



# Dense Urban Terrain Considerations

*a new approach to planning for and executing operations in dense urban terrain*



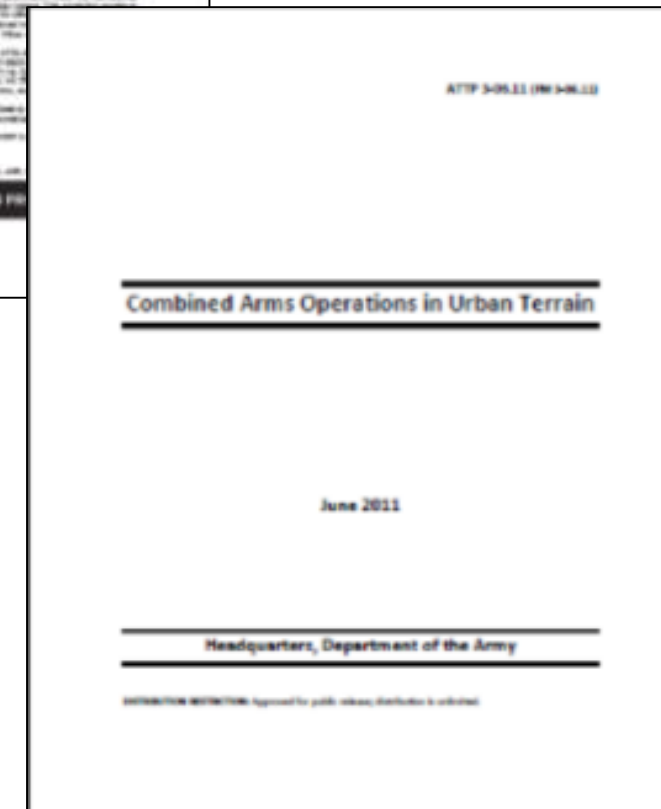
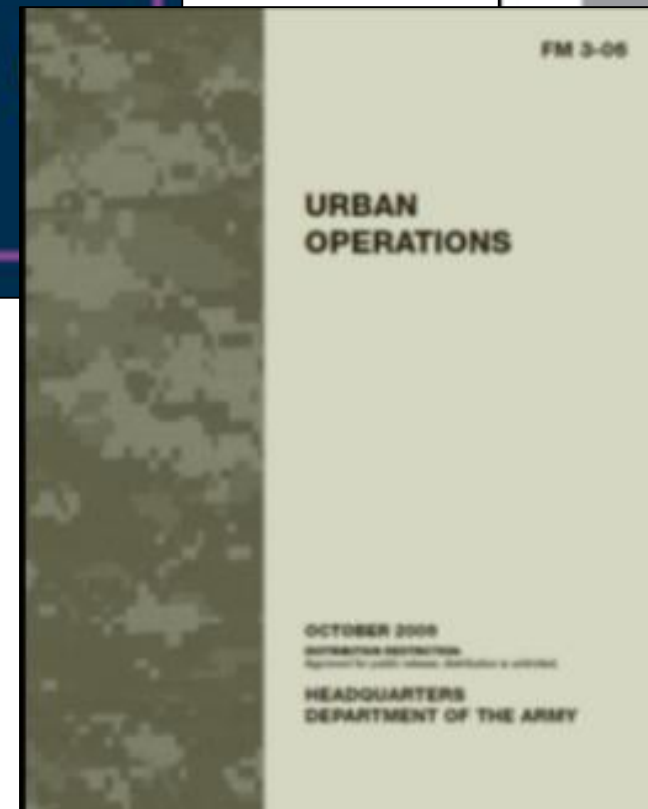
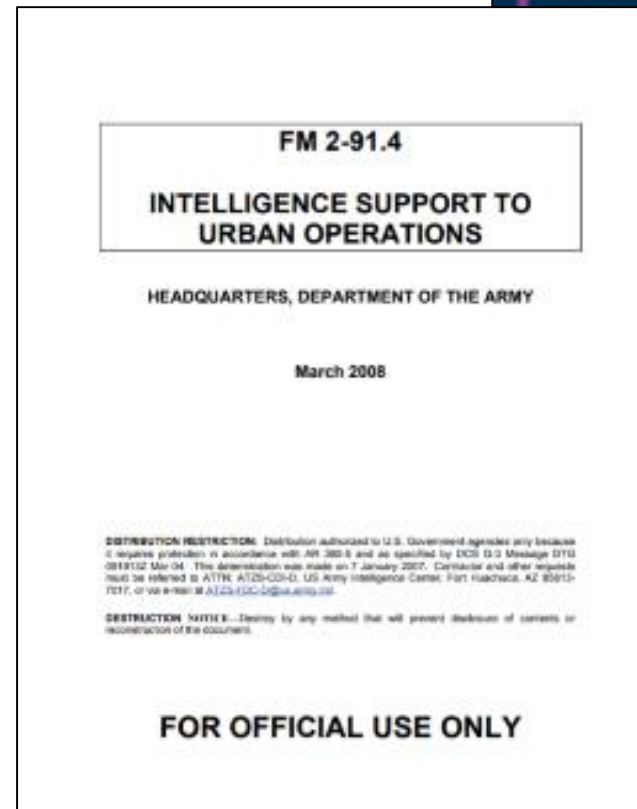
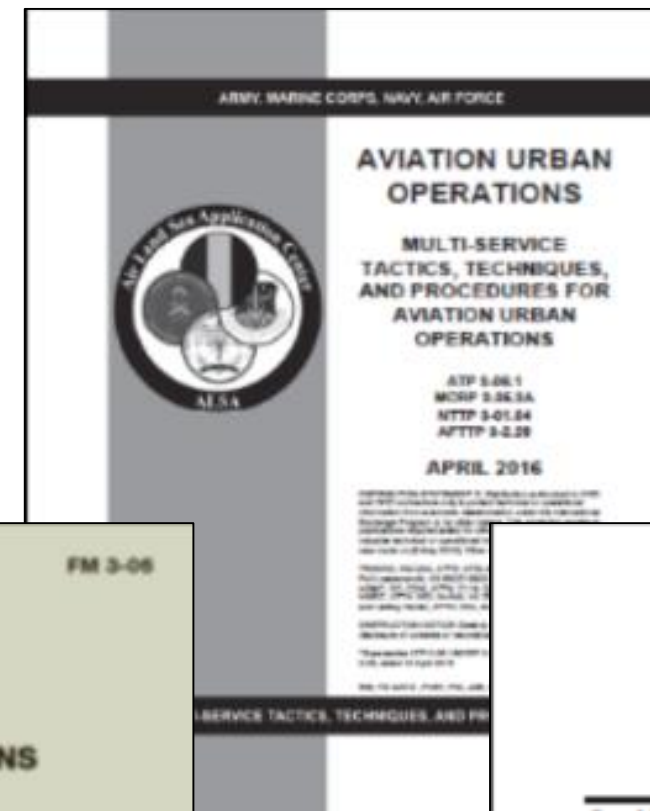
# Dense Urban Terrain Considerations





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*Doctrine already exists on planning for and executing operations in dense urban terrain . . . .*

