


Figure C-13. Moving through four-way hallway intersection (Step 2)

Resume Movement (Step 3)

C-87. Once the left and right portions of the hallway are clear, Soldier 4 turns and secures the hallway in the original direction of movement. The fire team then resumes their hallway movement formation (see figure C-14).

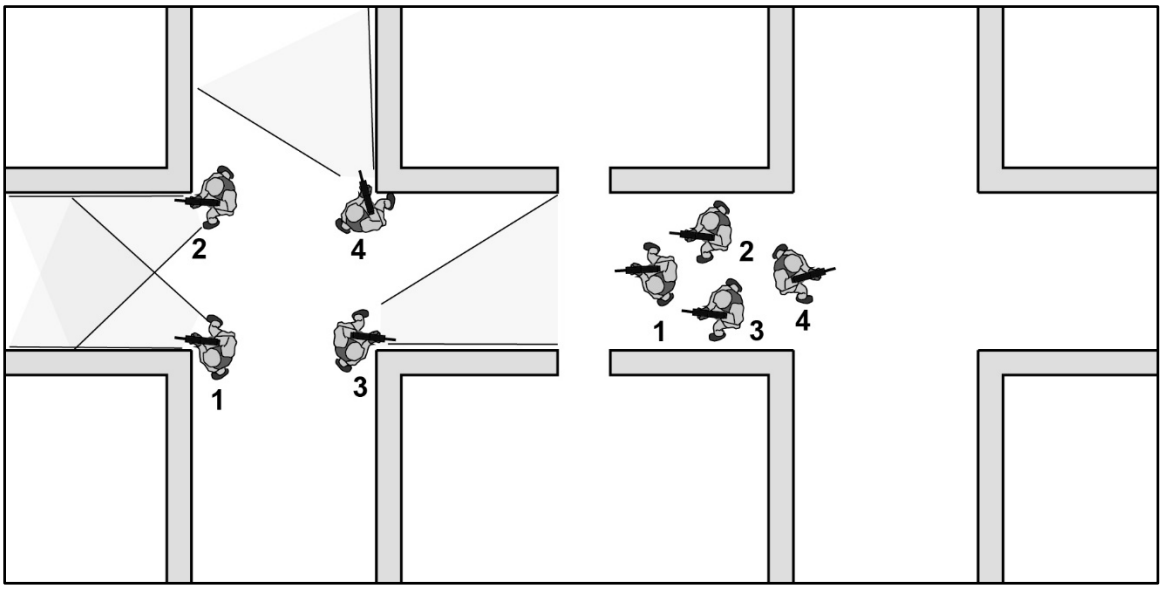


Figure C-14. Moving through four-way intersection (Step 3)

Upright T-Intersection

C-88. Upright T-intersection are often at the ends of hallways. Negotiating this intersection requires Soldiers to mitigate threats in three directions and change directions without sacrificing tempo.

Assume Start Position (Step 1)

C-89. Upon nearing the T-intersection, the team performs the following steps:

- The team configures into a 2-by-2 formation.
- Soldier 1 and Soldier 2 move to the left side of the hallway.
- Soldier 3 and Soldier 4 move to the right side of the hallway.
- Soldier 1 and Soldier 3 move to the edge of their corners and assume a low crouch or kneeling position, while Soldier 2 and Soldier 4 remain standing (see figure C-15).

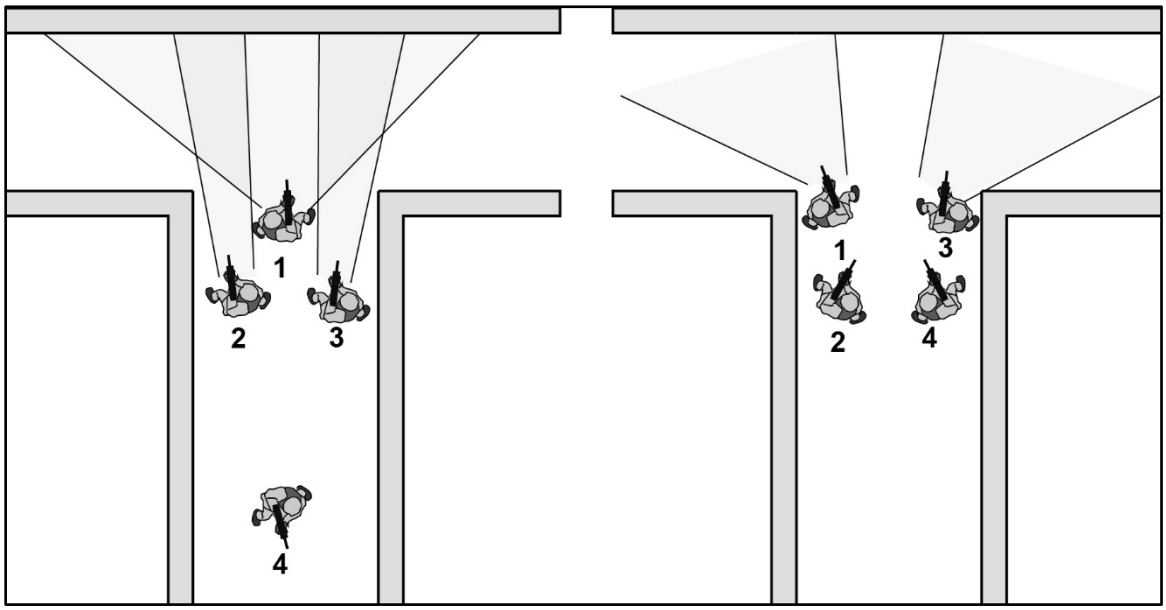


Figure C-15. Moving through T-shaped hallway intersection from base hallway (Step 1)

Clear Around Corners (Step 2)

C-90. As the team moves into the intersection, Soldiers perform the following steps:

- Simultaneously execute movement on a prearranged signal.
- Soldiers 1 and 3 simultaneously turn left and right, respectively, and cover the hallway from their low position.
- Soldiers 2 and 4 step forward and turn left and right, respectively, maintaining their high position.
- The sectors of fire for all Soldiers cover the full width of their hallway.
- The low and high positions prevent Soldier 2 and Soldier 4 from firing at Soldier 1 or Soldier 3, respectively (see figure C-16 on page 250).

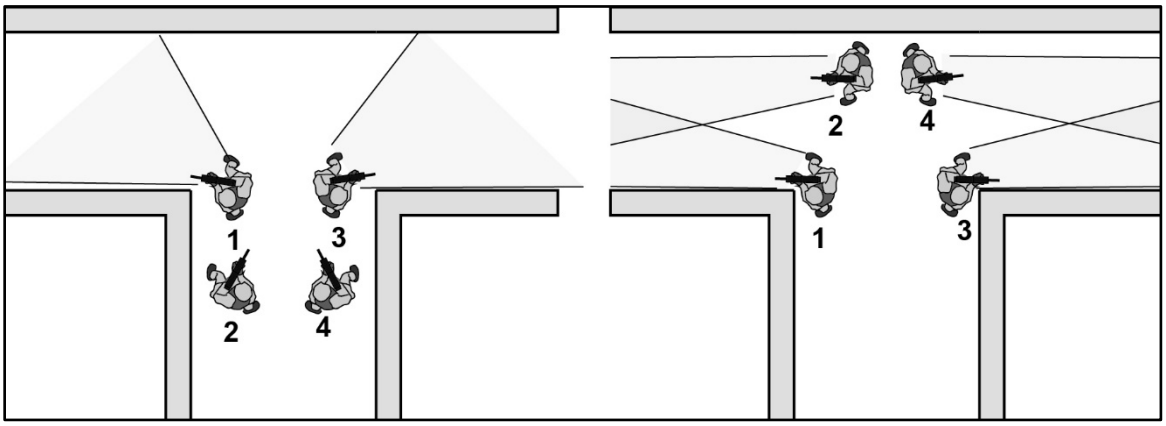


Figure C-16. Moving through T-shaped hallway intersection from base hallway (Step 2)

Resume Movement (Step 3)

C-91. Once the left and right portions of the hallway are clear, the fire team resumes their hallway movement formation (see figure C-17).

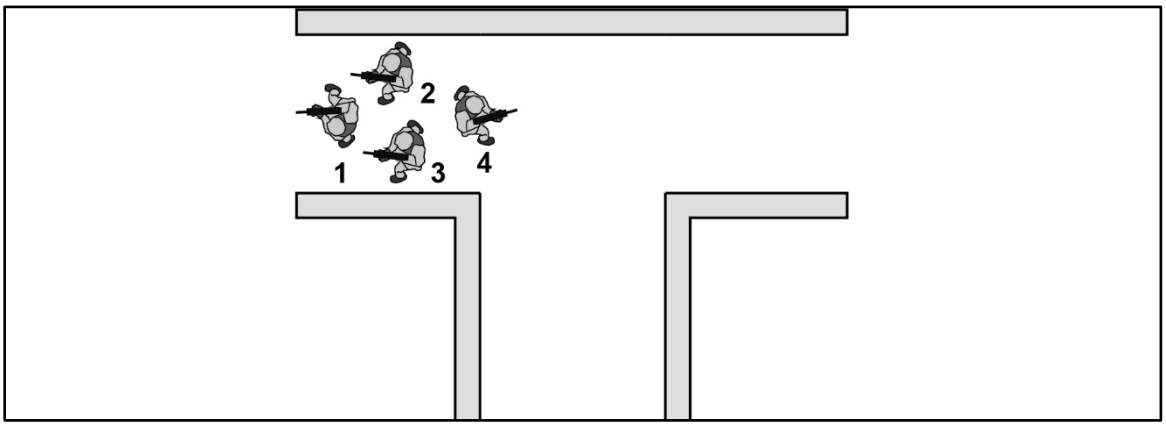


Figure C-17. Moving through T-shaped hallway intersection from base hallway (Step 3)

Branch T-Intersection

C-92. Branch T-intersections are often in the middle of hallways. Negotiating this intersection requires Soldiers to mitigate threats in three directions without sacrificing tempo.

