

Of IEDs and MRAPs: Force Protection In Complex Irregular Operations

Andrew Krepinevich
Dakota Wood

Center for Strategic and Budgetary Assessments

CSBA

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Bottom-Line Up Front

- The US Army and Marine Corps confront an age-old dilemma between mission accomplishment and force protection.
- The MRAP offers the prospect of reducing casualties, thereby satisfying a “moral imperative.”
- But MRAPs may accomplish this at the expense of accomplishing the mission.
- Moreover, second-order effects associated with MRAP deployment may increase casualties.
- The longer-term value of MRAPs is even less clear as US ground forces orient themselves toward more of an expeditionary posture.
- While some MRAPs are probably needed in theater, analysis justifying crash, mass production of MRAPs appears to be lacking.

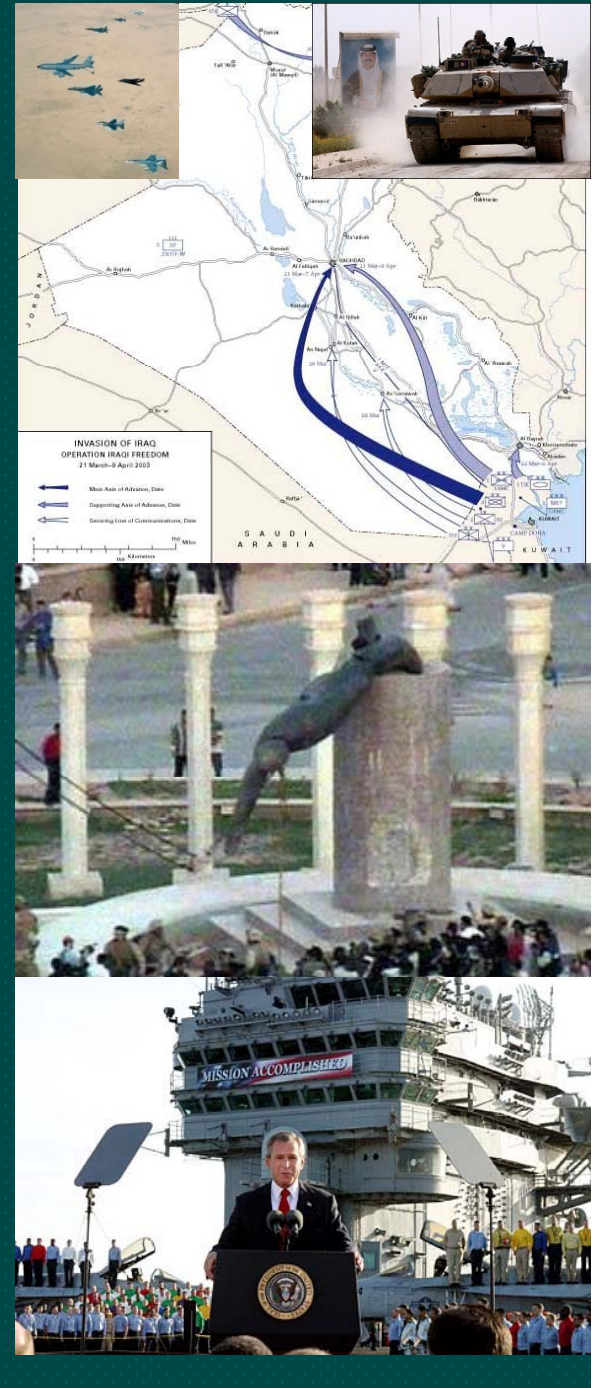
Briefing Roadmap

- Background to the present situation
- The IED threat and US casualties
- The MRAP
- Mission Priority v. Force Protection: The Doctrinal Disconnect
- The Armor / Anti-Armor Competition
- Professionals Talk Logistics: Possible Second-Order Effects
- \$25 Billion Kleenex? MRAPs and the Future Force