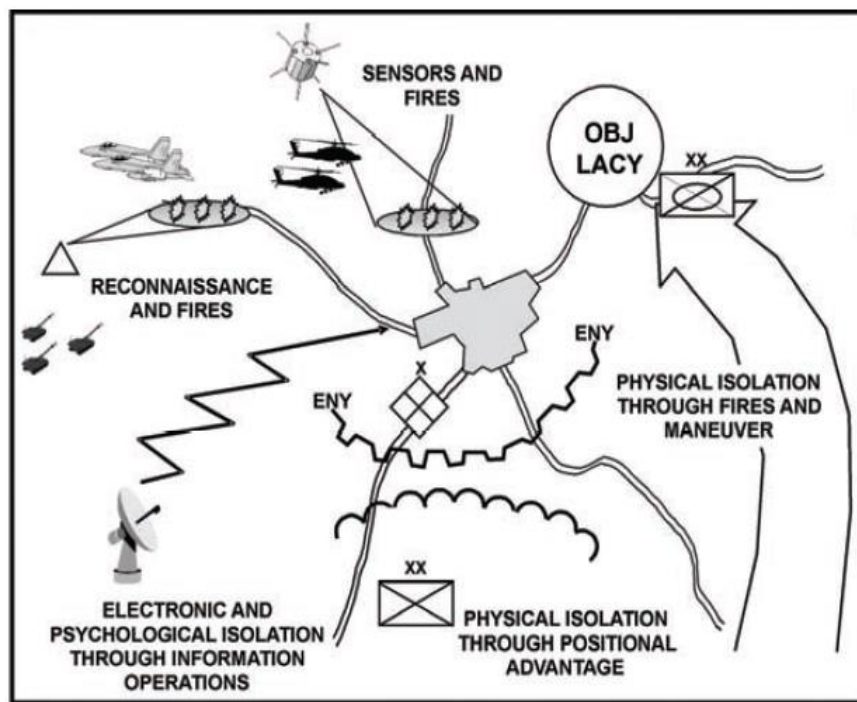




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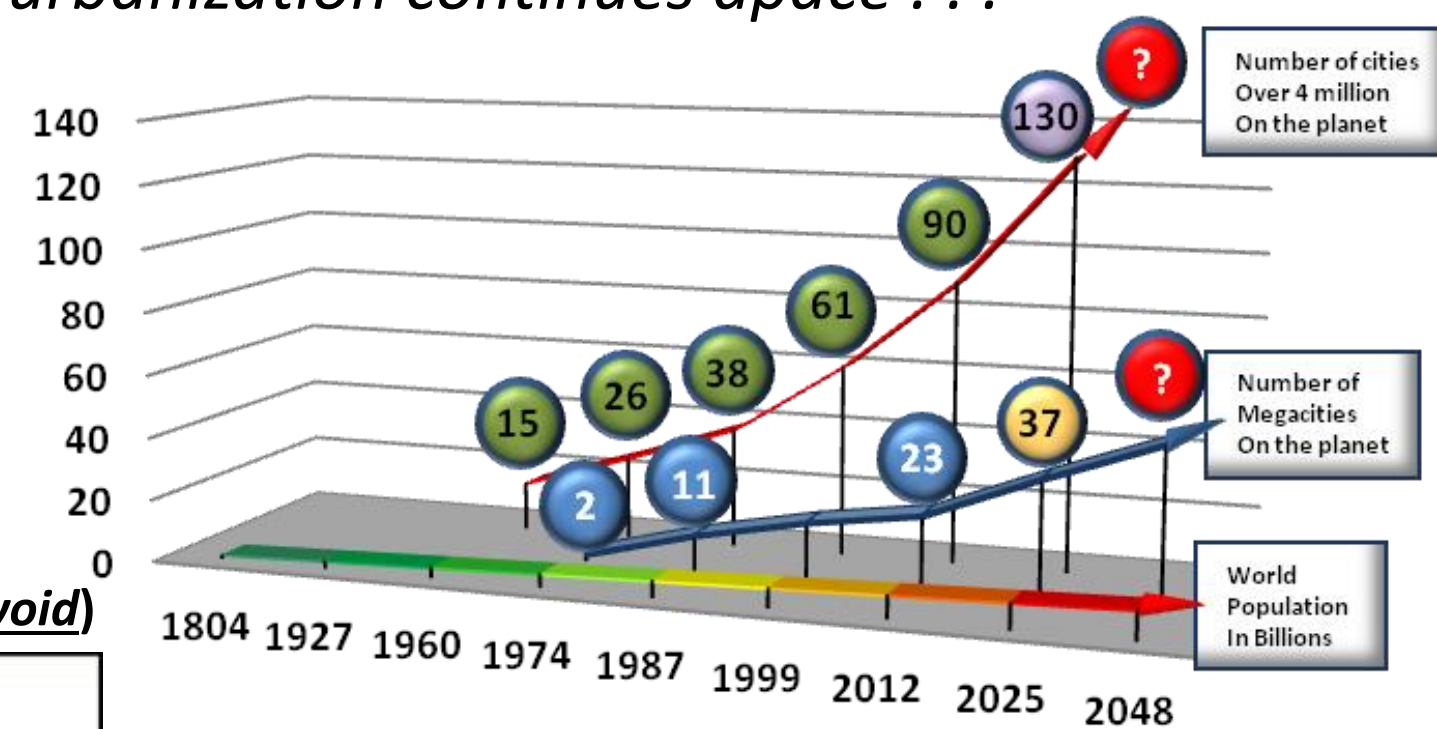
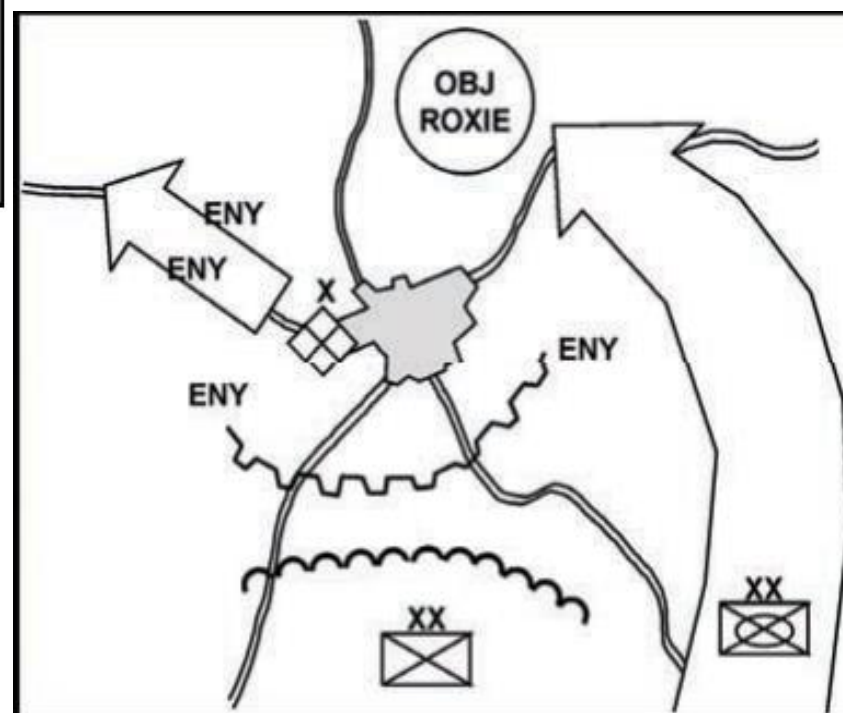
*However, the doctrine advising Commanders to simply bypass dense urban area probably won't work in the coming years as urbanization continues apace . . .*