Assume Start Position (Step 1)

C-93. Upon nearing the T-intersection, the team performs the following steps:

- The team configures into a modified 2-by-2 formation.
- Soldier 3 moves to the edge of the corner and assumes a low crouch or kneeling position.
- Soldier 1 moves abreast of Soldier 3 and near the right side of the hall.
- Soldier 2 moves to the left side of the hall and orients to the front.
- Soldier 4 moves to the right of Soldier 2 and maintains rear security (see figure C-18).

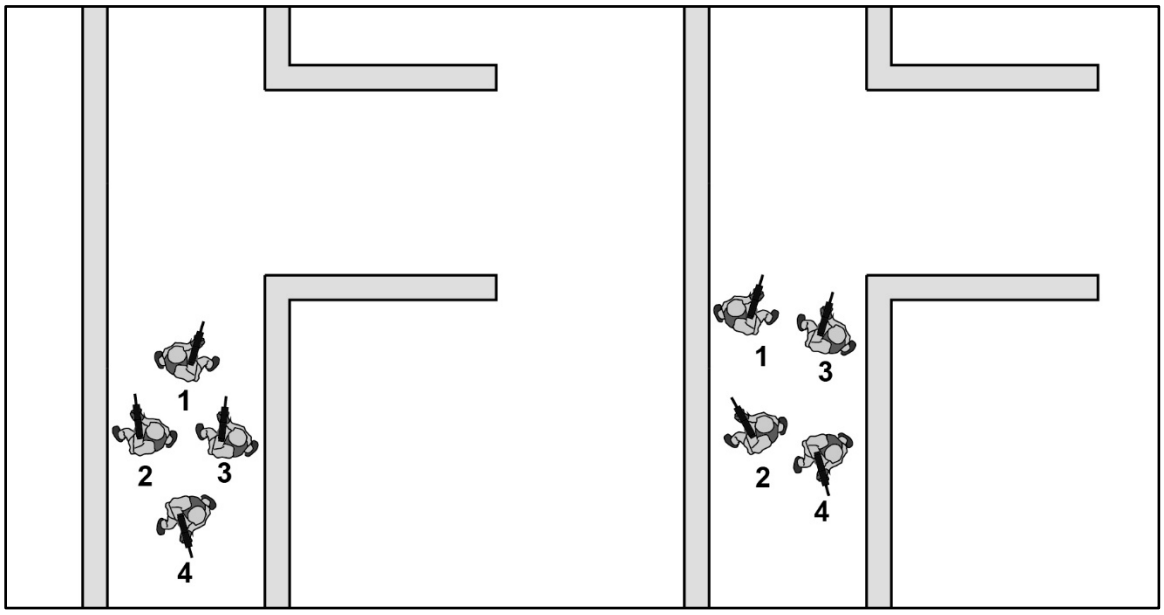


Figure C-18. Moving through T-shaped hallway intersection from cross hallway (Step 1)

Clear Around Corner (Step 2)

C-94. As the team moves into the intersection, Soldiers will perform the following steps:

- Simultaneously execute movement on a prearranged signal, keying in on the actions of Soldier 3.
- Soldier 3 turns right around the corner keeping low.
- Soldier 1 steps forward while turning to the right and staying high.
- Soldier 2 and Soldier 4 continue their movement in the direction of travel, and their movement is continuous.
- The sectors of fire for all Soldiers cover the full width of their hallway.
- The low and high positions prevent Soldier 2 and Soldier 4 from firing at Soldier 1 or Soldier 3, respectively (see figure C 19).

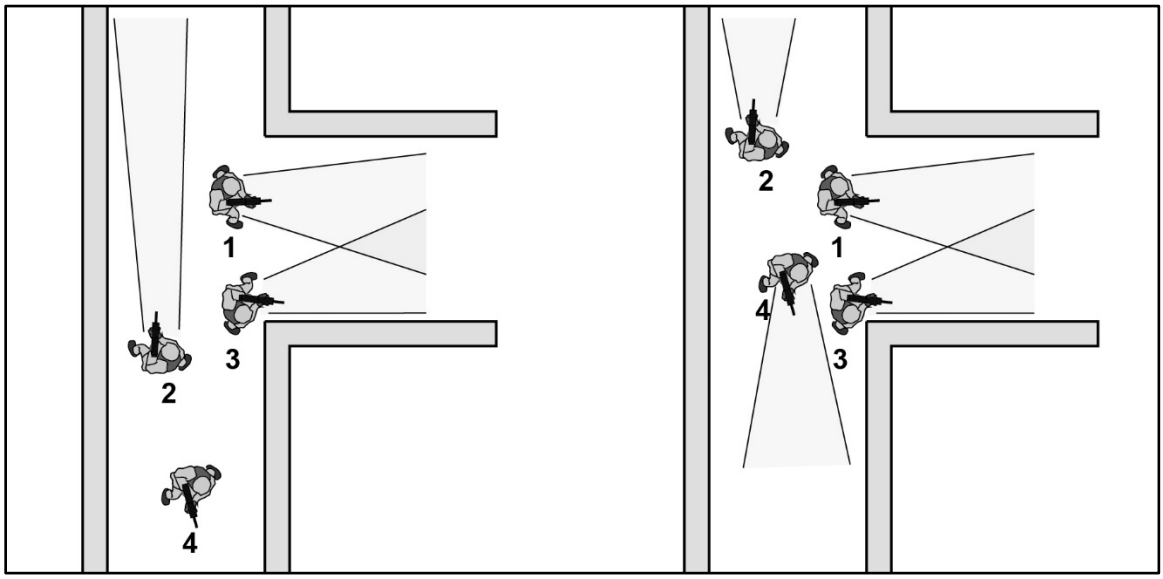


Figure C-19. Moving through T-shaped hallway intersection from cross hallway (Step 2)

Resume Movement (Step 3)

C-95. After clearing the intersection, the fire team continues movement in the same direction or turns in a different direction. Soldiers will perform the following steps:

- Soldier 2 and Soldier 4 continue moving across the intersection behind Soldiers 1 and 3 and do not stop their movement keys the actions of Soldier 1 and Soldier 3.
- Soldier 1, as Soldier 2 passes behind, shifts laterally to the left until reaching the far corner and upon reaching the side of the hallway, Soldier 1 turns into the direction of travel and continues moving down the hallway.
- Soldier 3, as Soldier 4 passes behind, shifts laterally to the left until reaching the far corner and upon reaching the side of the hallway, Soldier 3 turns into the direction of travel and continues moving down the hallway (see figure C-20).

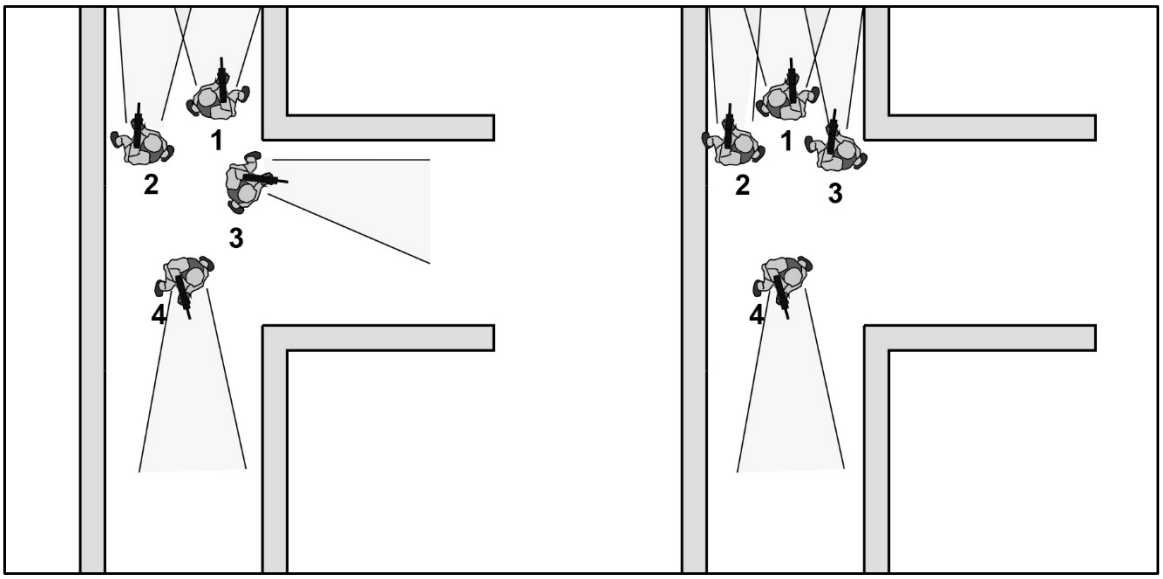


Figure C-20. Moving through T-shaped hallway intersection from cross hallway (Step 3)

CLEAR STAIRS

C-96. Multistory buildings incorporate stairs to enable people to move between floors, but the stairwells and staircases come in many layouts and dimensions. They can be inside the structure or on the exterior and can vary in width, steepness, openness, location, and access. Construction standards depending on location, so Soldiers must be alert to stairs with different or even irregular step heights and lengths. They are also prime locations for obstacles. Wire and even improvised obstacles like stacked furniture become significant barriers for forces trying to move up stairs, especially under fire.

