STRATEGY RESEARCH PROJECT

DOMINANT MANEUVER: STRATEGIC MOBILITY IN THE 21ST CENTURY

BY

LIEUTENANT COLONEL ROBERT N. TOWNSEND
United States Army

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U.S. ARMY WAR COLLEGE, CARLISLE BARRACKS, PA 17013-5050

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By

LTC Robert N. Townsend
United States Army

Colonel Michael J. Mestemaker
Project Advisor

U.S. Army War College
Carlisle Barracks, Pennsylvania 17013

ABSTRACT

AUTHOR: Robert N. Townsend (LTC), USA

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This study examines the Army's vision for dominant maneuver as outlined in Army Vision 2010. The thesis of the study is that the Army's vision for the year 2010 will exceed U.S. strategic mobility capability. The study examines the definition of dominant maneuver, the nature of future conflict, the strategic mobility triad, and emerging technologies. The study concludes that to achieve strategic dominant maneuver the Army must satisfy five imperatives: adopt a new view of conflict, make the force lighter, increase deployment speed, improve information management and increase deployment training.

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Dominant Maneuver - Strategic Mobility in the 21st Century

"Git thar fustest with the mostest."
— Confederate General Nathan Beford Forrest's prescription for victory.[1]

Joint Vision 2010 outlines a view of the future in terms of emerging operational concepts. One such future concept is Dominant Maneuver. Dominant Maneuver will be the multidimensional application of information, engagement, and mobility capabilities to position and employ widely dispersed joint air, land, sea, and space forces to accomplish assigned operational tasks. For the land component, dominant maneuver requires the Army to rapidly deploy the force directly to combat.[2] One of the critical enablers for the future power projection force is strategic lift.

Based upon the lessons of the Gulf War, The Department of Defense embarked upon an ambitious program to procure the necessary strategic lift to deploy a Continental U.S. based force. The Administration plans to spend $20 billion to acquire the necessary additional transportation capability between 1998 and 2002. Such an increase for mobility will compete with other procurement programs for increasingly scarce dollars.

The purpose of this paper is to determine whether the United States will have sufficient strategic mobility to execute the Army's 2010 vision of dominant maneuver. I will first define dominant maneuver, then review our current strategy, and finally, examine future challenges. Based upon my analysis of our current mobility strategy and future challenges, I will provide conclusions and make recommendations.

DOMINANT MANEUVER

Army Vision 2010 defines dominant maneuver as the capability to project, position and employ widely dispersed forces to accomplish assigned operational tasks. These forces will

deploy directly to combat from embarkation points around the world. Dominant maneuver will allow U.S. forces to gain a decisive advantage by controlling the breadth, depth, and height of the battlespace.[3]

Because of our deployable military strength, future opponents will likely rely upon asymmetical attacks. Asymmetrical actions pit enemy strengths against our weakness and maneuver in time and space to achieve decisive advantage. The United States will face adversaries who seek to offset our advantages by employing chemical and biological weapons, information attacks, terrorism or anti-access strategies. Asymmetric operations are particularly effective against forces not postured for immediate tactical battle. A deploying force is particularly vulnerable to attack.

U.S. Army ground forces cannot expect to deploy and build up combat power in the future as they did in the Gulf War without being challenged. We cannot assume our opponents will allow our forces to maneuver into position and achieve the advantage. U.S. forces will operate at extreme risk as the enemy attempts to outpace the American military response. The national command authorities cannot afford to grant an enemy time to organize his forces or to disrupt the deployment of American forces. Force protection issues make it equally dangerous to concentrate combat power in any one region too early.

This picture of future warfare suggests the need for change in the way Army forces posture for rapid deployment. The threat of weapons of mass destruction and the fragile nature of coalitions under crisis conditions makes an extended preparation of Army ground forces for an offensive close to the enemy's forces extremely risky.