Figure 7-11. Shaping through Isolation

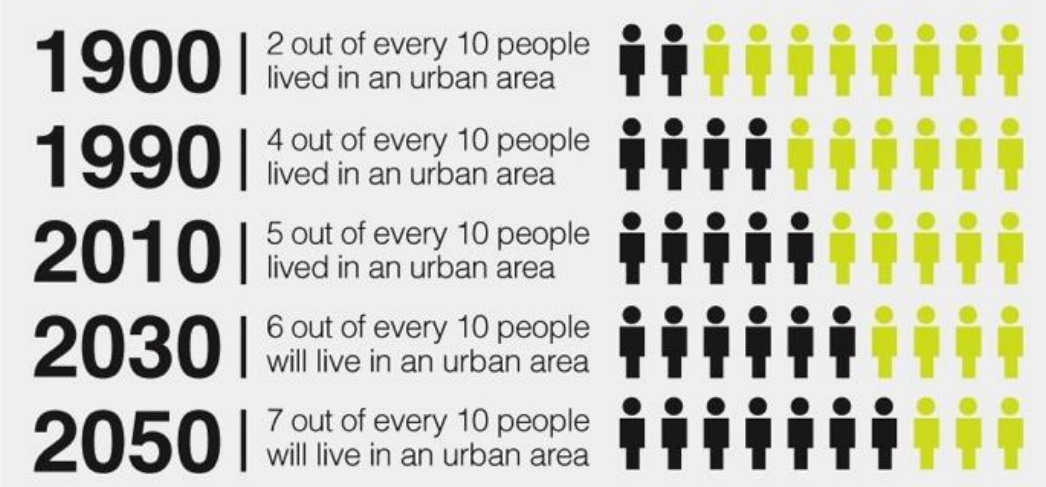


source: FM 3-06 (pub date: 2006)

Figure 7-4. Turning movement (Avoid)



## Urbanization



Defined by UN HABITAT as a city with a population of more than 10 million



# Dense Urban Terrain Considerations

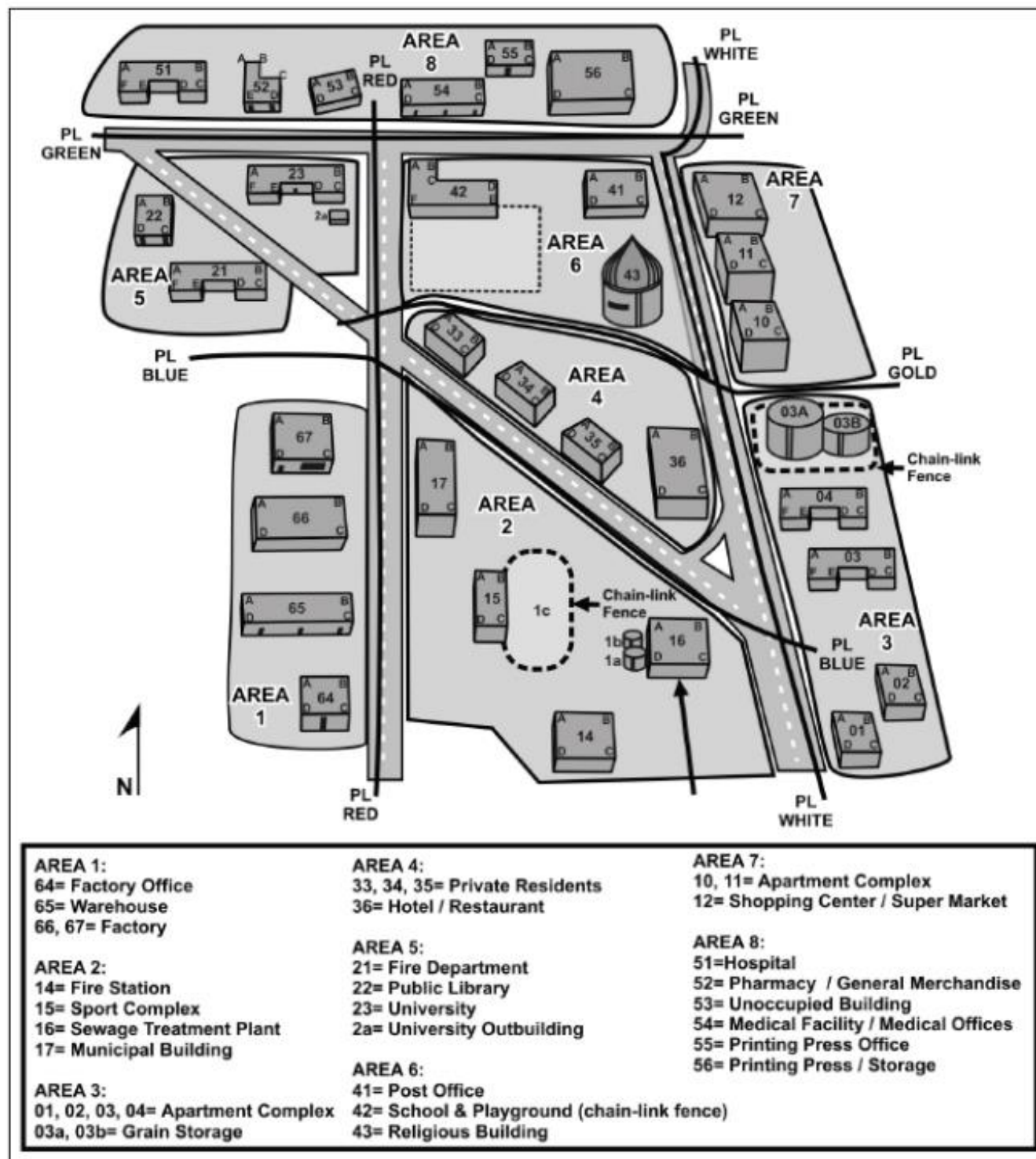


Figure 1-4. Example urban operations sketch

... and the doctrine that we do have is often inadequate to prepare units for operating in DUT ("Dense Urban Terrain")

Current Army doctrine advises staffs to create "urban operations sketches" in addition to such things as demographic overlays. Such urban operations sketches, however, fail to provide planners and staff with any understanding of *how* dense any piece of urban terrain is.