STAIRWAY CONSTRUCTION

C-97. Most stairways, especially in larger buildings, have walls that enclose and separate them from the rest of the building. Each floor has a door that normally remains closed to slow the spread of a fire between floors. These are very functional, serving as stable columns to support the weight of the floors in addition to slowing fires. The stairs circle around a central point like a corkscrew, leaving a gap in the middle. This gap can be small or large (see figure C-21). A large gap can permit direct-fire engagement between two elements multiple floors apart.

Figure C-21. Enclosed stairwell (small and large gaps)

C-98. Some structures have stairways that are open on at least one side. Interior open stairways provide options that are more aesthetically pleasing than enclosed stairwells, but they do little to slow fire and there is a chance that someone could fall over the rail. They are very common in single-family homes, but builders employ them to create a more open floor plan in other building types. Some buildings, especially mid-rise residential, have open stairways on the exterior to serve as an emergency egress.

C-99. In some buildings where the risk is especially great or liability is a concern, builders may install barriers of various sizes and materials to prevent falls. These can range from a wire mesh to steel bars to glass sheets. They may even build walls on both sides of the stairs to form a narrow corridor.

ENTER STAIRWELL

C-100. Units should enter and clear a room with a stairway or stairwell just like any other room. Enclosed stairwells generally have small landings, so the team leader may have to call in Soldiers 3 and 4 after 1 and 2 conduct the initial clearance (see figure C-22 on page 254). Units should maintain security up and down the stairs until ready to transition to another floor. This requires leaving Soldiers behind at each location, which is part of why clearing large buildings requires so many Soldiers.

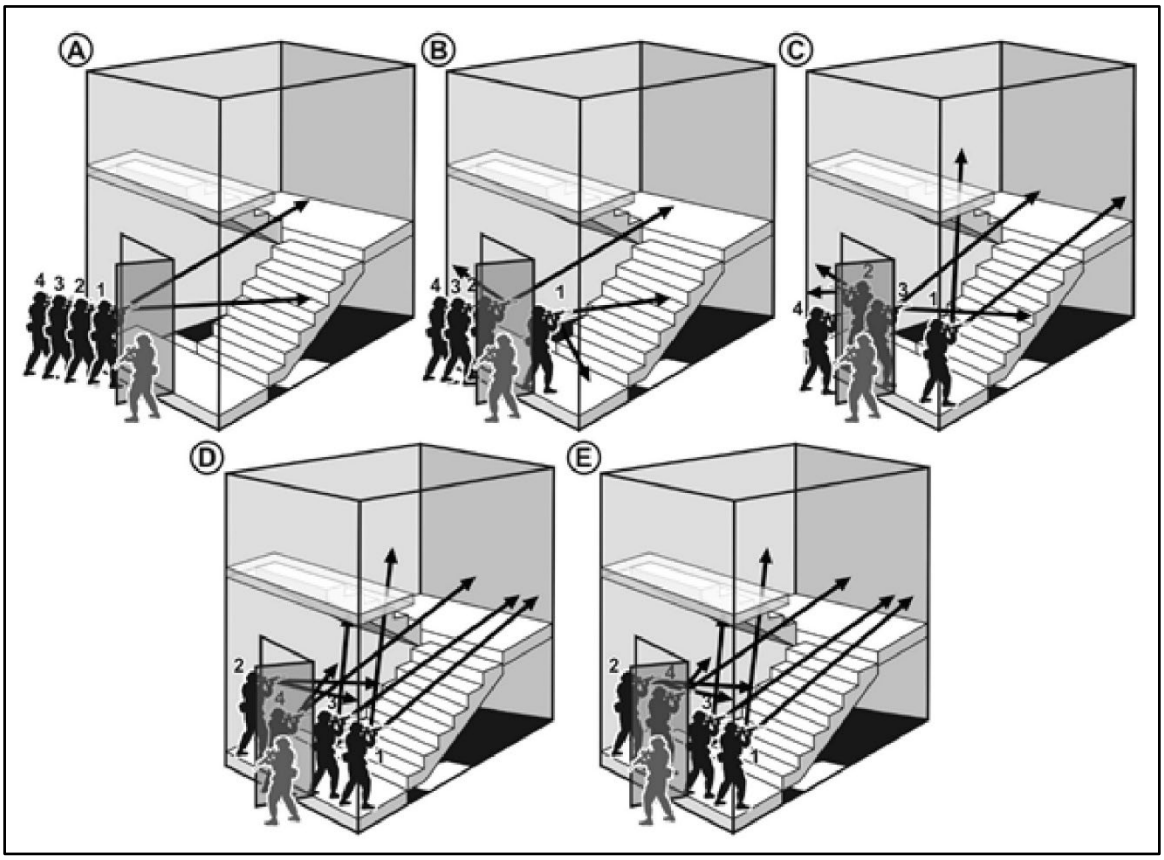


Figure C-22. Entering and clearing a stairwell

CLEARING LANDINGS

C-101. The process of clearing stairs is very similar to clearing hallways with more focus on overhead threats and the additional challenge of moving vertically. Whether clearing an intermittent landing (see figure C-23) or the next floor landing (see figure C-24), Soldier 2 stops once clear of the next higher landing and engages any enemy on that landing. Soldier 3 supports Soldier 1 in clearing the current landing while Soldier 4 maintains security either down the stairs or on the next floor.

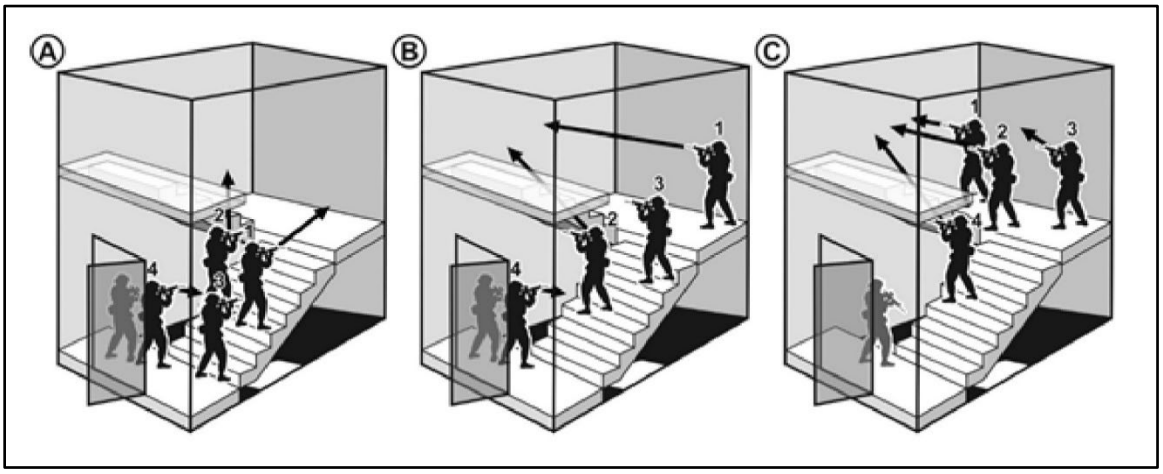


Figure C-23. Clearing the intermittent landing

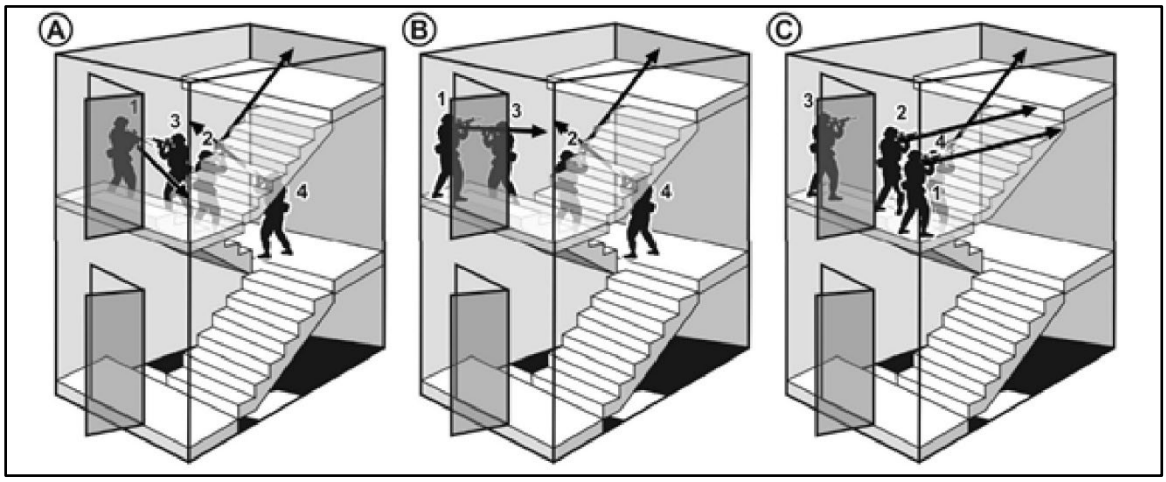


Figure C-24. Clearing the next floor landing

Note. Enclosed stairwells that meet with international fire safety standards will have steel doors that open outward and close automatically. They are usually not lockable from the building interior side but may automatically lock from the stair side. The door should be easy to open, though it is heavy and will close if not propped open. Units may want to position two Soldiers at the door even after the floor is clear to ensure the door does not close and lock.