Dominant maneuver requires that Army forces must move rapidly from widely dispersed staging areas overseas and in the continental United States into a crisis or regional conflict and

initiate an attack without pause.[4] A significant difference between operations in the 20th Century and those of the 21st will be that movement and maneuver as separate sequential activities will be replaced by strategic dominant maneuver. The Army of the future can no longer afford the operational pause of weeks or months at the port of debarkation to consolidate its forces before beginning operational and tactical maneuver.[5] The intent of DOD's current mobility strategy is to facilitate dominant maneuver in the future. Because this mobility strategy is supposed to support Army Vision 2010, it is appropriate for us to briefly review the components of the current strategy

CURRENT STRATEGY

One of the United States' core national objectives is to enhance our security with military forces that are ready to fight and win.[6] To accomplish this objective, the Department of Defense's (DOD's) current strategy is designed to credibly deter and, if required, decisively defeat aggression by projecting and sustaining U.S. power in two nearly simultaneous major regional conflicts (MRCs).[7] An example, of a common two MRC planning scenario involves another Middle East war and an invasion of South Korea from North Korea. The two MRC strategy assumes movement of forces from ongoing peacekeeping and other smaller scale contingency operations. Our strategy to deter and defeat aggression in two theaters is designed to ensure the United States maintains the flexibility to meet unknown future threats.[8] The current policy objective or desired ends is to provide national security through conventional deterrence. Our ability to respond rapidly and substantially as a crisis develops can have a significant deterrent effect.

The Department of Defense determined strategic mobility requirements in the 1995 Mobility Requirements Study Bottom-up Review Update (MRSBURU). The study examined

the mobility resources and the force structure projected for fiscal year 2001. Using the scenario of two nearly simultaneous major regional conflicts (MRCs), the DOD planning process matched various combinations of events against a four-phase scenario. First was the halt phase to stop the enemy, where speed is of the essence and rapid effective airlift essential; this followed sequentially by a full military buildup phase, a counterattack phase and a postwar stability phase. Because of the need to move heavy equipment and large tonnages, sealift is essential in the buildup phase and to maintaining the force thereafter. Prepositioned equipment, when properly configured and strategically located, greatly improves the probability of effective and timely response.[9]

The Army's goal for the year 2001 is to project a light brigade in four days; a light division in 12 days; two heavy divisions in 30 days and a five division contingency corps in 75 days anywhere in the world. This goal is nearly three times faster than the deployment rate we achieved during the Persian Gulf War. To accomplish this power projection mission, the Army relies on the strategic mobility triad of airlift, sealift and prepositioned equipment.[10]

Airlift, with available prepositioning, provides for rapid delivery of initial units, with sealift delivering the bulk of heavy forces and supplies during the buildup. Sealift will continue to deliver the bulk of material needed to sustain force operations. The majority of deploying personnel, however will be airlifted. Aerial refueling capability will permit nonstop deployment of tactical aircraft and extend the range of airlift aircraft when needed.[11]

The 1995 MRSBURU study established an inter-theater airlift objective of between 49 and 53 million-ton miles per day of cargo airlift capability to meet our current deployment strategy. The precise amount of airlift required depends on the level of prepositioned equipment in theater.

The current U.S. airlift capability is 46.4 million-ton miles per day. The continued fielding of 120 C-17 aircraft will close the airlift gap.[12]

DOD plans to meet future airlift requirements by a combination of military aircraft and the Civil Reserve Air Fleet (CRAF). The Air Force meets the strategic military airlift requirements by a mixture of C-17, C141 and C5 aircraft. The C141s are aging rapidly and will phase out over the next 10 years. The current plan is to procure 120 C17 aircraft to provide strategic lift.[13] The Army places heavy reliance on CRAF, which consists of passenger and cargo aircraft that commercial carriers have agreed to make available for military requirements. Civil aircraft can provide significant support in moving people and light cargo, but are limited in their ability to carry a range of military equipment or outsized cargo.[14]