# Dense Urban Terrain Considerations



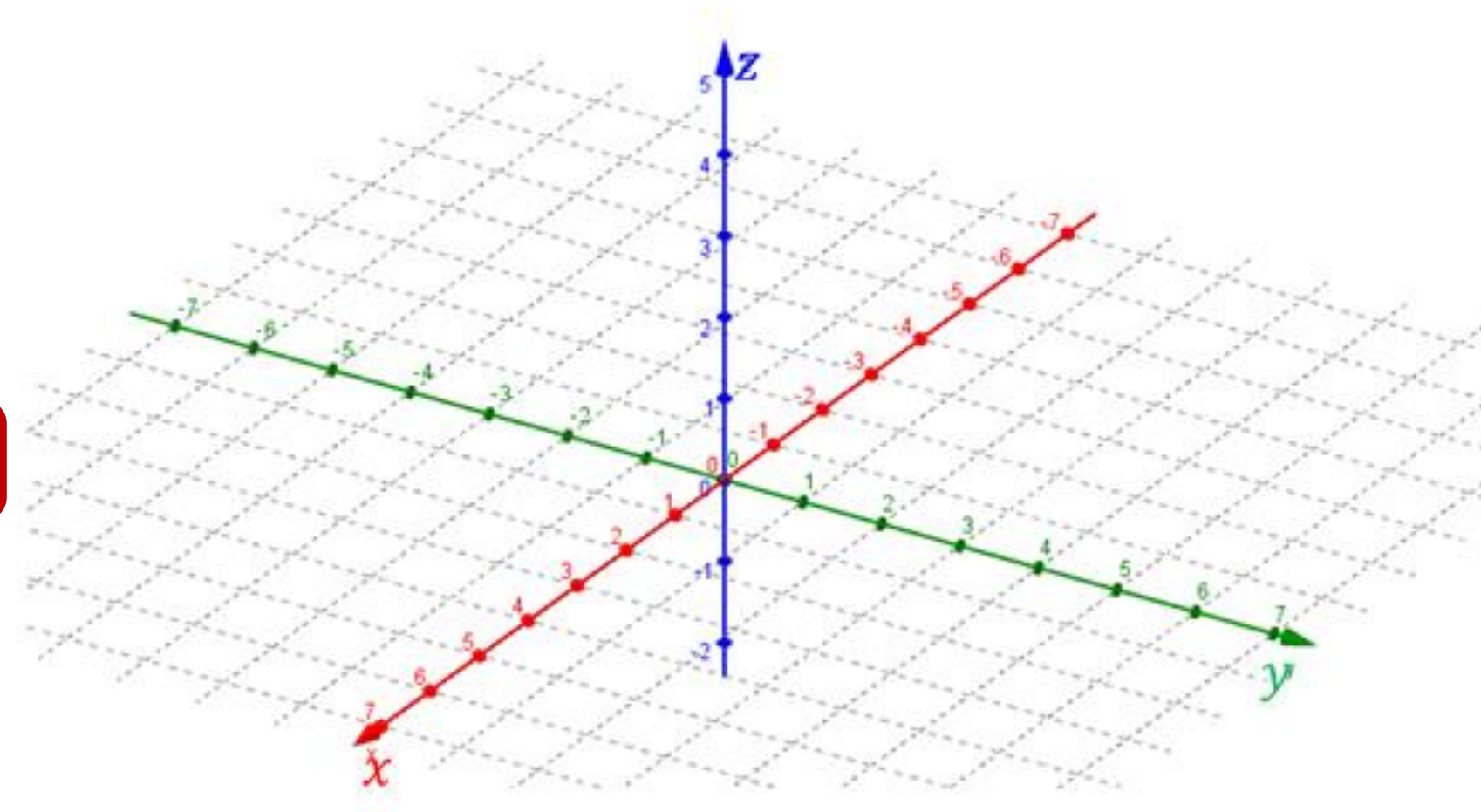
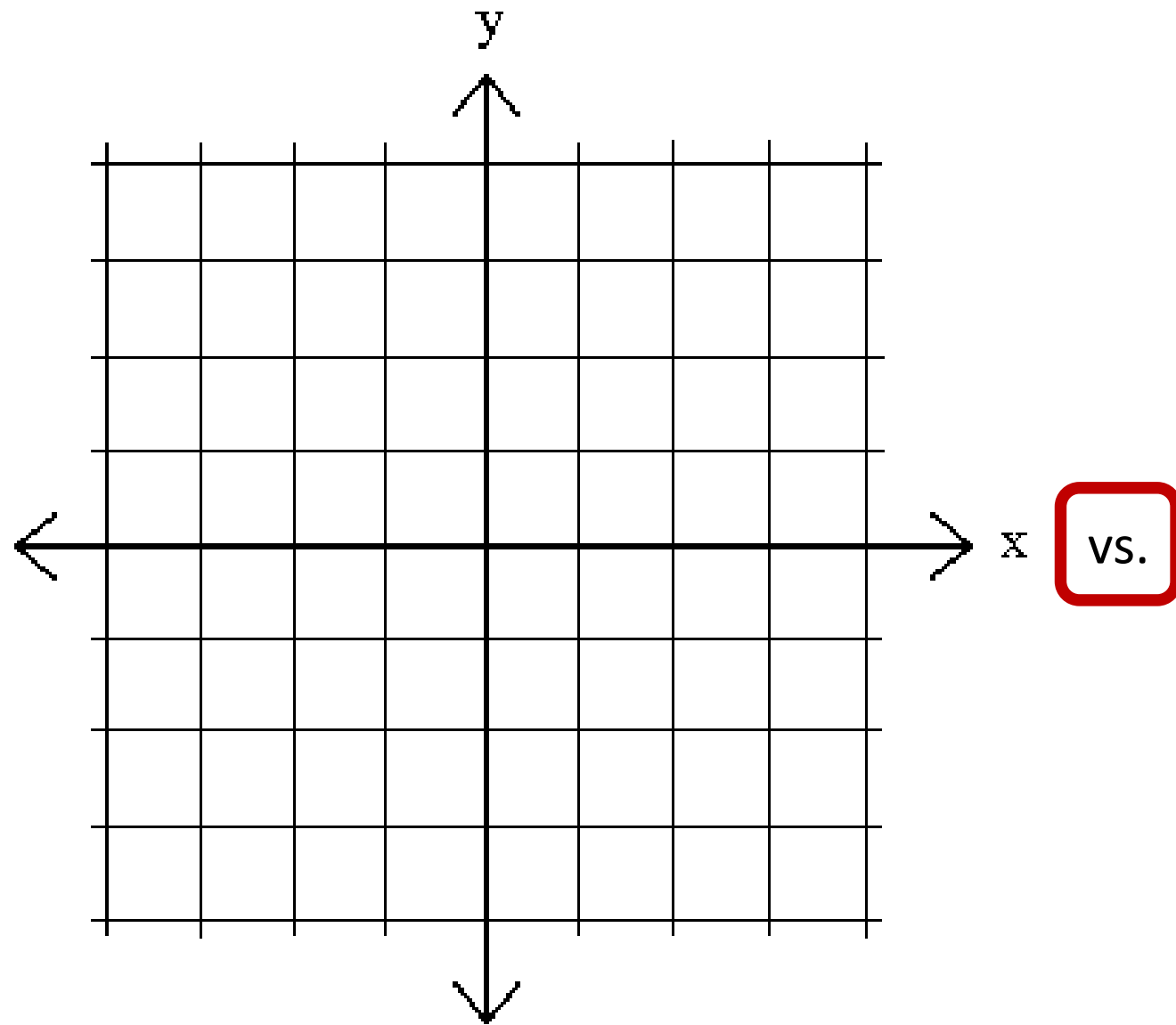
*In the interim, combining multiple current Army analytical tools in novel ways can fill the analytical gap; e.g., PMESII-PT/ASCOPE “crosswalk.”*

	1. Political	2. Military	3. Economic	4. Social	5. Infrastructure	6. Information
A. Areas	City council districts, census districts	Military bases, law enforcement beats	Financial districts, marketplaces	Parks, marketplaces	railyards, reservoirs	Wifi hotspots, broadcast ranges
B. Structures	Government offices, political party buildings	Military barracks, police station houses	factories, banks	Malls, entertainment districts	power lines, sewer systems	Cell towers, broadband cables
C. Capabilities	Dispute resolution mechanisms (i.e., judiciary), ability and willingness to enforce laws	Efficacy of military and law enforcement equipment and training	Financial resource depth (i.e., savings), ability and willingness to collect taxes	Informal dispute resolution/mediation	Internet bandwidth, roadway vehicle capacity	Literacy rate, internet penetration
D. Organization	Political parties, civic organizations	Doctrine and C2 format of military and law enforcement	Corporate structuring (e.g., LLC, C Corp.), bank clearing procedures	Religious/ethnic/tribal/civic organizations	Ownership structure (public vs. private), maintenance responsibilities	Prevailing medium of information (e.g., print, TV, social media, etc.)
E. People	Governors, mayors, bureaucrats	Military CDRs, police Chiefs, Deputy Chiefs, etc.	Finance ministers, provincial and municipal treasurers	Prominent citizens, entertainers	Engineers, maintenance workers	Journalists, influencers
F. Events	Elections, provincial and municipal council meetings	Recruitments events, military celebrations (e.g., parades)	Harvest, seasonal arrival of goods	civic and religious holidays, public celebrations	Construction, disruptive maintenance	Chance encounters captured on film, unexpected escalations of force