C-102. After clearing the next floor landing, the clearing team has several options:

- Continue movement to another floor:
  - The team will continue movement to another floor when there is a specific floor they are trying to reach or clearing the entire building is not necessary.
  - During a clearance, units should avoid leaving a door to a floor the unit has not cleared unsecure.
- Enter and clear the next room:
  - The team can breach the door and secure a foothold on the floor.
  - As with the previous option, units should avoid leaving the stairwell unsecure unless all the floors that access the stairwell are clear.
- Pass another unit: The team can continue to secure the landing while another clearing element either conducts the breach or moves to another floor.

C-103. Clearing upstairs places heavy demands on Soldiers' muscular and cardiovascular endurance. The stairs can cause Soldiers to trip, a hazard that gets progressively worse as Soldiers tire. Soldiers should avoid throwing grenades upstairs as they are likely to roll back down and effect the clearing element. The clearing element is also vulnerable to anything thrown down. Clearing downstairs is more damaging to Soldiers' joints and skeletal structure. Soldiers make more noise than when clearing up stairs or across level ground, making a stealth approach more difficult. Soldiers can also miss a step and either slip down or fall forward. Enclosed stairways propagate sound that can alert enemies across many floors. Obstacles become harder to deal with in both directions. Soldiers should clear up and down stairs with caution while respecting the associated risks. After clearing multiple stairwells, the unit may designate one stairwell for upwards movement and the other for downward movement in order to keep traffic moving. This technique supports effective CASEVAC from point of injury to CCP.

CLEAR ELEVATORS AND ELEVATOR SHAFTS

C-104. Elevators and elevator shafts can serve as potential movement routes for both friendly and enemy elements. During their clearance, units should prioritize locating and clearing elevators and elevator shafts. They should also secure and control the elevator control room, normally located at the top of the building.

C-105. Elevators and elevator shafts should only require two Soldiers to clear, but they may need assistance with breaching the doors (or just pushing the button as the case requires) and placing an object to prop open

the doors. In addition to maintaining access, propping open the elevator doors holds the elevator in place. Elevators divide each shaft in two based on its position. Units can visually clear from the bottom up and top down by propping open the doors and having two Soldiers slowly scan the shaft with their weapons.

CLEAR FLOORS

C-106. To clear a floor, two-to-three fire teams generally take turns, bounding to clear one room after another. While one fire team clears a room, another normally provides overwatch in the hallway. The second team can also conduct the breach to reduce the burden on the clearing team. Multiple teams can clear different rooms simultaneously, but this can be harder to control. The squad leader controls the flow while building a mental map of the floor to prevent two elements from clearing into one another while ensuring they clear every space. Most interior walls are not strong enough to absorb bullets or grenade fragments, so positioning is critical.

C-107. Clearing a single floor with anything larger than a squad can become unwieldy and increases the risk of fratricide. Attempting to enter a room occupied by a prepared enemy force is very dangerous and likely to result in friendly casualties. This can make the clearing element combat ineffective after only a few rooms. Keeping enemy forces from circling back behind clearing elements requires leaving forces behind to secure entrances to uncleared rooms, building exits, stairways, and elevator shafts. Even without casualties, this can quickly drain the clearing squad. The platoon sergeant must follow close behind with the next squad ready to reinforce the clearing squad and take over security as required. Once the floor is clear, the platoon sergeant marks it according to unit SOP. This marking should be visible to the support element outside so that they can track the progress of the clearance.

CONTROL FLOW

C-108. During most attacks, a platoon leader or company commander will move behind the assaulting element to best maintain control and coordinate support. During a building clearance, these leaders are more effective in or near the entry point or stairwell. This enables them to mitigate radio disruption to maintain communication with higher echelons and control the flow of units into the building or floor. Platoon sergeants and first sergeants direct clearing elements, reinforce or rotate them as the situation requires, facilitate CASEVAC, and ensure teams conduct tasks to standard. Squad leaders and platoon leaders assist in clearing but do not get into stacks, except under extreme circumstances. Squad leaders control the flow of the clearing teams while the platoon leaders control the squad movement.

C-109. For larger buildings, leaders should keep squads in separate rooms and platoons on separate floors if possible. Having too many Soldiers on a floor or in a building impedes movement (especially of supplies forward or casualties back), increases the chances of fratricide, and makes a lucrative target that can result in a mass-casualty event. Not having enough Soldiers can cause the assault to stall and allow the enemy to regain the initiative.

C-110. Controlling a stairwell within a tall structure allows the force to move directly to the top floor and clear from the top-down. This has the same benefits described earlier for a rooftop entry, but with the option to keep an open lane to resupply and reinforce the clearing element.

EXITING BUILDINGS

C-111. Leaders inform nearby friendly elements before exiting a building to prevent fratricide and coordinate overwatch. Unless the open area in front of the building's exit is secure, leaders should assume that exiting a building will expose the unit to enemy fire. Before moving, identify the next covered position, selected a route to that position, and then visually clear the route. Once ready to move, Soldiers should rapidly exit the building along the selected route and occupy the covered positions. Depending on the threat level outside the building, units can take additional measures to reduce risk for moving Soldiers. These include direct and indirect suppressive fires, obscurants, and moving behind an armored vehicle.

ADDITIONAL CONSIDERATIONS

C-112. The cover and concealment that building walls afford to the enemy limits the effectiveness of support forces. Most of their engagements will be quick bursts fired at enemy Soldiers that present themselves as a target. This makes it very difficult to distinguish between combatants, noncombatants, and friendly elements. One fratricide mitigation technique is to only have the support force engage on the floors above the clearing force (or below if clearing from the top down). This reduces the chances of engaging a friendly element but does not allow the support force to engage enemy on the same floor as the clearing force.

C-113. Soldiers in the clearing element should always have white lights mounted to their weapons. During daytime, units will likely encounter spaces that do not receive enough sunlight for an effective clearance. At night, units cannot rely on interior lights to provide illumination. Using night vision devices creates its own problems, including having to transition between dark and light rooms and making it harder to discern fine details quickly (such as if an individual is armed). White lights enable Soldiers to see what is in front of them clearly, do not hinder when moving into a lit room, and can temporarily blind enemies that have adjusted to the dark.

C-114. Defenders will likely use furniture, rubble, wire, or just about anything else they can find to create improvised obstacles throughout the interior of a building. This can greatly slow progress and expose Soldiers to fire as they attempt to move enough debris to allow passage.

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Appendix D

Urban Sniper and Countersniper Techniques

The sniper's ability to apply long-range fires against specific targets with minimal collateral damage can be invaluable in urban combat. Enemy snipers can fix forces and destroy critical capabilities, affecting the tempo of an entire operation. This appendix provides guidance for integrating sniper teams into tactical plans and mitigating the effects of enemy snipers. It supplements information about sniper capabilities and employment techniques in ATP 3-21.20 and TC 3-22.10.

SECTION I – SNIPER EMPLOYMENT

D-1. Sniper squads are organic to infantry and combined arms battalions and consist of a squad leader and two to three sniper teams. Sniper teams consist of two to three Soldiers and provide the commander with precise, long-range, and discriminatory fires.

SNIPER CAPABILITIES

D-2. Sniper teams collect and report accurate and detailed battlefield information. Range, precision, penetration, low collateral damage, and stealth are factors affecting their effectiveness.

RANGE

D-3. The sniper team can reliably engage targets from 500-800 meters, though engagements from 1,000-1,800 meters or more are possible depending on equipment set and conditions. This allows them to identify and destroy enemy capabilities before they can affect the larger force.

PRECISION

D-4. The sniper team can identify and destroy specific enemy capabilities among many or among noncombatants.

PENETRATION

D-5. Sniper rifles are effective against enemy personnel, equipment, and lightly armored vehicles. The sniper rifle is well suited for urban dominance, where a barrier of some kind is everywhere and often impervious to small arms. The M107 antimaterial sniper rifle can penetrate light armor and many common building materials with relative ease apart from reinforcing bars in concrete and dense natural stone walls.

LOW COLLATERAL DAMAGE

D-6. Both successful and unsuccessful engagements create little collateral damage, especially compared to other destructive options.

STEALTH

D-7. The sniper team can infiltrate, remain in position, and exfiltrate undetected. This can allow them to engage from unexpected locations and directions.

PSYCHOLOGICAL IMPACT

D-8. The ability of snipers to engage with surprise, at range, and through cover can have a significant psychological impact on enemy Soldiers that increases over time.

EMPLOYMENT CONSIDERATIONS

D-9. To provide timely and effective support, the sniper team must have a clear picture of the commander's concept of the operation and intent. This requires the commander to decide how to best use sniper teams to

shape the battlefield and assign tasks to achieve this. A prioritized target list provides focus and helps the teams plan. Commanders can provide the team with a general assigned area but should allow the sniper to select the best position for specific engagements.