Approximately 90% of the Army's strategic movement will be by sea. Sealift comes form several sources: government-owned ships, commercial ships under long-term charter to DOD, and ships operating in the commercial trade. The major demand is for roll-on/roll-off (RO-RO), container and tanker ships. DOD will decrease use of slower off-loading breakbulk type ships in the future. To meet the projection force timetable called for in contingency plans, RO/RO and similar ships must be available and ready on short notice. The 1995 MRSBURU study recommended surge sealift capacity of 10 million square feet for a one-time lift to move initial forces to a single MRC. DOD currently has 7 million square feet. The 10 million square feet shipping capability consists of fast sealift ships, large medium-speed roll-on/roll-off (LMSR) vessels and the Ready Reserve Force.[15]

In 1997, DOD established a sealift version of CRAF called the Voluntary Intermodel Sealift Agreement (VISA).[16] This program provides contractual access to vessels to support

sustainment and current surge requirements. Commercial VISA ships make up the 3 million square feet shortfall of military sealift.

Prepositioning is also part of the Army's overall mobility plan. This is a combination of materiel and equipment ashore and afloat. The Army established regional pre-position equipment stockpiles forward in theater supporting multiple regional commander's in chief. Land based sets consist of: two heavy brigade sets in Central Europe, a third set in Italy, a fourth brigade set in Kuwait, an armored battalion task force in Qatar, and a fifth armor brigade set in Korea. The Army has also established an armored brigade set of equipment afloat in the Indian and Pacific Oceans designed to deliver heavy forces early in a crisis. The Army will complete the expansion of the afloat program in FY2001. The Army's equipment prepositioned capacity will increase from 1 million square feet to 2 million as recommended in the MRSBURU to provide for an additional brigade set and logistics equipment.[17]

Joint and Army doctrine recognize that force projection consists of more than just the mobility triad of airlift, sealift and prepositioning. Force projection is the ability to rapidly alert, mobilize, deploy, and operate anywhere in the world. Leaders sometimes refer to force deployment as a, "fort to foxhole", process. Three components of the deployment process include:

- Movement to the Port of Embarkation (POE)
- Strategic lift
- Theater reception, Staging and Onward Integration (RSOI)[18]

The Army developed its own strategy, known as the Army Strategic Mobility Program (ASMP). The ASMP objective is to fully implement and integrate the components of the strategic mobility triad consisting of airlift, sealift and prepositioned equipment with the

requirements of the MRSBURU. The triad and AMSP work together to meet requirements of the National Military Strategy. The Army has sought to improve its fort-to-port movement capability by enablers such as infrastructure improvements, railcar and container procurement, watercraft development, and training programs. The Army plans funding for improvements for FY 95 through FY 2001 to total approximately $719 million. Infrastructure improvements include rail, airfield, warehousing, and road upgrades.[19]

Congress and DOD have placed the most emphasis on strategic lift. However, the last leg of the deployment system, RSOI, presents a significant seam in the deployment process. RSOI requires the command and control, intra-theater cargo planes, heavy-duty trucks, trains, and smaller watercraft to move troops and equipment from ports of debarkation to the battlefront. As part of the ASMP, the Army purchased specialized watercraft to enhance theater over-the-shore reception operations in underdeveloped theaters.

Information technology is a critical enabler for all of the components of force projection described above. Automated tools can assist staffs to quickly plan and obtain accurate movement tracking to more rapidly deploy the force. The Army's progress toward modernizing the information system has been slow, primarily due to insufficient funding and disagreement as how best to combine current stove-piped information into an inter-Service common operating environment. The Army has begun to make progress toward applying information technology to the deployment process. In the power projection field, the most notable potential is the Transportation Coordinator's-Automated Information for Movements System II (TC-AIMS II) and the Army's Total Asset Visibility System. The link between TC-AIMS II and the Total Asset Visibility System is the Global Transportation Network (GTN). GTN provides an integrated database consisting of in-transit visibility (ITV) and Command and Control data from

approximately 30 different individual Service and DOD Agency Systems. This integrated database is intended to provide DOD with the single most complete view of ITV data for Defense Transportation System (DTS) customers throughout the world.[20]

We have briefly reviewed the status of the strategy, resources (mobility triad), doctrine, and information technology that should enable dominant maneuver. Although the recent improvements and future programs look promising for strategic mobility, the leadership of the Army must consider and address future challenges to the dominant maneuver vision.