Background

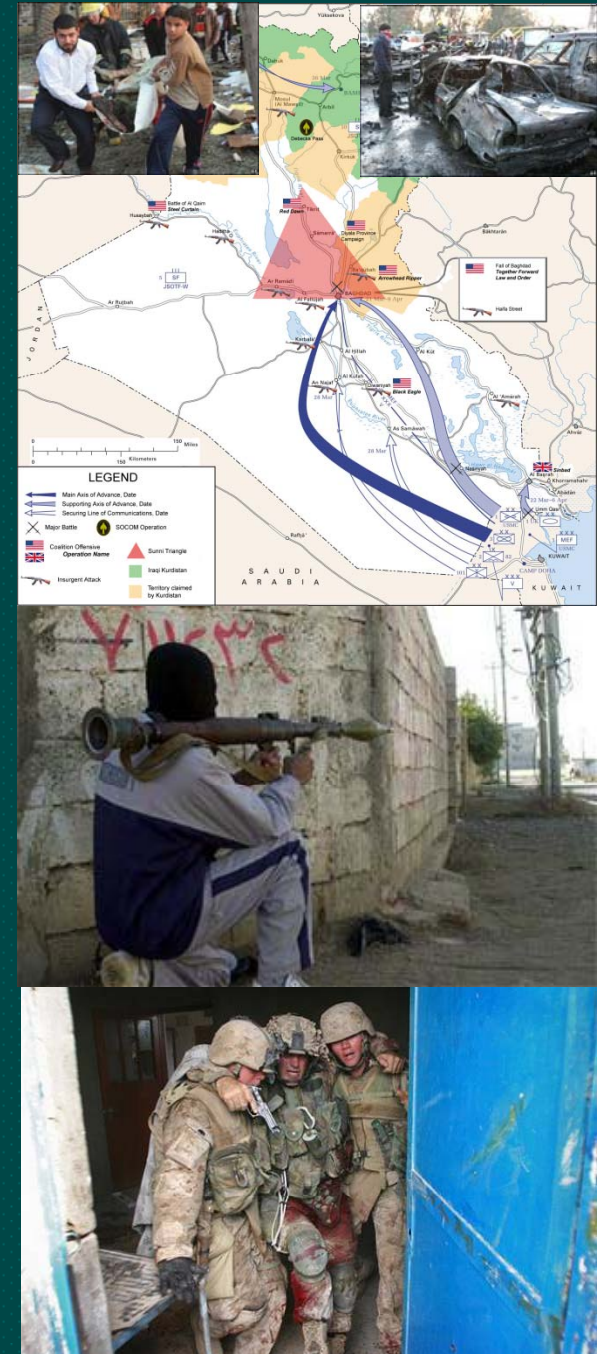
The Opening Scene

- March 20, 2003: US and UK forces execute a classic, militarily decisive invasion of Iraq.
- Within three weeks, Iraqi conventional forces are defeated, the Iraqi government deposed, and Baghdad occupied by the US military.
- On May 1, 2003, President Bush declares an end to conventional military operations.
- It was precisely the kind of war the US military had been organized, trained, and equipped to win.



A Changing Script

- By late Summer, 2003, factions regain their footing, and start to fight back.
- Ba'ath Party loyalists, radical Islamist extremists, “foreign fighters,” al Qaeda affiliates, and sectarian militias emerge – all vying against the US, and oftentimes against each other.
- They use ambush tactics, mortar attacks, suicide car bombs, improvised explosive devices (IEDs).
- The US soon learns: **A force optimally equipped for fast paced, mechanized, combined arms operations is not well-suited for counterinsurgency operations in complex urban terrain.**



Complex Urban Terrain

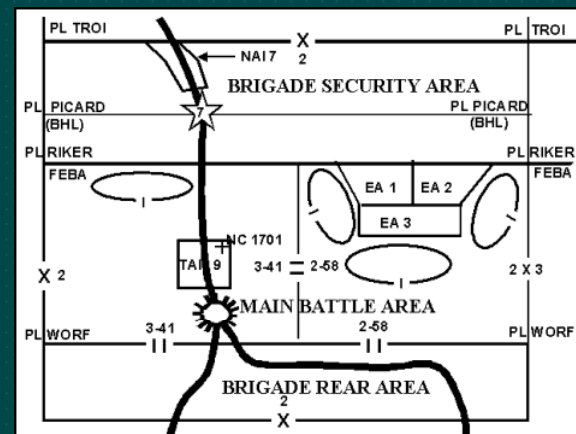
- *“The physical characteristics of the urban environment support ambush techniques. [Insurgents] with readily obtainable, handheld antiarmor weapons can effectively attack armored vehicles and helicopters, no matter how sophisticated, in an urban area.”*
- *“Urban terrain tends to restrict operations by counteracting most technical advantages in range, mobility, lethality, precision, sensing, and communications . . . Urban terrain tends to favor the defender [and] the ambusher.”*
- *“Urban combat operations thus tend to be bloody, episodic and prolonged, with the costs of achieving a decision running unusually high.”*

FM 3-06 Urban Operations



“FEBA” Warfare v. Complex Irregular Warfare

- Cold War, conventional battlefield geometry.
 - “Secure rear areas” v. Main battle areas.
 - Force equipped and trained for conventional operations.
- Complex irregular warfare in urban terrain.
 - No safe areas.
 - “MOUT” is complex, brutal, stressing, exacting.