PROVIDE DIRECT FIRES

D-10. The sniper team's range can allow it to destroy an enemy capability before it can affect the larger force. Targets can include enemy leaders, radio operators, communication systems, troop transports, crew-served weapon teams, observers, or other snipers. The sniper can target vehicle optics or communications systems to degrade its capabilities if unable to penetrate its armor.

CALL FOR AND ADJUST INDIRECT FIRES

D-11. Sniper optics allow teams to identify enemy capabilities and determine their precise locations.

CONDUCT RECONNAISSANCE

D-12. Sniper optics allow teams to identify and report threat disposition and movements.

CONTROL TERRAIN

D-13. Sniper teams can disrupt or deny enemy movement along an avenue of approach, overwatch obstacles, and conduct counter reconnaissance.

SUPPORT AN ATTACK

D-14. Sniper teams can overwatch friendly movements and suppress enemy positions.

MOVEMENT

D-15. Sniper teams can move with or separate from the larger formation. Separating provides more options and can allow teams to be more effective, but it places the teams at increased risk. Teams can even start movements with a group and then break away to reach their firing positions.

D-16. Urban areas provide many covered and concealed routes for a sniper team to exploit when moving to or from a firing point. The small size of sniper teams allows them to move through areas that would not be suitable for larger elements.

D-17. A dense population can make it more challenging for a sniper team to move to or remain in a position undetected. The team should look for routes that avoid high-traffic areas, especially among a hostile population. Underground sewers and subway tunnels can provide routes with little likelihood of chance contact.

D-18. Urban terrain contains hard surfaces that create loud noises when struck and echoes that amplify sounds. Soldiers should take extra care to cover equipment with sound-dampening materials for stealthy movement. Sniper teams can use the sound of artillery fire or other nearby engagements to mask their own sounds and draw attention away from them.

D-19. Standard methods of camouflage are much less effective in urban areas. Teams can mitigate this by specially preparing equipment for the environment or maximizing limited visibility conditions.

POSITIONING

D-20. Urban terrain provides many options for elevated firing positions. Elevated positions allow the sniper to see over lower obstacles, reducing dead space and increasing the field of view. Terrain density makes it more challenging for the enemy to identify a sniper team, and many building construction materials provide cover from small-arms and indirect fires without additional reinforcement. Sniper teams should avoid obvious positions such as church steeples and high rooftops since enemies will also have identified and targeted them. An upper-floor window can provide a similar viewpoint while making detection more challenging.

D-21. A window position can provide great visibility in a single direction while providing overhead cover and concealment. However, it will block vision in other directions and allow enemy forces to maneuver around the structure and isolate it. The sniper team must be supported by a dedicated security element due to

reduced visibility and to counter enemy forces. The urban environment is a three-dimensional battle space, so forces should anticipate attacks from any direction at any time.

D-22. A sniper team operating in an urban area must have a plan to mitigate dead space and identify enemy forces with enough time to escape or request assistance. This can include having team members observing different directions, employing cameras and other sensors, collocating with another unit, or having a dedicated security element. Open structures like cranes or unfinished buildings can provide a greater field of view, but at a cost in concealment and protection.

D-23. Sniper teams should select alternate and supplementary positions to provide options for an engagement. A single position may not afford adequate observation angles or concealment for the entire team. The Soldiers from a single team can occupy multiple positions simultaneously, but they must maintain mutual support.

ENGAGEMENTS

D-24. Firing from structures imposes the same challenges as firing from elevated positions in other environments. Teams can estimate height by multiplying the average height of floors in the area by the number of floors.

D-25. Snipers should attempt to align their direction of fire with the direction of the wind to reduce its effects on the shot. Urban canyons tend to magnify the force of winds moving along them and block winds moving parallel. This can create swirling wind patterns that have an erratic effect on bullets in flight.

INTELLIGENCE

D-26. Identifying effective firing positions and concealed routes to them starts with good intelligence. The following information can assist sniper operations:

- Tactical maps, overlays, and aerial photos.
- Large-scale city maps.
- Diagrams of underground sewer, utility, and transportation systems.
- Population density maps.
- Locations of key public buildings.
- Information about key personnel (enemy, friendly, and neutral).
- Information on police and security capabilities.
- Information on civil defense, air-raid shelters, and fire-fighting capabilities.
- Information about key infrastructure nodes.

SECTION II – COUNTERING THE URBAN SNIPER

D-27. Just as U.S. Army sniper teams can be a significant combat multiplier during UO, enemy snipers can significantly degrade combat effectiveness. They may employ in teams or as individuals. They may also tie in with a larger enemy force or operate independently. The level of training, quality of equipment, and overall capability can vary widely between individual snipers, but they can all threaten the success of an urban operation.

SNIPERS CAPABILITIES

D-28. For a sniper equipped with a medium-caliber rifle, a typical engagement will occur from 300 to 600 meters with shots from 800 to 1,000 meters as the exception. Heavy sniper rifles (caliber .50, 12.7-mm, 14.5-mm, and 15-mm) with ranges of 1,200 to 1,500 meters are also available around the world. However, in an urban environment, snipers will often close within 50-100 meters to engage from buildings immediately across a street from their target. These are comparable to U.S. Army systems, but the ability of individual snipers to engage at these ranges heavily depends upon their knowledge and skill.

D-29. Equipment such as spotting scopes, night vision sights, lasers, suppressors, and other equipment that enhance the capabilities of the sniper are widely available. The increasing quality and decreasing cost of this equipment is causing the threat that snipers pose to increase over time.

COUNTERSNIPER TECHNIQUES

D-30. The first step in countering snipers is for leaders and Soldiers at all levels to be aware of the sniper threat. Although snipers may be more prevalent in some situations than in others, a sniper threat always exists in urban areas to some degree. Staffs should integrate actions to counter the sniper threat and protect the force from the early stages of planning. Training should include tactics and techniques to mitigate the effects before Soldiers first encounter an enemy sniper.

D-31. Like U.S. sniper teams, enemy sniper teams are small and depend on stealth to approach a target along covered and concealed routes. Normally, they move to a hide or firing position and remain there for long periods. These sniper teams are most effective when they have good fields of fire from 300 to 600 meters. At shorter ranges, the sniper's movements and firing signature are easier to detect. At longer ranges, they are more dependent upon optimal conditions for a successful engagement. Snipers are most vulnerable during movement between positions as they are easier to detect, lack the firepower to fight a long engagement, and are normally far from support or assistance.

D-32. Units can employ active or passive countermeasures to mitigate the effectiveness of enemy snipers. Active countermeasures focus on detecting and neutralizing enemy snipers while passive countermeasures focus on potential targets to reduce opportunities for a sniper to acquire a clear shot or reduce the effects of fires. Many of these techniques apply to units attempting to limit exposure and minimize casualties in any combat situation. Countermeasures require discipline to maintain as lax enforcement can provide patient snipers an opportunity. Passive measures are rarely successful by themselves, but they buy time for active measures to eliminate the threat.

ACTIVE COUNTERMEASURES

D-33. When an enemy sniper is operating in the unit area, the U.S. Forces use active countermeasures. Active countermeasures are techniques used to detect and neutralize enemy Snipers. The primary method is through observation.

Static Observation Posts

D-34. Observation posts scan from static positions to identify and report snipers moving into position using the best optics and night vision devices available. Constantly scanning an area for the minute movements, a well-trained sniper might make is exhausting, so rotate personnel frequently. Another solution is to incorporate high-resolution camera systems. Units can place them almost anywhere as long as they have a reliable way to get the data back to someone that can monitor the feed. Observation posts are challenging to conceal except for short durations, but camera systems can have a very small signature that even a well-trained sniper can miss. The unit does risk someone seeing and taking the camera without being able to mount an effective response.

Reconnaissance and Security Patrols

D-35. Constant patrols around critical areas hinder a sniper's ability to get into a firing position undetected. Snipers are at a significant disadvantage during close engagements, especially if caught moving between positions. Small patrols are usually more effective because they are quieter and faster than larger ones. They can generally cover more ground with less chance of a sniper hearing them and moving to a hide site. They should use covered or concealed routes to reach observation points, stop, observe, and then move to the next position. Patrol routes should serve both to clear potential firing points and disrupt movement routes leading to those firing points. Vary patrol routes and times to make them less predictable and keep a reaction force ready to provide support if required. Military working dog teams with patrol capability can aid in detecting enemy snipers.

Aerial Reconnaissance

D-36. Units can employ aerial reconnaissance systems to scan from angles not available to ground-based assets. This can be effective if the sniper does not take precautions to mask visual and thermal signatures from above, but a trained sniper should account for this. It is generally more useful to check specific locations than to scan an entire area. High-flying systems may lack the detail needed to identify a sniper, while the

noise from a low-flying system can alert the sniper. They also have limited fuel, so units need plans to rotate their systems, or they risk having extended gaps in coverage.

Unit Snipers

D-37. One technique that can be very effective, especially for short durations, is to employ unit snipers as countersnipers. Not only do they have expert knowledge of sniping and likely enemy hiding places, but they can also normally engage enemy marksmen and irregulars at the extended ranges that an enemy sniper would try to engage U.S. Forces. Their precision fires are also much less likely to cause civilian casualties than fires from other weapons. Snipers are scarce resources, so the commander must carefully consider whether using them in a purely defensive, reactive role is the best way to employ them.