FUTURE CHALLENGES

The challenges to the Army's vision of dominant maneuver will include a shortfall in our strategy, changes in private sector transportation capability, a trend toward heavier forces, potential seams in the deployment process and information management requirements.

The current force projection strategy is based upon a Gulf War protracted four phase paradigm -- the halt phase to stop the enemy, followed by a buildup phase, a counterattack phase and finally a postwar stability phase. Future victory in land warfare as outlined the Army's vision for the year 2010 will depend on the ability of Army Ground Forces to deploy quickly and advance rapidly in great strength into the depths of the enemy's territory. Phased deployment operations will encumber dominant maneuver. To achieve dominant maneuver, forces must deploy from debarkation ports directly into combat. Army Vision 2010 states that rapid global maneuver will fundamentally neutralize the enemy's military capability, ensure a rapid collapse of his command system, and terminate the conflict.[21] However, the Army's goal is a rapid and continuous flow of troops and equipment to minimize, not eliminate, a lengthy build-up phase

Although the Army of 2010 will be a strategically viable force, there could be a significant gap between enemy initiated action and the time it takes the Army to deploy a force capable of

defeating the enemy. This gap defines the degree of associated risk. Early in the deployment process, the enemy has the ability to take the initiative and prevail due to his relative advantage against our inadequate combat power. The enemy will gain the advantage from our inability to move overwhelming force fast enough.

To meet the intent of the 2010 vision, the Army must shift away from the protracted four-phase deployment and counterattack paradigm. We must adopt a view of conflict that stresses early application of decisive force, without pause, to preempt the enemy's ability to strike early and gain the operational and tactical advantage.[22] Military capability that is vulnerable to preset timelines risks enemy attack of those timelines. Delay in decisively and quickly halting an enemy may force a difficult and costly campaign to recover lost territory. The asymmetric threats to coalition support, deterrent creditability, and incentives for other adversaries to begin conflict elsewhere are real.[23]

The second challenge facing the Army in projecting forces is that DOD does not have sufficient military lift to achieve our ambitious deployment timelines. Therefore, the Army must rely upon the civil sector to make up the difference in what is required and what military lift can provide. Important trade-offs exist between relying on the commercial sector for transportation during wartime and investing in DOD's own mobility fleet. The major advantage of relying on commercial ships and planes is that it allows the U.S. to avoid much of the cost of procuring and operating those forces during peacetime, freeing up more resources to modernize combat equipment.

Today, fewer commercial planes and ships are suited to DOD's needs. For example, the private sector may not be able to make its planes and ships available as quickly as the crisis requires or it may be more reluctant than the military to travel into dangerous situations.[24]

Commercial sealines own very few roll-on/roll-off ships that are modified for transporting heavy military vehicles. Similarly, commercial aircraft do not have the wide, unobstructed cargo holds and reinforced floors needed to move heavy military cargo. Looking to the future, we should review, in detail, some the challenges to airlift and sealift.

It is unlikely that the U.S. government could provide the incentives necessary to further expand commercial airline participation. The experience of the Gulf War made the large air carriers aware of the significant business risks associated with participation in the Civil Reserve Air Fleet (CRAF) program. The economic consequences to the U.S. air carriers during a full activation are potentially profound. A full call-up would draw the overwhelming majority of aircraft from the large carriers.

The airlines are also reluctant to expand their participation due to their concern over DOD's Indemnification program. The government sponsored war claims insurance is currently under funded. Therefore, if a carrier files a claim for indemnification, and funds are unavailable for settling the claim, DOD must request additional funds from Congress to reimburse the carrier. The airlines are concerned about potential delays in settling claims. Commercial insurers typically settle claims with airlines within 48 hours. Because carrier-operating expenses are high, cash flow is an important consideration.[25]

Commercial aircraft cannot carry outsized cargo, are not air refuelable and require special ground handling equipment at destination airfields. Additionally, today, over 30% of the U.S. commercial air fleet is leased, and this could reach 60-70% within the next ten years. Most of the ownership of these leased aircraft belong to foreign corporations. This works against the flexibility of CRAF to provide aircraft to DOD since foreign owned aircraft are excluded from participating in the CRAF program.[26]

There are similar problems our sealift capability. Our sealift capacity comes from three sources: commercial trade ships, DOD long-term charter of ships, and government owned ships maintained in reserve status. The majority of military equipment and sustainment is moved by sealift in both peacetime and contingency operations.