# Dense Urban Terrain Considerations

*Lacking is a way to express a \*literal\* whole new dimension to Army planning and execution: verticality, or the "Z Axis"*

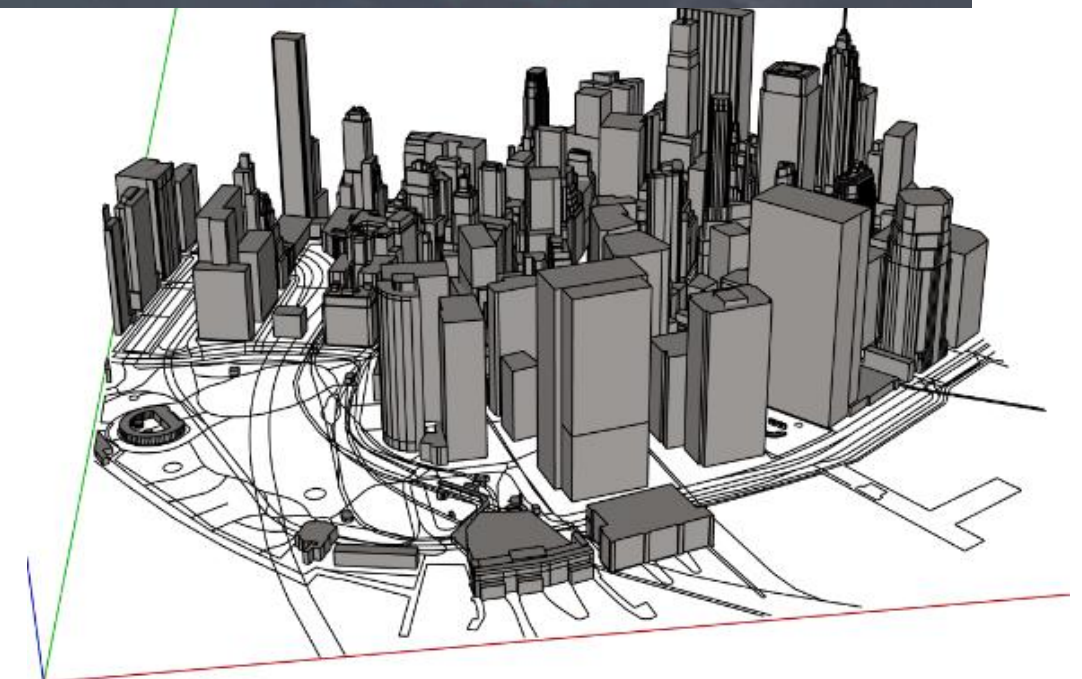
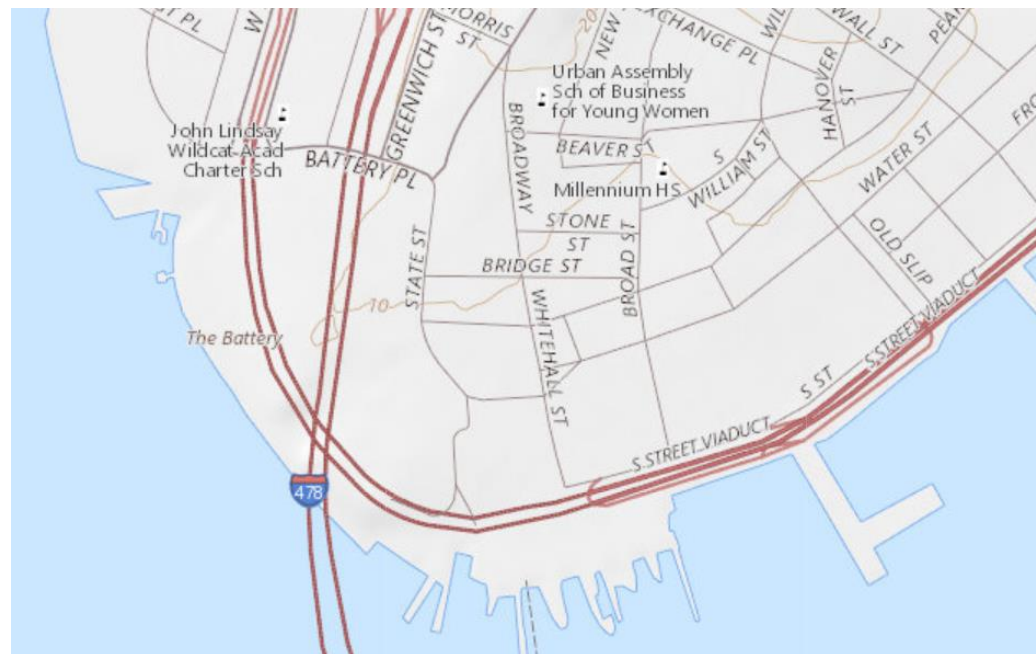
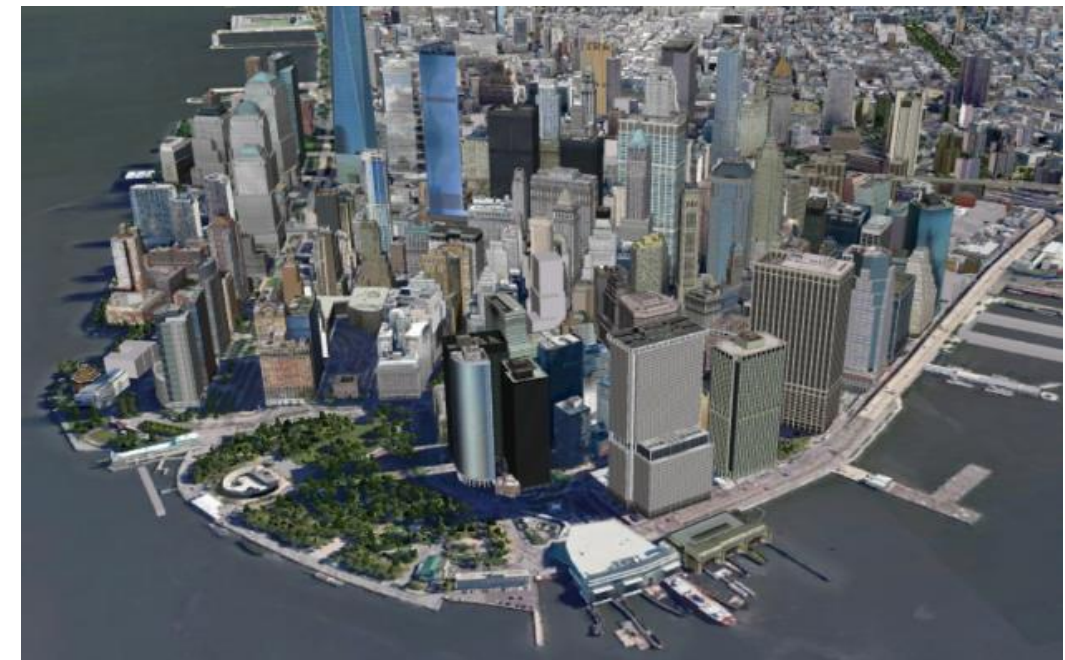