Suppressive or Destructive Fires

D-38. Once identified, units can employ direct or indirect fires to destroy enemy snipers, suppress them, or force them to withdraw. Volume helps, but employing exploding fragmentation rounds or those that can penetrate cover is more effective. All of these can cause significant collateral damage, so the ROE must permit their use. If unable to destroy outright, the unit must maneuver quickly as a trained sniper will have a planned escape route.

Projected Smoke

D-39. Projected smoke that builds quickly can reduce visibility and prevent additional casualties from a sniper engagement. The closer the smoke is placed to the sniper's location, the more effective it is. If the location of the sniper is unknown, establishing a smoke cloud near the unit can still reduce the sniper's ability to acquire a target.

Preemptive Fires

D-40. In high-intensity urban combat, units can conduct preemptive fires to suppress likely sniper positions and deny terrain. This technique uses large amounts of ammunition but can be very effective for short attacks.

PASSIVE COUNTERMEASURES

D-41. Limit exposure. This reduces the opportunities for a sniper to engage unprotected Soldiers and makes the Soldiers harder to hit. Consider the following when limiting exposure:

- Use covered and concealed routes; remain crouched or prone behind cover or concealment whenever possible.
- Avoid open plazas and intersections; move quickly when required to cross.
- Stay away from doorways and windows.
- Move along the side of the street, not down the center.
- Move in the shadows and avoid lit areas at night.
- Move frequently.
  - Snipers are less likely to engage if they do not have a clear shot and an easy escape.
  - Standing in one position can allow a sniper to move to an optimal position.
- Remain dispersed; avoid gathering in large groups in the open and use traveling or bounding overwatch when moving.
- Avoid silhouetting against lights or the skyline.
- Avoid wearing obvious rank, saluting, or standing at attention for officers while in the open.

D-42. Wear protective equipment. Helmets and protective body armor will not always stop a sniper's bullet, but they can significantly reduce the severity of wounds. Soldiers should wear them any time they are exposed to potential sniper fire.

D-43. Use armored vehicles. Move troops and supplies using armored vehicles when possible and avoid open-sided cargo vehicles. Keep vehicles buttoned up when not entering or exiting. When dismounting and remounting vehicles, close doors, and hatches quickly to reduce the chance of a sniper engaging through an

opening. Move vehicle just prior to remounting to disrupt the aimpoint of a sniper who may be waiting for an occupant to return to their vehicle.

D-44. Erect screens and shields. Barrier material generally provides the best cover, but units can employ screens and shields in a wide variety of situations to augment protection efforts. Ballistic glass provides cover while still allowing Soldiers to observe the area or even return fire safely, but it is expensive, and units may not be able to acquire enough. Even simple netting or makeshift screens over guard towers and vehicle turrets, in front of windows, or over open areas can provide adequate concealment.

D-45. Use obscurants. Long-range sniping requires a clear atmosphere. Even a smoke haze makes target identification challenging. Employ smoke during when dismounting, crossing open areas, or other situations when unprotected forces are vulnerable.

D-46. Deny overwatching terrain. Modifying terrain or occupying it with friendly forces can make it less useful to an enemy sniper. Modifications can include covering windows, clearing rubble, and reducing potential hide sites.

THE LAW OF ARMED CONFLICT APPLIED TO SNIPERS

D-47. Historically, units that suffered heavy and continual casualties from urban sniper fire became frustrated by their inability to strike back effectively. This led to overreactions and violations of the laws of land warfare concerning the treatment of captured snipers. This tendency is magnified in units that have been under the intense stress of urban combat for an extended time. Commanders and leaders at all levels must understand the law of armed conflict and the psychological pressures of urban warfare. It requires strong leadership and great moral strength to prevent Soldiers from releasing their anger and frustration on captured snipers or civilians suspected of sniping at them.

D-48. The law of armed conflict is not restricted to declared wars, but instead applies across the range of military operations. These laws and the legal orders of their superiors bind all U.S. Soldiers. Under the law, it is forbidden to kill, wound, or harm an enemy who, having laid down arms or having no means of defense, has surrendered. Captured snipers or ones who have surrendered must not be harmed. It does not matter how many friendly casualties they may have caused or how long they have operated before surrendering.

D-49. Any sniper who wears the uniform of a belligerent, carries arms openly, and acts in accordance with the law and customs of warfare should be treated as a prisoner of war, not a criminal. An armed irregular who is part of an organized resistance movement, obeys the orders of a designated commander, carries weapons openly, and obeys the laws and customs of war should also be accorded such treatment. A civilian who snipes at U.S. Forces without meeting these criteria can be detained by the military and tried by the appropriate court. Detained belligerents should be treated as prisoners of war until a proper status determination may be made by a competent tribunal. Under no circumstances should captured persons be mistreated or killed in retaliation for sniping, regardless of how many casualties they may have caused.

Appendix E

Urban CBRN Considerations

This appendix provides guidance for planning and providing tactical response to assess, protect, and mitigate CBRN threats and hazards during UO.

SECTION I – RISK MULTIPLIERS

E-1. The behavior of CBRN threats and hazards in urban terrain is unique to other environments. Population density and weather patterns may impact spread of contamination and the freedom of maneuver. The following risk multipliers explain how urban environments increase risk to forces when CBRN threats and hazards are present:

- Large urban areas:
  - Dense building structures and narrow streets increase the duration of nonpersistent chemical agents.
  - Chemical and biological agents that are heavier than air may linger in shaded areas, garage structures, sewers, and low-lying areas.
- The near constant wind gusts along streets and alleyways of urban terrain makes hazard modeling problematic to determine a definitive wind direction to prevent cross-contamination.
- The surface drainage on asphalt and concrete roads may direct contamination into storm drains and water sources.
- The population density and proximity to friendly forces increases vulnerability to biological threats.
  - Large populations, when panicked, can impede lines of communication.
  - If CBRN or TIM exist, civilian casualties can rapidly overwhelm friendly forces medical capabilities.
- Commercial and industrial areas that contain TIMs.
  - Can be damaged during combat, causing intentional or unintentional release of downwind hazards that displace oxygen, asphyxiating personnel.
  - Intentional or unintentional release can affect personnel in mission-oriented protective posture gear, causing chemical burns or injuries, and damage to equipment.
- State-sponsored weapons of mass destruction facilities in urban terrain represent a unique risk to friendly forces:
  - These facilities are often large, potentially containing dozens of rooms and multiple portals, and usually protected by portal barricades.
  - Forcible entry and subsequent searches of these facilities require a substantial number of personnel as well as specialized breaching capabilities.
  - Biological laboratories containing pathogens might be a hazard to friendly forces.

E-2. Effective units retain the initiative during offensive and defensive operations by preparing for and rapidly reacting to CBRN attacks in urban areas to minimize their effects. To accomplish this, units must realistically assess the likelihood of CBRN threats and then make prudent plans to protect against those threats before they are employed and mitigate the effects of them after they are employed.

SECTION II – ASSESSING CBRN HAZARDS

E-3. CBRN staffs, by design, support commander's decision-making and assumption of risk when facing potential CBRN threats and hazards. Assessment of CBRN hazards, when integrated into the intelligence preparation of the operational environment process, provides commanders with a clear understanding of how to preserve freedom of maneuver and protect combat power. BCT intelligence (S2) and CBRN staffs assess CBRN threats and hazards, designate named areas of interest, and target area of interest during the intelligence preparation of the operational environment process. Staffs ensure that suspected or confirmed CBRN named areas of interests are tracked and included in common operational pictures.

E-4. BCT and battalion CBRN staffs maintain situational understanding of CBRN named areas of interest and advise the commander on the proper detection, identification, and follow-on tactical decisions that must be made when friendly forces face CBRN threats and hazards. The CBRN staff recommends appropriate detection equipment relative to the threat and should also understand environmental factors that may cause a false alarm. Additionally, CBRN staffs ensure that company, battery, and troop level CBRN noncommissioned officers are provided essential tactical information to advise their commanders when maneuvering in and around CBRN hazards. A common operational picture between the higher headquarters and subordinate units is essential to provide situational understanding of units in contact with CBRN hazards and prevent cross-contamination, particularly in urban environments, where maneuver area is limited and canalized.

E-5. CBRN specialist at the company, battery, or troop level support assessment of CBRN hazards by ensuring CBRN teams are manned, trained and equipped to detect and identify hazards at tempo with maneuver. The initial detection and presumptive identification of CBRN hazards provides enough information to commanders for immediate tactical decisions, such as changing the mission-oriented protective posture level, increasing tactical dispersion or repositioning of units.

E-6. Commanders task organize CBRN, such as hazard assessment platoons; CBRN reconnaissance platoons; and explosive ordnance disposal teams into maneuver formations to support rapid assessment of CBRN threats and hazards by providing field confirmatory identification. For more information on levels of identification and CBRN units that can assess CBRN hazards, refer to FM 3-11 and ATP 3-11.37.