The limited size of the U.S. Merchant Marine, coupled with extremely large volume of ocean transport, has increased this country's reliance on foreign flag shipping. Today, more than 95 percent of U.S. international trade is moved in foreign flag vessels. The U.S. owned, U.S. registered merchant fleet is the eleventh largest in the world. Of these ships, 30 percent are over 25 years old. The numbers and capabilities of ships under construction in the United States are not sufficient to sustain the present number of merchant ships given the large number approaching the end of their service life. Many of these ships under construction are special purpose, such as the liquid natural gas tankers and have very little logistic value. Others have limited or no capability for loading/offloading themselves, which restricts their use to developed ports.[27] To obtain surge sealift capability, the Military Sealift Command must charter U.S. and foreign vessels when needed. This contract sealift requires the Army to rely upon foreign crews and ships during time of war. Contract Foreign flagships are only available at the discretion of the carrier.[28]

The problems facing expanded use of commercial sealift assets are: the age of the U.S. fleet, the precipitous decline of the U.S. Merchant Marine, and the uncertainty of contracting foreign carriers. Although the U.S. used foreign carriers extensively during the Gulf War, DOD officials contend that in the future we may not have the same degree of cooperation from the international community. If the U.S. had faced a foe more capable of interdicting sea-lanes than

Iraq, commercial charters might have found the task too risky. Currently, U.S. flag ships and crews are simply not available in sufficient quantity.[29]

A third requirement to achieve the mobility required by Joint Vision 2010 are ground forces that are lighter, more versatile, and more projectible than today. Because of constrained procurement dollars, it is likely that we will fight the wars of 2010 with much of the equipment in our motor pools and flight lines today. In fact, we are building a strategic mobility capability to project the force structure and equipment of 1990 instead of 2010. Rather than getting lighter, ground units are actually getting more bulky. Army Mechanized units are nearly 50 percent heavier than just before Desert Storm.[30] The Army is making decisions today that will continue this trend. An example, is the Army's procurement of the Crusader 155mm advanced artillery system that weighs nearly 70 tons. This weapon system will stress strategic mobility requirements and battlefield evacuation.[31] At the same time, the Army also rejected the Armored Gun System – a light, lethal and deployable weapon system.

The potential choke point for force projection and dominant maneuver is the seam between strategic and theater mobility. This seam is the theater reception and onward integration component. This portion of the deployment offers the greatest amount of unknowns and highest degree of risk. The ground force must possess the technology to overcome limited theater infrastructure. For example, one half of the commercial ports in the world today are not equipped to handle our LMSRs. The Army needs a viable over the shore force projection capability to overcome this limitation. However, today our Logistics Over the Shore (LOTS) capability is unsatisfactory. It is only capable of delivering forces and equipment through sea-state two (waves 1.5-3.0ft and wind 5.0-12.7kts). Theater commanders require capability to operate through sea state three (waves 3.5-5.0ft and winds 13.7-16.4kts).[32]

Dominant maneuver is further encumbered because there currently is no single organization responsible for planning and conducting RSOI operations in a theater of operations. To facilitate a direct strike on operational objectives, the arriving forces must overcome delays associated with port of debarkation discharge, cargo transfer, unit marshalling and throughput of supplies. By the year 2002, we will have the strategic lift to overwhelm the, "arrival port to foxhole" portion of our total "fort to foxhole" deployment capacity. We will have the capability to rapidly move the force to the port of embarkation, transport them to the theater, and then slow the tempo as we off-load, marshal in vulnerable assembly areas and wait to move forces to battle.