# Dense Urban Terrain Considerations

*In other words, what was once expressed like this . . .*

*. . . needs to now be able to be expressed like this . . .*

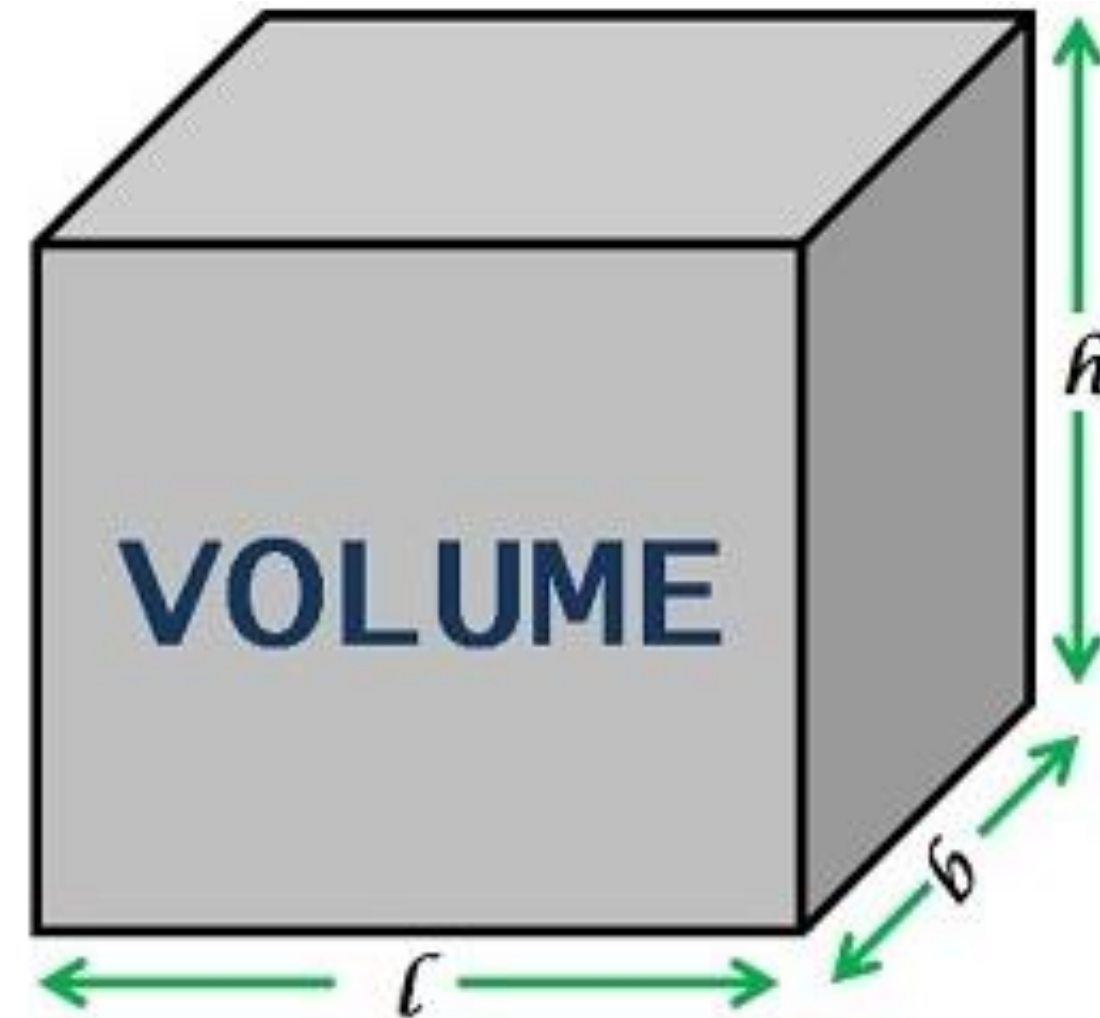
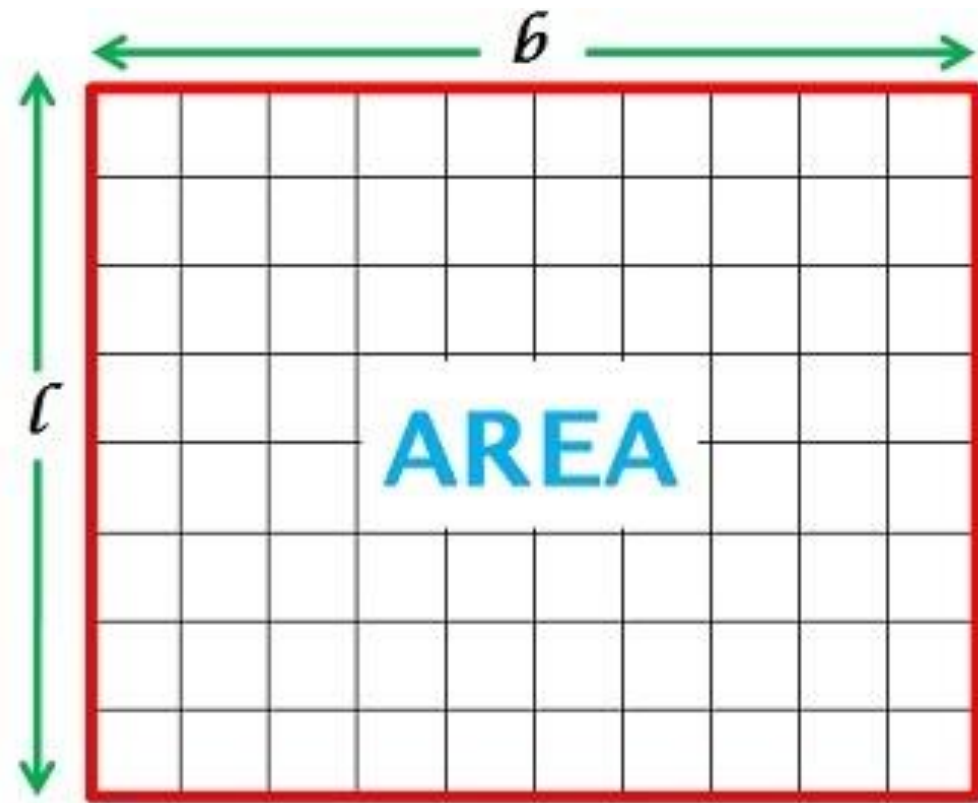






# Dense Urban Terrain Considerations

*A change in thinking from area to volume*





# Dense Urban Terrain Considerations



*Dense urban terrain seems to shift the advantage even more in favor of the defense . . .*



## Battle of Mosul

108,000 Iraqi + coalition troops (low end of estimation range)

12,000 ISIS fighters (high end of estimation range)

7,200 casualties (low end of estimation range)

12,000 casualties (high end of estimation range; omits civilian and non-combatant casualties)