SECTION III – PROTECTING AGAINST CBRN HAZARDS

E-7. Once commanders attain hazard awareness and understanding of relevant CBRN threats and hazards in the urban environment, they provide guidance on protective measures to ensure freedom of maneuver and retention of combat power. The CBRN staff should recommend to the commander appropriate personal protective equipment relative to the mission and the hazard during planning and reach concurrence with the S2 on the most likely and dangerous CBRN hazards. Staffs use the operations process to develop recommendations and update protective countermeasures against credible CBRN threats and hazards as well conduct decontamination planning for entities that are most likely to be targeted.

E-8. Tactical formations prepare for operating in a contested CBRN environment by conducting rehearsals, pre-combat checks, and inspections. Units that anticipate operating in a CBRN environment in urban terrain should conduct all rehearsals of react to CBRN attack and other drills in an increased protective posture. Unit load plans must incorporate CBRN detection and protection equipment to support effective protection of friendly forces. Commanders should also emphasize training immediate decontamination and medical triage under CBRN conditions.

CHEMICAL

E-9. Adversaries with superior long-range fires may use chemical munitions to exploit their advantage by contaminating urban environments, thereby isolating defending friendly forces from their lines of communication, desynchronizing offensive operations, and disrupting command and control and sustainment nodes. To protect against chemical attacks, units target delivery systems such as adversary multiple rocket launchers and artillery systems, especially those in the 300-mm to 120-mm range, as these systems are most effective at delivering large amounts of chemicals in their payloads.

E-10. Targeting identifies trans-load points where munitions are filled with chemical agents or issued to delivery systems. Such targeting seeks to destroy threat chemical capabilities before they can be employed. Friendly counter-fire capabilities destroy adversary systems during and after chemical strikes.

E-11. To mitigate chemical effects, friendly units increase tactical dispersion and frequently reposition assembly areas, CPs, and sustainment nodes to prevent contamination. In urban environments, units maximize available building structures and vehicle collective protective systems to minimize personnel exposure to chemical contamination. Units operating in subterranean environments should expect agents to persist as they may be heavier than air and collect in low-lying areas. While asphalt and concrete structures do not always absorb toxic chemicals, they may divert the flow of liquids into urban water sources and

contaminate the water. Units can use sources such as fire hydrants to provide water for operational and thorough decontamination.

BIOLOGICAL

E-12. Biological threats and hazards are difficult to detect initially as symptoms, are delayed and detection systems are limited and thus may not identify the hazard until after the onset of symptoms. Commanders may establish commander's critical information requirement thresholds by percentage that trigger mitigation measures such as increased separation from civilian populations to reduce transmissibility to protect the force. Formations use protection (such as plastic sheeting, facemasks, and ultraviolet lamps) and increased field sanitation with increased leader oversight against aerosolized vapors.

E-13. The viability of a biological hazard depends on the characteristics of the agent, environmental, and other factors. Solar (ultraviolet) radiation, humidity, wind speed, and temperature are some of the most important weather factors in determining agent viability. Urban areas with heavy sewage, dead animals, or stagnant water may increase unit vulnerability to biological agents. Field sanitation teams and field hygiene are critical to prevent the spread of biological agents as well as limit their effects on personnel.

E-14. Increased leadership of formations is critical in protecting troop formations against biological agents. Leaders provide vigilant oversight in the implementation of protective measures. Leaders are vulnerable to biological agents and should use buddy teams to check on each other. If units in an urban environment face biological threats, the commander may direct, with the advice of medical staff, units take prophylaxis, for example, ciprofloxacin or doxycycline, prior to exposure.

E-15. Soldier readiness prior to deployments is crucial in setting conditions for successful biological protection. Medical screening provides immunizations and identifies Soldiers with compromised immune systems before deployments to minimize vulnerability.

RADIOLOGICAL

E-16. Radiological incidents in urban environments can range from an accidental release due to collateral damage or a deliberate act. The synchronization of intelligence with enablers such as explosive ordnance disposal and CBRN forces supports immediate tactical decisions. Radiological effects vary depending on the type of hazard. See FM 3-11 for additional information on radiological incidents.

E-17. Radiological hazards will be created by employment of a nuclear weapon. Adversaries may also employ radiological dispersal devices to incite mass panic in urban environments which could overwhelm emergency first response capabilities and disrupt lines of communication. To counter these effects, commanders use information operations and movement control measures to control the civilian population.

NUCLEAR

E-18. Units use methods described in ATP 3-11.32 to react to a nuclear attack. In UO, friendly forces use existing structures to protect the force. Mounted elements may position vehicles against buildings with solid concrete and steel structures or earthen berms to increase shielding against the radiation effects of nuclear blasts. Infantry formations may use buildings, sewer systems and subterranean garages to mitigate blast wave impacts and radiation exposure.

E-19. Personnel inside urban structures should take protective measures and increase protective posture. A blast wave can enter structures with great force, and the debris can cause injuries. Units may use the innermost portions of buildings to increase protection against nuclear blast effects and limit radiation exposure. However, avoid the violent flow of air from doors or windows due to overpressure. Constructing baffles or turns in shelter entrances can reduce overpressure buildups and the entry of dust and debris. See ATP 3-72 for more information on operations in a nuclear environment.

E-20. Protection should continue after the nuclear attack ends in an urban environment. Engineer and CBRN units may be used to conduct urban search and rescue of friendly forces trapped in collapsed structures. See ATP 3-11.32 for more information on nuclear protection during UO.

Source Notes

This division lists sources by page number. Where material appears in a paragraph, it lists the page number followed by the paragraph number.

1 “In the future, I can say with very high degrees of confidence…”: Gen. Mark A. Milley, Chief of Staff of the Army, Defense News, October 2016, https://www.defensenews.com/digital-show-dailies/ausa/2016/10/05/army-chief-soldiers-must-be-ready-to-fight-in-megacities/

Glossary

The glossary lists acronyms and terms with Army or joint definitions. Where Army and joint definitions differ, (Army) precedes the definition. Terms for which ATP 3-06.11 is the proponent are marked with an asterisk (*). The proponent publication for other terms is listed in parentheses after the definition.

SECTION I – ACRONYMS AND ABBREVIATIONS

ADP	Army doctrine publication
AHS	Army Health System
AO	area of operations
APDS-T	armor-piercing, discarding sabot with tracer
APFSDS-T	armor-piercing, fin-stabilized, discarding sabot with tracer
ATP	Army techniques publication
BCT	brigade combat team
BDM	bunker defeat munition
BFV	Bradley fighting vehicle
CASEVAC	casualty evacuation
CBRN	chemical, biological, radiological, and nuclear
CLS	combat lifesaver
CI	counterintelligence
CCP	casualty collection point
CP	command post
CROWS	Common Remotely Operated Weapon Station
DA	Department of the Army
DA Pam	Department of the Army pamphlet
DD	Department of Defense
DNBI	disease and nonbattle injury
EAB	echelons above brigade
EW	electromagnetic warfare
FM	field manual
GEOINT	geospatial intelligence
GPS	Global Positioning System
GRG	gridded reference graphic
HE	high explosive
HEDP	high-explosive, dual-purpose
HEI-T	high-explosive incendiary with tracer
HE-OR-T	high-explosive, obstacle-reduction with tracer
HN	host nation
HNSF	host-nation security forces

HUMINT	human intelligence
ICV	Infantry carrier vehicle
IED	improvised explosive device
ITAS	improved target acquisition system
JLTV	Joint Light Tactical Vehicle
JP	Joint Publication
LAW	light antiarmor weapon
MANPADS	man-portable air defense system
MASCAL	mass casualty
MEDEVAC	medical evacuation
METT-TC (I)	mission, enemy, terrain and weather, troops and support available, time available, civilian, informational considerations [mission variables]
MGRS	military grid reference system
MPAT-T	multipurpose antitank with tracer
MRAP	mine resistant ambush protected
OHG	offensive hand grenade
OSINT	open-source intelligence
ROE	rules of engagement
SALUTE	size, activity, location, unit, time, and equipment
SIGINT	signals intelligence
SOP	standard operating procedure
TC	Training Circular
TCCC	tactical combat casualty care
TF	task force
TIM	toxic industrial material
TM	Technical Manual
TOW	tube-launched, optically-tracked, wire-guided
UAS	unmanned aircraft system
UO	urban operations
U.S.	United States
VBIED	vehicle-borne improvised explosive device