To accomplish all this requires advanced information technology. The present Army logistics information system is far from state of the art. A collection of stove-piped systems, poor interoperability, inadequate communications capability, complicated; non-responsive and expensive to operate processes are just a few of the terms used to define the system. Effective information technology promises to move the Army away from its practice of supply by saturation and transition into an era of logistics characterized by precision delivery. The Army must also ensure effective interoperability between the military and commercial logistics information systems (carriers and suppliers) as we come to rely more heavily on the private sector for logistical support. The Army's approach to improving information technology has had problems. Rather than constantly updating the information system to at least keep pace with technology, the Army strategy has been to search for leap-ahead technologies for information. Generally, this strategy has not been successful, since the Army transition to the latest technology is a lengthy process and very expensive.

CONCLUSIONS

Having examined and analyzed the definition of dominant maneuver, the current strategy and future challenges, we can make some conclusions regarding the Army's ability to achieve dominant maneuver.

The desired end-state of U.S. policy is to credibly deter and, if required, decisively defeat aggression. The national strategy to achieve the end-state is to rapidly project and sustain U.S. military power. Our resources consist of military forces and their power projection capability. The Army Vision 2010 describes a deployment capability that will create an image in the mind of an adversary of an unstoppable force of unequaled domination. For the land component, dominant maneuver requires the Army to rapidly deploy the force directly to combat.

Current trends in the strategic environment indicate that time for mobilizing and massing forces to attack is likely to be short. The political fragility of future American-led coalitions under the weight of regional conflict and the impact of instantaneous communications on public perceptions of military operations will not improve this situation. For these reasons, the readiness and ability to deploy quickly will be more important than ever before.

The DOD has implemented the 1995 MRSBURU strategic deployment enhancement initiatives. By the year 2006, the strategic triad of force deployment will be sufficiently healthy to execute our current four-phase deployment strategy (halt, buildup, counterattack and stability). However, this four-phase deployment paradigm is out of step with the Army's vision of dominant maneuver. To achieve dominant maneuver, the ground forces must eliminate the lengthy build up phase. Our potential enemies undoubtedly have learned from our doctrine and past operations that they must quickly apply asymmetrical threats to disrupt our efforts to build

up heavy lethal forces. Without additional significant enhancements, the Army of 2010 will not have the strategic mobility to execute its vision of dominant maneuver.

The Army vision to achieve dominant maneuver by 2010 through the critical enabler of strategic mobility is hindered by limitations to expand private sector lift participation, increasingly heavier force structure, transportation velocity and the limitations of the theater reception and onward movement capabilities. The most cost-effective solution is to increase the volume and accuracy of strategic lift in order to apply forces at decisive points.

To provide a seamless fort to fight capability we need to change the way we visualize the strategic transportation component of force projection. Instead of defining the strategic mobility system to Congressional funding authorities as merely a triad of airlift, sealift, and prepositioning, we should depict it as a pentagon which integrates CONUS transportation, airlift, sealift and theater lift. Greater emphasis on all five components of strategic mobility will speed force projection by eliminating seams in the deployment process.

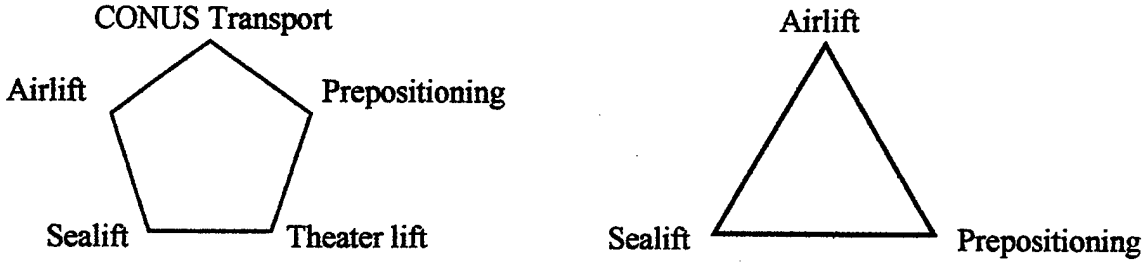

Figure 1 – Strategic Mobility Architecture

Clearly, the strategic deployment component of dominant maneuver outlined in the Army Vision 2010 is valid against the most likely and most dangerous threat in the near future. However, DOD must quickly act beyond the initiatives contained in the 1995 MRSBURU to achieve the 2010 vision for dominant maneuver. The 1995 MRSBURU outlines capabilities to

support the Army's 1995 doctrine and force structure– not the vision of 2010. The Army needs a new strategic mobility plan that is designed to support the vision of dominant maneuver.