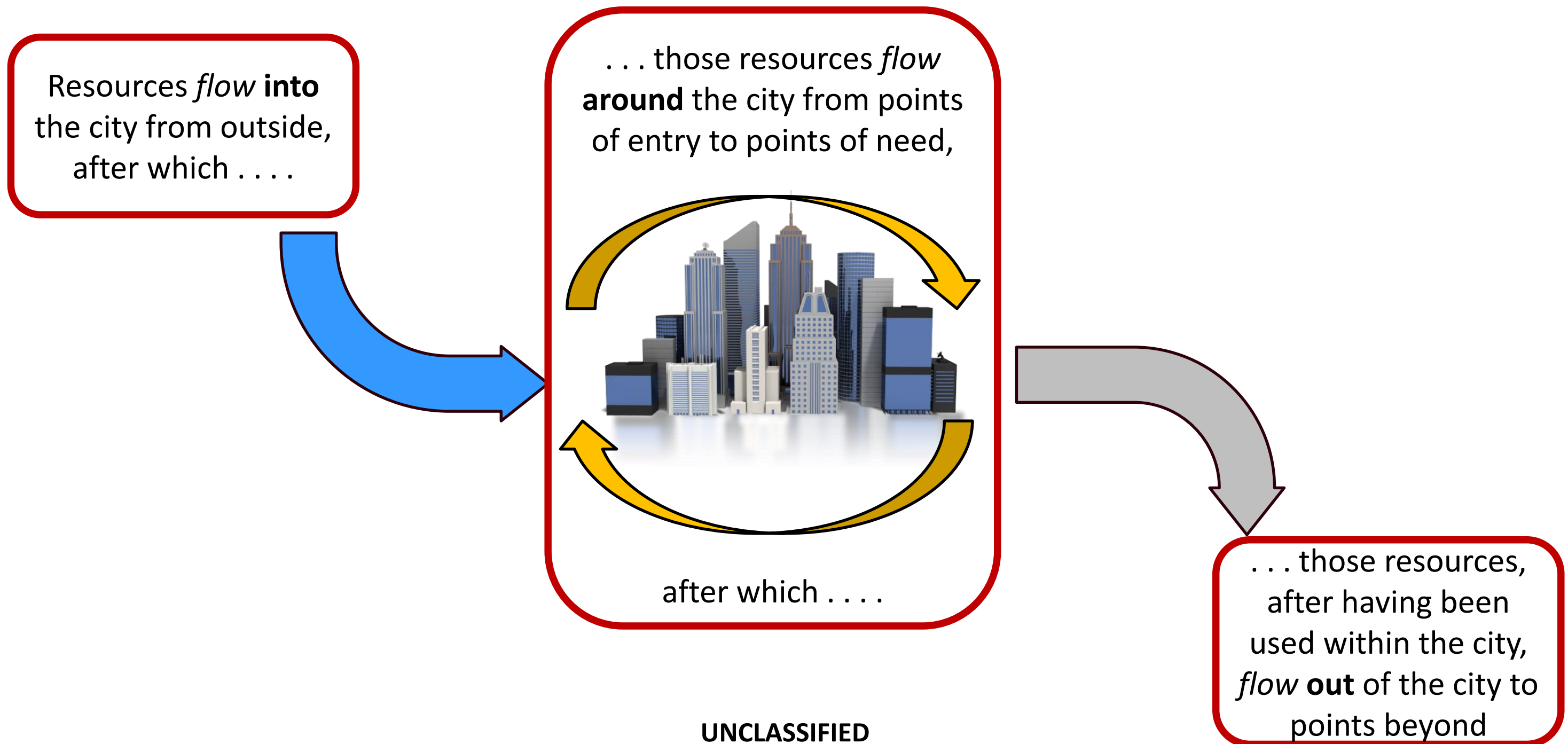
Even with, as *worst*, a **9-to-1** advantage, it took Iraqi security forces nine months to seize Mosul from ISIS, at considerable cost in terms of casualties, collateral damage, and destroyed civic infrastructure.

*. . . meaning changes will likely have to be made on assumptions regarding force ratios . . .*



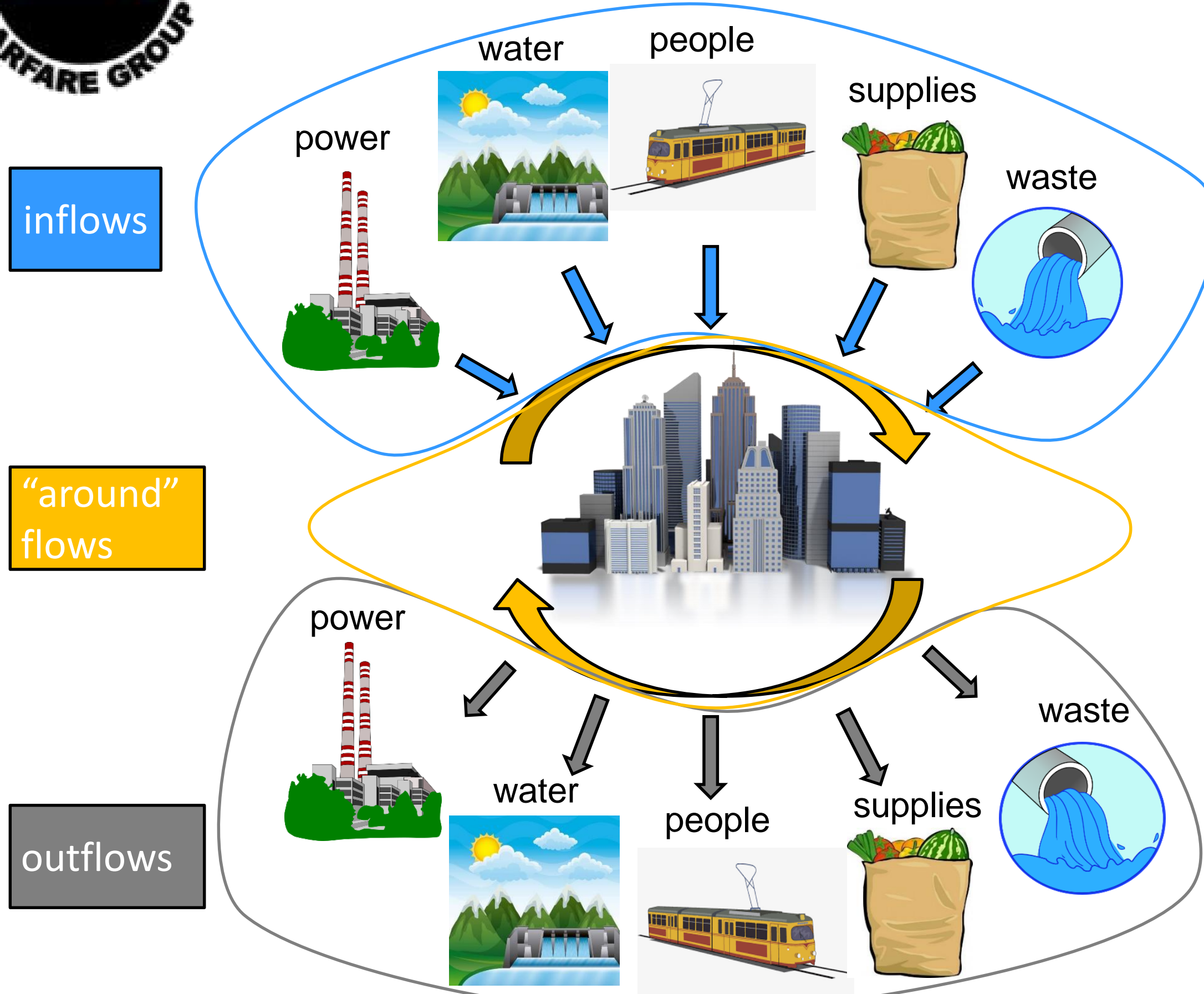
# Dense Urban Terrain Considerations

*An additional adjustment that would help planning and analysis is considering the “flows” of a city, whether inflows to the city, outflows from the city, or flows within the city itself.*