SECTION II – TERMS

ambush

A variation of attack from concealed positions against a moving or temporarily halted enemy. (FM 3-90)

area defense

A type of defensive operation that concentrates on denying enemy forces access to designated terrain for a specific time rather than destroying the enemy outright. (ADP 3-90)

attack

A type of offensive operation that destroys or defeats enemy forces, seizes terrain, or secures terrain. (FM 3-90)

battle position

A defensive location oriented on a likely enemy avenue of approach. (ADP 3-90)

breach

A tactical mission task in which a unit breaks through or establishes a passage through an enemy obstacle. (FM 3-90)

breakout

An operation conducted by an encircled force to regain freedom of movement or contact with friendly units. (ADP 3-90)

casualty

Any person who is lost to the organization by having been declared dead, duty status— whereabouts unknown, excused absence-whereabouts unknown, missing, ill, or injured. (JP 4-02)

casualty evacuation

The unregulated movement of casualties aboard any vehicle. (JP 4-02)

collateral damage

A form of collateral effect that causes unintentional or incidental injury or damage to persons or objects that would not be lawful military targets in the circumstances ruling at the time. (JP 3-60)

command and control warfighting function

The related tasks and a system that enable commanders to synchronize and converge all elements of combat power. (ADP 3-0)

common operational picture

(Army) A display of relevant information within a commander's area of interest tailored to the user's requirements and based on common data and information shared by more than one command. (ADP 6-0)

consolidate gains

Activities to make enduring any temporary operational success and to set the conditions for a sustainable security environment, allowing for a transition of control to other legitimate authorities. (ADP 3-0)

cordon and search

A variation of movement to contact where a friendly force isolates and searches a target area. (FM 3-90)

counterattack

A variation of attack by a defending force against an attacking enemy force. (FM 3-90)

countermobility

(Army/Marine Corps) A set of combined arms activities that use or enhance the effects of natural and man-made obstacles to prevent the enemy freedom of movement and maneuver. (ATP 3-90.8)

decisive point

Key terrain, key event, critical factor, or function that, when acted upon, enables commanders to gain a marked advantage over an enemy or contribute materially to achieving success. (JP 5-0)

defeat mechanism

A method through which friendly forces accomplish their mission against enemy opposition. (ADP 3-0)

defensive operation

An operation to defeat an enemy attack, gain time, economize forces, and develop conditions favorable for offensive or stability operations. (ADP 3-0)

delay

When a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage on enemy forces without becoming decisively engaged. (ADP 3-90)

demonstration

A variation of tactical deception used as a show of force in an area where a unit does not seek a decision and attempts to mislead an adversary. (FM 3-90)

depth

The extension of operations in time, space, or purpose to achieve definitive results. (ADP 3-0)

destroy

A tactical mission task that physically renders an enemy force combat-ineffective until reconstituted. (FM 3-90)

disintegrate

To disrupt the enemy's command and control system, degrading its ability to conduct operations while leading to a rapid collapse of the enemy's capabilities or will to fight. (ADP 3-0)

dislocate

To employ forces to obtain significant positional advantage in one or more domains, rendering the enemy's dispositions less valuable, perhaps even irrelevant. (FM 3-0)

dismounted movement

A movement of troops and equipment mainly by foot, with limited support by vehicles. (FM 3-90)

electromagnetic attack

Division of electromagnetic warfare involving the use of electromagnetic energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. (JP 3-85)

electromagnetic protection

Division of electromagnetic warfare involving actions taken to protect personnel, facilities, and equipment from any effects of friendly or enemy use of the electromagnetic spectrum that degrade, neutralize, or destroy friendly combat capability. (JP 3-85)

electromagnetic warfare

Military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. (JP 3-85)

emission control

The selective and controlled use of electromagnetic, acoustic, or other emitters to optimize command and control capabilities while minimizing, for operations security: a. detection by enemy sensors, b. mutual interference among friendly systems, and/or c. enemy interference with the ability to execute a military deception plan. (JP 3-85)

engagement area

An area where the commander intends to contain and destroy an enemy force with the massed effects of all available weapons and supporting systems. (ADP 3-90)

exploitation

(Army) A type of offensive operation that usually follows a successful attack and is designed to disorganize the enemy in depth. (ADP 3-90)

feint

A variation of tactical deception that makes contact solely to deceive the adversary as to the location, time of attack or both. (FM 3-90)

geospatial intelligence

The exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth. Geospatial intelligence consists of imagery, imagery intelligence, and geospatial information. (JP 2-0)

graphic control measure

A symbol used on maps and displays to regulate forces and warfighting functions. (ADP 6-0)

human intelligence

(Army) The collection by a trained human intelligence collector of foreign information from people and multimedia to identify elements, intentions, composition, strength, dispositions, tactics, equipment, and capabilities. (ADP 2-0)

hybrid threat

The diverse and dynamic combination of regular forces, irregular forces, terrorists, or criminal elements unified to achieve mutually benefitting effects. (ADP 3-0)

improvised explosive device

A weapon fabricated or emplaced in an unconventional manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals. (JP 3-42)

intelligence preparation of the operational environment

The systematic process of analyzing the mission variable of enemy, terrain, weather, and civil considerations in an area of interest to determine their effect on operations. (FM 2-0)

isolate

To separate a force from its sources of support in order to reduce its effectiveness and increase its vulnerability to defeat. (ADP 3-0)

law of war

That part of international law that regulates the conduct of armed hostilities. (JP 3-84)

mensuration

The process of measurement of a feature or location on the Earth to determine an absolute latitude, longitude, and elevation. (JP 3-60)

mission command

(Army) The Army's approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation. (ADP 6-0)

mobile defense

A type of defensive operation that concentrates on the destruction or defeat of the enemy through a decisive attack by a striking force. (ADP 3-90)

mounted movement

The movement of troops and equipment by combat and tactical vehicles. (FM 3-90)

movement to contact

A type of offensive operation designed to establish or regain contact to develop the situation. (FM 3-90)

offensive operation

An operation to defeat or destroy enemy forces and gain control of terrain, resources, and population centers. (ADP 3-0)

open-source intelligence

Publicly available information collected, exploited, and disseminated to address a specific requirement. (JP 2-0)

operational environment

The aggregate of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. (JP 3-0)

operations in depth

The simultaneous application of combat power throughout an area of operations. (ADP 3-90)

point of breach

The location at an obstacle where the creation of a lane is being attempted. (ATP 3-90.4)

point of penetration

(Army) Point of penetration is the location, identified on the ground, where the commanders concentrate their efforts to seize a foothold on the far side objective. (ATP 3-90.4).

pursuit

A type of offensive operation to catch or cut off a disorganized hostile force attempting to escape, with the aim of destroying it. (FM 3-90)

raid

An operation to temporarily seize an area to secure information, confuse an enemy, capture personnel or equipment, or to destroy a capability culminating with a planned withdrawal.

(JP 3-0)

reconnaissance

A mission undertaken to obtain information about the activities and resources of an enemy or adversary, or to secure data concerning the meteorological, hydrographic, geographic, or other characteristics of a particular area, by visual observation or other detection methods. (JP 2-0)

relief in place

An operation in which, by direction of higher authority, all or part of a unit is replaced in an area by the incoming unit and the responsibilities of the replaced elements for the mission and the assigned zone of operations are transferred to the incoming unit. (JP 3-07.3)

reorganization

All measures taken by the commander to maintain unit combat effectiveness or return it to a specified level of combat capability. (ATP 3-94.4)

retirement

When a force out of contact moves away from the enemy. (ADP 3-90)

retrograde

(Army) A type of defensive operation that involves organized movement away from the enemy.

(ADP 3-90)

risk management

The process to identify, assess, and mitigate risks and make decisions that balance risk cost with mission benefits. (JP 3-0)

rules of engagement

Directives issued by competent military authority that delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. (JP 3-84)

search

In personnel recovery, is a systematic reconnaissance of a defined area. (JP 3-50)

search and attack

A variation of a movement to contact where a friendly force conducts coordinated attacks to defeat a distributed enemy force. (FM 3-90)

sector

An operational area assigned to a unit in the defense that has rear and lateral boundaries and interlocking fires. (FM 3-0)

security operations

Those operations performed by commanders to provide early and accurate warning of enemy operations, to provide the forces being protected with time and maneuver space within which to react to the enemy, and to develop the situation to allow commanders to effectively use their protected forces. (ADP 3-90)

signals intelligence

Intelligence derived from communications, electronic, and foreign instrumentation signals. (JP 2-0)

spoiling attack

A variation of an attack employed against an enemy preparing for an attack. (FM 3-90)

stability mechanism

The primary method through which friendly forces affect civilians in order to attain conditions that support establishing a lasting, stable piece. (ADP 3-0)

stability operation

An operation conducted outside the United States in coordination with other instruments of national power to establish or maintain a secure environment and provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief. (ADP 3-0)

strong point

A heavily fortified battle position tied to a natural or reinforcing obstacle to create an anchor for the defense or to deny the enemy decisive or key terrain. (ADP 3-90)

sustainment warfighting function

The related task and systems that provide support and services to ensure freedom of action, extend operational reach, and prolong endurance. (ADP 3-0)

tactical deception

A friendly activity that causes enemy commanders to take action or cause inaction detrimental to their objectives. (FM 3-90)

task-organizing

The act of designing a force, support staff, or sustainment package of specific size and composition to meet a unique task or mission. (ADP 3-0)

tempo

The relative speed and rhythm of military operations over time with respect to the enemy. (ADP 3-0)

terrorism

The unlawful use of violence or threat of violence, often motivated by religious, political, or other ideological beliefs, to instill fear and coerce individuals, governments or societies in pursuit of terrorist goals. (JP 3-26)

threat

Any combination of actors, entities, or forces that have the capability and intent to harm United States forces, United States national interests, or the homeland. (ADP 3-0)

toxic industrial material

A generic term for toxic, chemical, biological, or radioactive substances in solid, liquid, aerosolized, or gaseous form that may be used, or stored for use, for industrial, commercial, medical, military, or domestic purposes. (JP 3-11)

urban operations

(Army) Operations across the range of military operations planned and conducted on, or against objectives on a topographical complex and its adjacent natural terrain, where manmade construction or the density of population are the dominant features. (ATP 3-06)

warfighting function

A group of tasks and systems united by a common purpose that commanders use to accomplish missions and training objectives. (ADP 3-0)

withdraw

To disengage from an enemy force and move in a direction away from the enemy. (ADP 3-90)

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27 September 2024

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