RECOMMENDATIONS

To achieve strategic dominant maneuver, the Army must satisfy five imperatives: adopt a new view of conflict, lighten the force, increase deployment speed, improve information management and increase deployment training.

In a new view of conflict, the halt phase may be planned as the conflict's decisive phase, not as a precursor necessarily to a build-up of ground forces. The point of the decisive halt is to force the enemy beyond their culminating point through the early and sustained overwhelming application of air, ground and space power. As the initiative and options of the aggressor decrease over time, U.S. and allied options or branches and sequels increase. As the decisive halt phase unfolds, political and military leaders will continue assessments. We may have attained our security objectives in the halt phase. Diplomatic initiatives may conclude the conflict, or a build-up and counteroffensive may be required. The global range, speed, and flexibility of air, ground and space forces can bring a new paradigm for warfare to reality.[33]

Although today's Army is very powerful, it is too heavy and unwieldy for the demands of our 2010 vision. The Army must design units that can deploy anywhere from the United States within 48 to 72 hours, and be lethal enough to win the battle once on the ground. Our heavy forces must retain their lethality while gaining the strategic agility of our lighter early deployable units. Today, the average mechanized division consumes approximately 94,000 tons of lift. This figure equates to five tons per soldier. As our weapons systems get heavier, so too does their logistical appetite. The measure of fuel consumption for main weapons platforms has grown from miles per gallon to gallons per mile.

To achieve the mobility required for dominant maneuver, our goal should be to reduce the deployment requirement from five tons per soldier to something closer to one ton per soldier. Such a reduction would make the force more rapidly deployable and agile. We need a joint, combined arms expeditionary force that can rapidly deploy directly into the fight, with compact devastating firepower and innovative means of protection. We have built and cling to an Army that cannot deploy fast enough to meet the new view of conflict. Our units are too big, too slow, too hungry, too thirsty, and ultimately too fragile to deploy piecemeal. Our heavy forces rely upon staging, in theater, what amounts to an entire civilization of support infrastructure.[34] To achieve this drastic reduction of our logistical tail, we need engines that are more fuel-efficient and firepower systems that reduce the need for bulky cased ammunition. The Army must continue to procure precision munitions that will reduce the iron mountain of ammunition required by our current weapons systems.

A significant increase in the deployment speed requires faster ships, more agile tactical formations, and improved RSOI capability. The longest timeline associated with force deployment today is the strategic sea movement. Strategic movement consumes 54% of the total fort to fight timeline. This deployment component is limited by the time-distance-technology constraints of today's ships. The Army and DOD should, in partnership with industry, exploit the potential of high-speed shipbuilding technology. Significant commercial interest and progress is available in high-speed ships. Several shipbuilders stated they could begin building commercial and militarily useful high-speed ships now. However, seagoing technical enhancements are available in the near term to significantly shorten the strategic lift timeline.