“When there are no front lines, all forces are at risk and logistics convoys, like merchant ship convoys of World War II, become ‘movements to contact,’ or are targets for loosely organized enemy actions.”

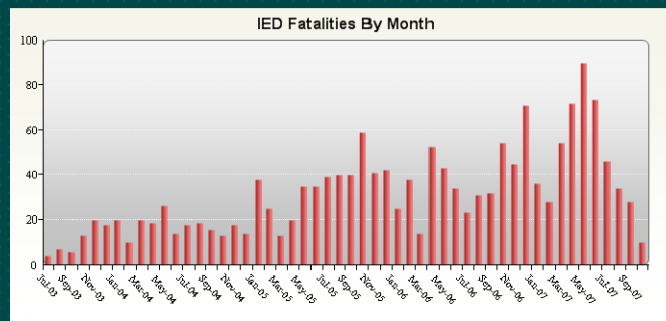
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The IED Threat

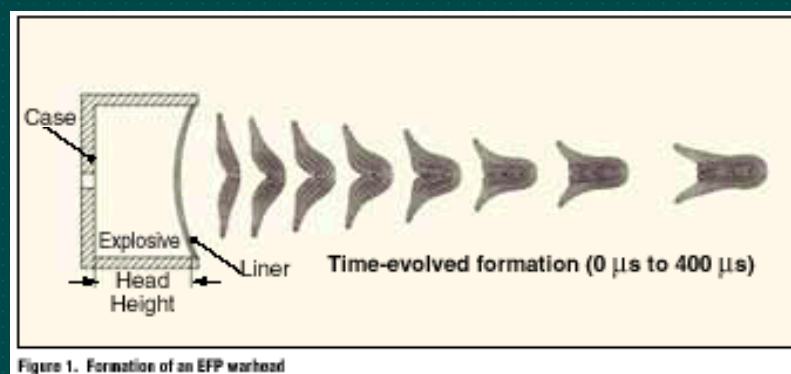
The IED Threat

- IEDs account for two-thirds of all US deaths, in Iraq, from hostile causes.
 - Simple to make. Nearly inexhaustible supply of materials.
- The Pentagon has struggled in response:
 - Improving tactics, force education, technological fixes, improving surveillance, attacking the IED “supply chain,” and improving armor protection
- The US has invested \$12 billion in the Joint IED Defeat Organization, to develop technological countermeasures.
- FY 07 and FY 08 funding for MRAPs, as one material solution, vary between \$8 billion and \$23 billion, depending on the status of the FY 08 Defense Appropriations bill (and “supplementals”).



IEDs advance to EFPs

- The enemy has responded to US countermeasures with larger and more complex IEDs . . . and use of explosively formed penetrators (EFPs).
- Evidence that Iran is providing technical expertise, if not finished weapons.
 - Note: Anti-tank guided munitions (ATGMs) have not yet made an appearance.
- EFPs are directional; can be triggered as easily as a standard IED; and have proven effective even against the M1A2 Abrams tank.



EFP: 7 lb copper slug at 2000 meters per second
.50 cal round: 2 oz bullet at 900 meters per second



Casualties

Casualties and the Cost of War

“Casualties suffered in longer endeavors when the mission is more open-ended and the enemy more elusive can have a greater political impact than casualties suffered in those operations where the US military is pursuing a defined mission and a clear opponent.”