# Dense Urban Terrain Considerations



AWG/TRADOC G-2 break down “flows” into five main categories, each of which needs to be conceptualized in three “states” --

	in ➡	around ↻	out ➡
power	<i>notional “flow”</i>		
water			
people		<i>status report</i>	
supplies			
waste			



# Dense Urban Terrain Considerations



*While doctrine struggles to keep up with the dense urban environment, so, too, does training . . .*



Army Combined Arms Collective Training Facility (“CACTF”)



Brazilian *favela* on the outskirts of Salvador



# Dense Urban Terrain Considerations

*The Army has made strides trying to update training for urban operations, but technology is changing so rapidly that doctrine on how to train can quickly become outdated . . .*

TC 90-1

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**Training for Urban Operations**

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May 2008

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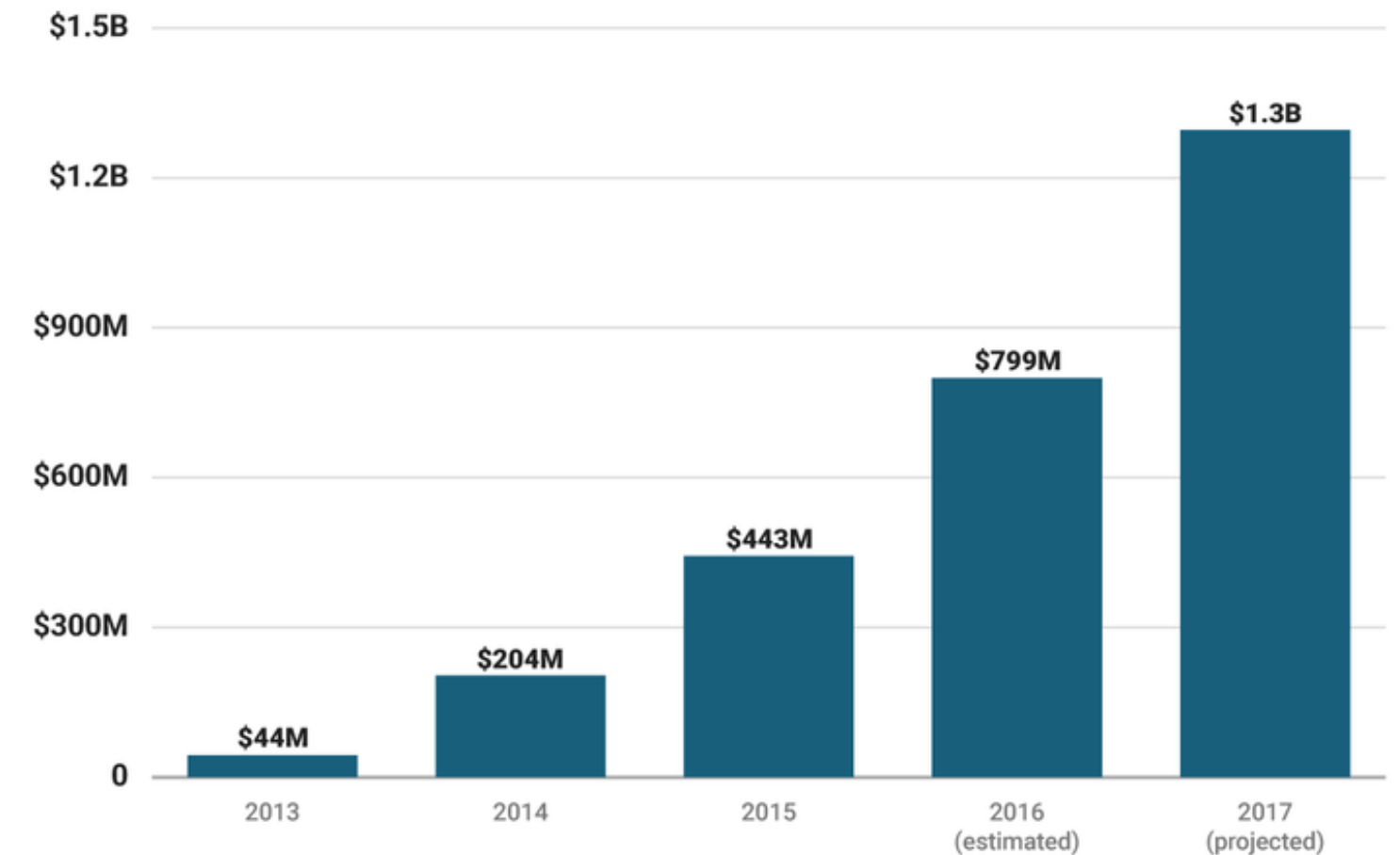
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Headquarters, Department of the Army

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the commercial UAS market didn't even exist when TC 90-1 was published in 2008 (UAS mentioned *once* in the entire document)

TECH CHART OF THE DAY  
**CONSUMER DRONE SALES TO DEALERS IN THE US, 2013-'17**



SOURCE: Consumer Technology Association

statista | BUSINESS INSIDER



# Dense Urban Terrain Considerations



*Rather than re-invent the wheel, the Army can learn from those already operating in DUT: the nation's firefighter, police officers, EMTs, etc.*



*Not only can TTPs and best practices from the first responder community be incorporated into Army TTPs and SOPs, but first responder training sites can, potentially, be used to better simulate dense urban terrain conditions.*





# Dense Urban Terrain Considerations



*Units can take advantage of local dense urban terrain to conduct “terrain walks” to at least conceptualize the challenges of operating in dense urban terrain . . .*



Dense Urban Terrain walk route

## Today's route

Today's dense urban terrain walk will take us to up to eight waypoints, as seen in the map above. These waypoints are:

- Grand Central Station
- Battery Park & its environs
- World Trade Center (to include 1 World Trade [aka “Freedom Tower”] observation deck, Oculus, & North Cove Yacht Harbor)
- NYC Municipal Building & its environs
- Chinatown
- Stuyvesant Town
- Penn Station
- United Nations headquarters

## AWG

### Dense Urban Terrain Detachment

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## Dense Urban Terrain Walk

USMC TECOM  
17-18 DEC 2018

AWG

Dense Urban Terrain Detachment



AWG

Dense Urban Terrain Detachment

125 Wainwright Drive

Fort Hamilton

Brooklyn NY 11209





# Dense Urban Terrain Considerations



*There are a lot of challenges ahead regarding operations in dense urban terrain, but we can't afford to wait to address them any more . . .*

- *Urbanization continues and will only intensify*
- *Dense urban terrain mitigates many of the US military's advantages, giving opponents an "asymmetric" advantage*
- *Current doctrine is in need of updating*
- *Current training is in need of updating*

*However, the Army is beginning to understand the scale of the problem and events like this one, and Servicemembers like yourselves, will help it to address that problem – now let's get to work!*



# Dense Urban Terrain Considerations



## Questions?