Today's commercial state of the art high-speed ships are fast ferries designed for passengers, cars and buses. These vessels are large aluminum catamarans with water jet

propulsion, powered by gas turbines. They carry 300 cars or buses and 1000 passengers can travel at 45 knots over a distance of 500 miles. Shipbuilders indicate, that with today's technology, they could design a modified catamaran (built with some composite materials) to carry 2,000 tons of payload. This ferry would have 200,000 square feet of deck area, load and unload in four hours, and travel over 3,500 miles at speeds approaching 60 knots in up to Sea State six waves.[35]

DOD could arrange a contingency program (similar to the VISA and CRAF) if acquisitions and operating costs of high-speed ships prove low enough to allow them to be commercially successful. However, the costs of overcoming technological challenges and prototype construction may be higher than the commercial sector will bear. Considering the significant military implications, this is an area that warrants DOD investment to spur development of technology. Such vessels, if proved technically and commercially successful, could provide powerful advantages to the U.S. commercial transportation industry and U.S. military capabilities.[35]

Another method to achieve a significant improvement in strategic mobility is for the Army to redesign its tactical formations. To obtain a real advantage from rapid deployment, Army forces must be structured, equipped and trained to execute offensive operations almost immediately on arrival in a theater of conflict. Ground forces must organize as more deployable unit packages, to minimize pre-deployment activities and lengthy assembly area operations. The Army should reorganize the current division structure into smaller joint/combined arms echelons. Experience has shown us that ground units composed of between 3,000 to 5,000 troops are most deployable and effective.[36] These expeditionary formations should be permanently task

organized and armed with the required C4I capability, sophisticated light armor, advanced recon-attack helicopters and rocket artillery to deploy and move quickly in theater to survive and win.[37]

The Army can improve their performance across the seam between strategic lift and in theater transportation by improving the integration of RSOI activities with the other Armed Services. No single theater organization is currently charged with the responsibility for RSOI. The Army should offer the proposed Theater Support Command (TSC) as the responsible headquarters to integrate forces into the theater from their port of arrival. To be effective, the TSC requires command and control authority for joint functional logistics organizations for planning and operating theater RSOI actions.

The global nature of strategic dominant maneuver will rely heavily upon automated enhancements to logistics, communications, and intelligence capabilities. Improvements to RSO&I and sustainment timelines require better information technology. As a crisis unfolds, the commander needs an accurate intelligence picture of the infrastructure available in theater. The dissemination of the theater capability will drive adjustments to the unit Time Phased Force Deployment Data (TPFDD). A faster and more accurate tracking and reporting system is essential to precision maneuver and logistics. The TPFDD process must extend throughout the RSOI process. The current TPFDD stops tracking forces upon their arrival at the port of debarkation. Planning and tracking must flow the units from mobilization to employment.

A significant limitation to reliable global information transmission is the available communications bandwidth. The Army should form a partnership with industry to speed the marketing and launching of commercial low-orbit communication satellites. This partnership will lead to cheap ubiquitous communications in theater. Combined military and commercial communications customers will also make the satellites less vulnerable to enemy attack. Most

adversaries will be reluctant to destroy satellites that support their own commercial and military needs. Automation tools integrated into a redundant global communications network will help streamline and speed forces and supplies directly to the battle area. This will help eliminate huge and vulnerable stockpiles of supplies awaiting onward movement.

The Army could also accelerate the implementation of dominant maneuver by incorporating more force projection activities into simulation based war games. Currently, most simulations begin with forces in theater, ready to fight. These simulation scenarios usually do not incorporate strategic deployment and onward movement into the situation. All future simulations should address how to operate the deployment system and the impact of both friendly and enemy action. Commanders will learn how to employ and improve our strategic deployment system to achieve dominant maneuver in a bloodless environment. Realistic simulation-based training will provide the link to operation analysis and planning. Training simulations must incorporate the deployment sequence in the battlespace. This training will integrate and link force projection throughout the entire spectrum, from strategic through the tactical level.

The 1995 MRS BURU provides a roadmap to create a strategic deployment capability to support a 20th century strategy and view of war. By the year 2006, we will finally have the resources to project the force to support the strategy of 1995. For the threats outlined in Army Vision 2010, we need a lethal force that can get there fast and ready to fight. This study has identified the technology, doctrine, and force structures that would facilitate the Army's ability to rapidly deploy and achieve dominant maneuver. The Army should implement these recommendations now to influence the year 2010. We cannot continue to study the problem and

simply validate current trends. We must implement a new mobility strategy that supports the Army's vision for dominant maneuver in the 21st century.

Total word count: 5807

ENDNOTES

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