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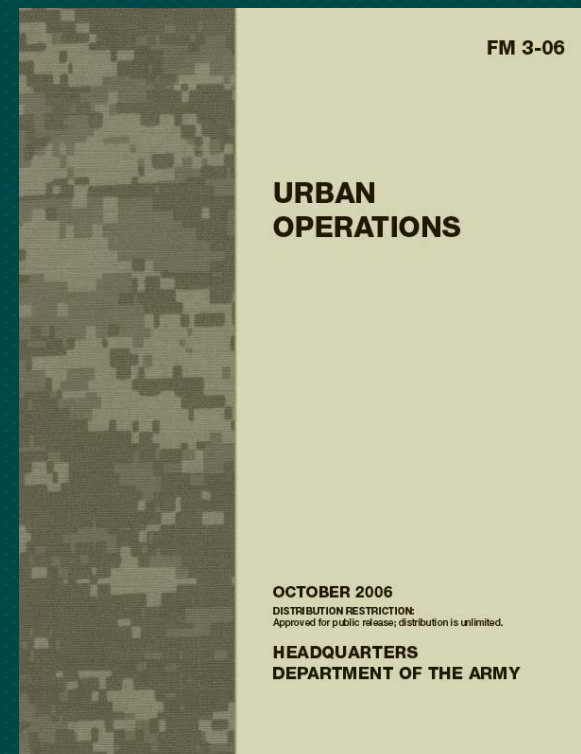
	<u>KIA</u>	<u>Combatants</u>	<u>% of Force</u>
• US Civil War	364,511	2,213,363	16.4%
• World War I	116,516	4,734,991	2.5%
• World War II	405,399	16,112,566	2.5%
• Vietnam	58,209	8,744,000	0.67%
• OIF/OEF	3476	1,400,000	0.25%



Protecting the Force

“Threat forces may gain an advantage against superior friendly forces by capitalizing on a perceived weakness of many Western nations: the inability to endure continuous losses or casualties for other than vital national interest or losses for which they are psychologically unprepared . . . Threats may attempt to weaken US resolve and national will to sustain the deployment or conflict by inflicting highly visible, embarrassing, and if possible, large losses on Army forces.”

FM 3-06 Urban Operations, June 1, 2003



Casualties and the All-Volunteer Force

- An All-Volunteer Force necessarily demands additional efforts to support and protect the large investment associated with the force, as well as the need to reflect societal values. In a smaller force, each servicemember can be seen as proportionately more important and valuable than is a mass, conscript force.
- In this environment, the debate over casualty levels can be seen as a placeholder for the larger debate on the war as a whole.



The MRAP

MRAP – A “Moral Imperative”

“The MRAP program should be considered the highest priority Department of Defense acquisition program.”

Robert Gates
Secretary of Defense
May 2, 2007



“We know that MRAPs save lives...So with that knowledge, how do you not see it as a moral imperative to get as many [of] those vehicles to theater as rapidly as you can?...I just see it’s absolutely critically important to us to push this vehicle as hard as we can so that we save lives, in the process perhaps convince the American people that we can get after this casualty thing in a real fashion and maybe buy more time on the part of our countrymen to get this thing settled.”

Gen. James Conway, USMC
Commandant of the Marine Corps
May 17, 2007



MRAP – Answer to a “Sacred Responsibility”?

“Today’s news that our troops in the field pleaded for Mine Resistant Vehicles as far back as 2003 is deeply disturbing. Those on the frontlines knew they needed better protection against the road-side bombs that were killing their comrades; they knew we had the technology—but their requests were repeatedly ignored by the Pentagon and by a President who has claimed all along that he listens first and foremost to those in the field.”

Sen. Joseph Biden - July 16, 2007

“We have no higher obligation than to protect those we send to the front lines,” said Senator Joe Biden. “I am heartened to know that my amendment . . . will provide technology and equipment that will save American lives on the ground in Iraq . . . As long as we have a single soldier on the front lines in Iraq, or anywhere else, it is this country’s most sacred responsibility to protect them.”

Sen. Biden - September 27, 2007



Mine Resistant Ambush Protected (MRAP) Vehicle

- Very heavy, thickly armored vehicles.
- V-shaped hull that deflects blast away from passenger compartment.
- High ground clearance to help dissipate blast.
- Range in weight from 10 tons up to 25 tons or more.
- Originally developed in South Africa and Rhodesia, with the primary purpose of mine-clearing and explosive ordnance disposal.
- Approximately 1,000 in Iraq, of various models.

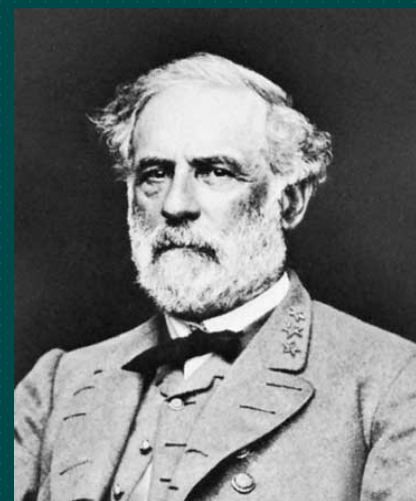


Mission v. Force Protection: The Doctrinal Disconnect

MRAP and Mission Priority

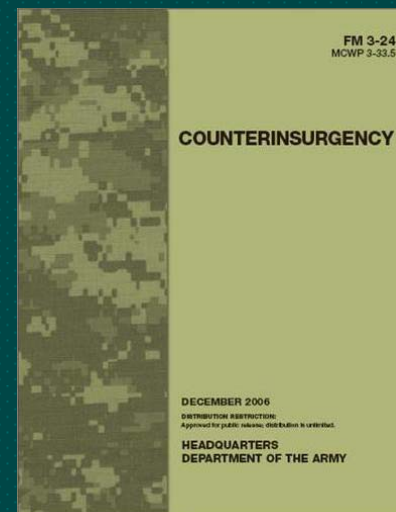
“To be a good soldier you must love the army. But to be a good officer you must be willing to order the death of the thing you love. That is . . . a very hard thing to do. No other profession requires it. That is one reason why there are so very few good officers. Although there are many good men.”

General Robert E. Lee to General James Longstreet in Michael Shaara, *“The Killer Angels”*



“The ultimate success in COIN is gained by protecting the populace, not the COIN force.”

FM 3-24, p.1-27



Force Protection v. Mission Accomplishment

“[Force] protection must not interfere with the accomplishment of the mission or negatively impact on the political ties that bind the American people to their military. Above all it must not lead to a garrison mentality or to a belief that hunkering down behind concertina wire and armor represents a serious effort to achieve mission completion. To do so would invariably rob U.S. forces of the ability to shape their battlespace and understand how the enemy is operating. It would rob them of the capacity to perform effective counterinsurgency operations, which inevitably must involve operating in close contact with the civilian population.”



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The MRAP and COIN Doctrine

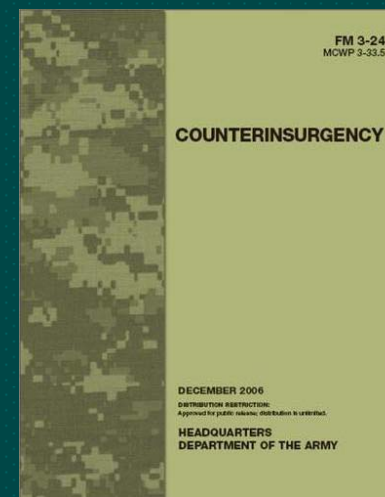
*“[W]e have spent billions on tools and tactics to protect against IEDs. Yet, even now, **the best way to defeat these weapons – indeed the only way to defeat them over the long run – is to get tips from the locals** about the networks and the emplacements or, even better, to convince and empower the Iraqis to prevent the terrorists from placing them in the first place.”*

Robert Gates
Secretary of Defense
October 10, 2007



“Popular support allows counterinsurgents to develop the intelligence necessary to identify and defeat insurgents.”

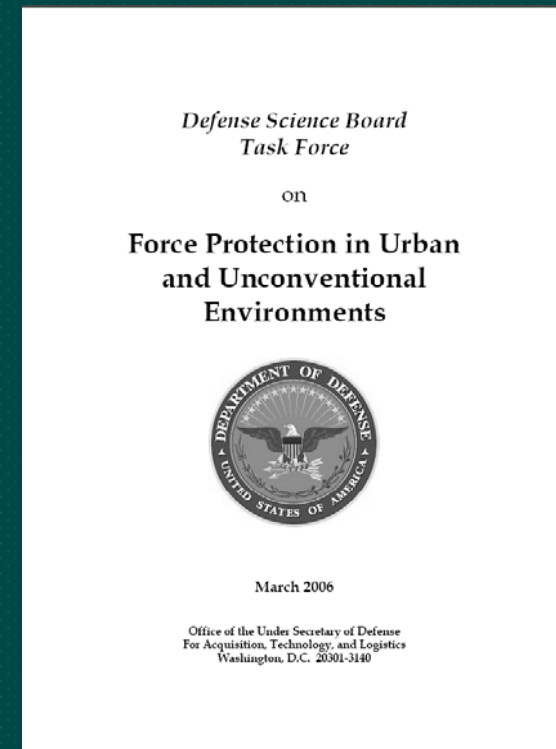
Field Manual 3-24, p. 1-29



Protecting the Force

“Force protection is not an end in itself . . . U.S. commanders have confronted, and will continue to confront, the dual responsibilities of (1) accomplishing the mission and (2) ensuring the safety of those under their command, while continually making decisions about the risks of each . . . there is both tension and synergy between these responsibilities . . . It may well be that exposing both combat and supporting forces to greater risk will result in a more rapid achievement of the mission and thus fewer casualties in the long run.”

Defense Science Board
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Creating Barriers

*“It is important to remember that **the most effective force protection measure in Iraq has been constructive ‘engagement’ with the local population . . . Many technologies, however, have tended to create barriers between U.S. military personnel and the local population, especially individual passive technologies (e.g. body and vehicle armor, protective glasses, etc.). In that sense, they may be counterproductive in certain settings.**”*



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MRAPs and COIN Doctrine

“Get out and walk” or “Get in and ride”?

“Get out and walk—move, work dismounted. Vehicles like the up-armored HMMWV [“Humvee”] limit our situational awareness and insulate us from the Iraqi people we intend to serve. They also make us predictable, often obliging us to move slowly along established routes. These vehicles offer protection, but they do so at the cost of a great deal of effectiveness.

LTG Ray Odierno
Commander, MNC-I
Counterinsurgency Guidance

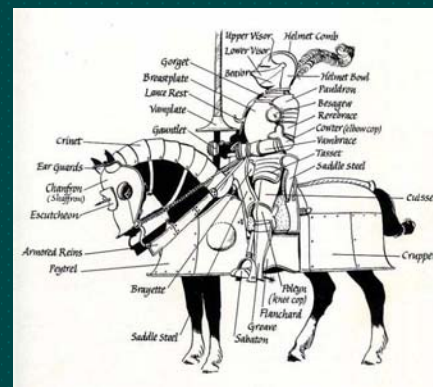


The Armor-Antiarmor Competition

Armor vs. Anti-armor

*“The knight adapted himself [to the crossbow] by shifting from mail to armored plate, and by using the crossbow himself. As his armor became heavier, the demand increased for bigger and stronger horses. But the horse too was vulnerable, and had to be given armor plate as well as the rider; this meant still bigger horses. Meanwhile the knight became so heavily armored that he was helpless in fighting except when mounted. **Eventually the whole development became a gigantic absurdity, which was fully recognized by many. James I of England was later to say ironically that armor provided double protection—first it kept a knight from being injured, and second, it kept him from injuring anybody else.**”*

Bernard and Fawn Brodie
From Crossbow to H-Bomb, 1962



Armor vs. Anti-armor

- The tank was introduced in World War I as a potential solution to the problem of bringing mobility back to the battlefield. It enabled firepower and men to cross the broken landscape and penetrate the enemy's lines.
 - But early tanks were prone to breakdown, lacked speed and agility, and were vulnerable to a variety of heavy weapons.
- Tank and armored vehicle development proceeded during the Inter-war years, culminating in the highly mobile and effective tank armies of World War II.
- But ways were found to defeat the new armored threat – handheld anti-armor weapons, “tank destroyers,” and bigger, heavier tanks.



Armor vs. Anti-armor

- The competition continues, with advanced technologies making possible better armor . . . and better anti-armor munitions.
- Countermeasures also come via new tactics or asymmetric approaches.
 - Employing very dispersed, small unit tactics.
 - Using airpower to attrite armor.
 - Attacking the supply line that sustains armored forces.
- Environmental conditions can also be leveraged.
 - The congested nature of urban operations.
 - Development of obstacles to slow and constrain armor.



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Second-Order Effects

MRAP and Second-Order Effects

*“It’s **much too heavy**, it **doesn’t perform well off the road**, and it’s a **logistical nightmare** in terms of [the] **fuel support** it needs. We are talking about tanks on wheels here.”*

Jack Keane, General, USA (Ret.)



- The general trend in armored vehicle fleet design is to **reduce the number of variants** and maximize the commonality of variants within a given class of vehicle—the greater the number of models, the more costly sustainment becomes.
- The HMMWV, FMTV, JLTV, and FCS programs **emphasize common platform components** within their respective vehicle classes.
- Furthermore, **MRAP fuel demands** exceed those of Humvees by a substantial margin.
- This means **more convoys on the roads** to meet the increased support requirements . . . convoys traveling in **lightly armored vehicles**.
- **Issue: Will we provide the enemy with more targets for their IEDs?**

Force Protection v. Mission Accomplishment

- There is an inherent problem in fielding an off-the-shelf vehicle not tied to an operational concept.
- The Humvee carries 4 troops; the MRAP, 6 (or more).
- **Issue: How do the Army and Marine Corps plan to use them vis-à-vis unit employment concepts? Are they tied to a four-man fire team, plus a driver?**
- If the same operational force is deployed, the number of vehicles would seem to remain same, with a potential doubling of fuel use.
- In a Humvee, everyone is essentially an operator—but the MRAP may require a dedicated driver and an “a-driver,” with the 4-man team in the back.



Issue: Will we require more troops to accomplish the mission?

Issue: If the answer is “yes,” what is the trade-off between increased armor protection and placing more troops in harm’s way?

MRAP and the Future Force

Designing for Future Threats

“Recognizing the our enemy is constantly evolving and changing his tactics, we are looking toward the future of vehicle armoring not just to combat his current capabilities, but also to prepare ourselves for future adaptations in the enemy’s tactics.”

General William Nyland, USMC
Asst Commandant of the Marine Corps
June 21, 2005



- The Services are routinely criticized for “fighting the last war,” yet some MRAP advocates seem to propose that the current enemy is a template for all future enemies.

USMC Expeditionary Concerns

“[The] Marine Corps views the MRAP vehicles as mission and theater specific and are not intended to become a program of record or retained in the permanent inventory. It is not a replacement for the HMMWV or the future Joint Light Tactical Vehicle (JLTV) mission. The size and weight of the MRAP precludes its use for many of the expeditionary missions of the Marine Corps where transportability must be considered.”



LtGen John Castellaw, USMC
Deputy Commandant
Programs and Resources
June 19, 2007



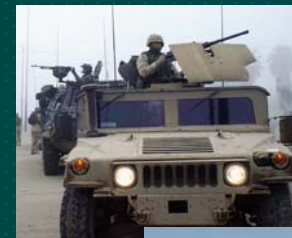
Deployability

- The Joint Light Tactical Vehicle (JLTV) is seen as the successor to the Humvee, as a light armored tactical vehicle
- The JLTV is intended to be externally transportable by heavy lift helicopters and internally transportable by C-130s
- MRAPs generally exceed the cargo bay dimensions and payload ratings of a C-130, and must therefore be carried by a C-17 aircraft or deployed by maritime transport
- Within a theater of operations, MRAPs are typically transported from the air- or seaport of debarkation to their area of operation via heavy equipment transporters



Beyond Iraq

- **Option A:** MRAPs as “Million Dollar Kleenex”?
- **Option B:** Cascade to “Build Partner Capacity” in other militaries?
- **Option C:** Long-Term Role in an Expeditionary Era?
 - What kind of wars?
 - Army and Marine Corps getting lighter—how to transport MRAPs vice light armored vehicles?
 - Marine Corps limiting MRAP buy owing to uncertainty regarding future utility.
 - Army moving from 70-ton tanks to combat vehicles weighing under 30 tons . . . yet,
 - . . . Humvees (6 tons) yielding to MRAPs (14-25 tons).



“Predicting is difficult—especially about the future.”

Victor Borge

Conclusions

- **MRAP promises to reduce casualties and is a near-at-hand response to the “moral imperative” to provide our troops substantial force protection.**
 - It contributes to a multi-faceted approach to defeating IEDs.
 - It provides an platform for EOD, demining, IED-hunting missions, and route clearance missions.
 - It arguably helps to maintain an environment conducive to sustaining an all-volunteer force, and to preserve the combat experience of, and institutional investment in, the joint force.
- **But, wholesale replacement of light tactical vehicles with MRAP would have potentially negative consequences:**
 - It runs counter to COIN doctrine, potentially compromising success in Iraq.
 - Second-order effects could complicate the force protection problem.
 - It does not appear applicable across the range of potential futures the Services must plan, organize, and equip for (to include complicating deployment of the joint force).
 - It imposes an opportunity cost on the Defense Department.

Commanders always face the difficult choice of how much to risk their troops to accomplish the mission. Given the human and materiel costs at stake, and the potential impact on mission effectiveness, a thorough analysis of this issue – one that addresses all the relevant factors, not only the most emotional – should be undertaken.

Questions?

