USAWC STRATEGY RESEARCH PROJECT

U.S. ARMY ENGINEER SUPPORT TO EXPEDITIONARY WARFARE

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ABSTRACT

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The Army's efforts to project power from the continental United States is dependent on the Army's ability to deploy a full-spectrum land force capable of engaging future asymmetrical threats. Studies have shown that current airlift assets are incapable of meeting the nation's strategic needs in a single Major Theater of War (MTW). Therefore, sealift must fill the vital role deploying follow-on and sustainment forces necessary to support tactical and strategic operations. The Army Chief of Staff's mobility requirement stipulates that Objective Force units will arrive in theater within 96 hours, a division within 120 hours, and five divisions within 30 days. In order to fulfill these requirements, the Army and the Navy is considering the acquisition of high-speed sealift platforms incorporating shallow-draft capabilities necessary to fulfill future strategic mobility requirements. High-speed sealift vessels like the Large Medium Speed roll-on/Roll-off will enable follow-on forces to arrive with days of the first unit departure. Investment in high-speed sealift vessels is worthless if equipment cannot leave the harbor or cross a shoreline because of undeveloped infrastructure in the area of operation. In view of many other Army transformation requirements, Army transportation units have made progress in their capability to support deploying forces but movements to an inland transportation system require engineer units that have made no transformation. This strategic research paper discusses current engineer capabilities, explores future modular unit concepts, and proposes construction equipment acquisition or leasing arrangement for ensuring mobility for expeditionary warfare.

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PROBLEM

Seventy-six percent of the U.S. Army's engineering capabilities are in the Reserve Component. Current configuration and training of engineers does not support the rapid call up for worldwide deployment to support the Chief of Staff of the Army's timeline for having large scale units on the ground prepared to execute missions within 96-120 hours and 30-day periods required by the Army vision. A possible solution is to move these units to the active component. Relocating the units will produce better equipment availability but not necessary better-trained units. The Army Engineer Regiment and the United States Reserve Command must optimize the engineer structure to better support each facet of future operations specifically those stemming from force entry.

FACTS BEARING ON THE PROBLEM

Today's Army Engineer Regiment is structured largely the same as it was in World War II with its layered approach of providing engineering capabilities throughout the area of operation. A complex hierarchy of command and control that often duplicated the capabilities found at another layer accompanies each layer. Though the Regiment has undergone a considerable amount of modernization efforts, it has not kept pace with technological advancements seen in other branches of the Army. Each unit carries an ample supply of tools and an equipment resource that makes the engineer units have an impressively large footprint on the battlefield. Although engineers have always been responsive in the full spectrum of combat operations, engineer units are sub-optimized for a full spectrum challenge because they are not scalability or tailor-able organizations.

The intent of this paper is a critical analysis of the current organization of combat engineers. General and specific concepts for change are to stimulate thought and evaluation. This analysis does not consider cost of equipment equipment, facilities, and time. These recommendations, if implemented, will have a profound strategic reshaping affect on engineer units in the U.S. Army Reserve. United States defense strategy focuses on a "capabilities-based" approach of warfare that focuses on how an adversary might fight than who the adversary might be.[1] Secretary of Defense Donald Rumsfeld stated, "We do not know the true face of our next adversary or the exact method of engagement. The next threat may come from terrorists, but it could come in the form of attack, or it may take the form of a natural or man-made disaster."[2] Preparing to respond or preempt this allusive adversary anywhere in the world broadens the responsive capabilities required of the military.

> "Where history is not available, man faces his present empty-handed. Thus, he hardly recognizes a way into the future because he lost sight of where he came from."[3]

To determine where we are going, it is necessary to review the past. The Cold War Army established a large presence in Europe. Equipment was stored throughout allied countries to support a rapid expansion of the force by flying soldiers in from continental United States (CONUS). Units not required for halting the invasion of Warsaw Pact countries were placed in the reserve force. This Cold War Army structure gave the United States the capability of winning decisively in Desert Storm. Getting soldiers and their equipment to the desert also identified transportation weaknesses, needed to fix as the U.S. Army transformed to a force projection power from CONUS. Repositioning of equipment out of Europe and into regions where potential battles were most likely to occur provided new flexibility to the Army. However, organizations were still configured for full-spectrum warfare in a Major Theater of War (MTW) that assumed U.S. would have time for forces to build. Active duty forces initially handled minor contingency operations in Haiti, Somalia, Bosnia, and Kosovo with reserve forces flowing in later. These operations revealed a weakness in the Cold War unit structure in dealing with the challenges brought on by the changing strategic landscape. The Army had not optimized the force structure for discrete and rapid strategic response. Operation Enduring Freedom and Iraqi Freedom acutely underscored the shortfalls of Army force design, ultimately putting the need for transforming combat organizations on an accelerated time schedule throughout the Army.

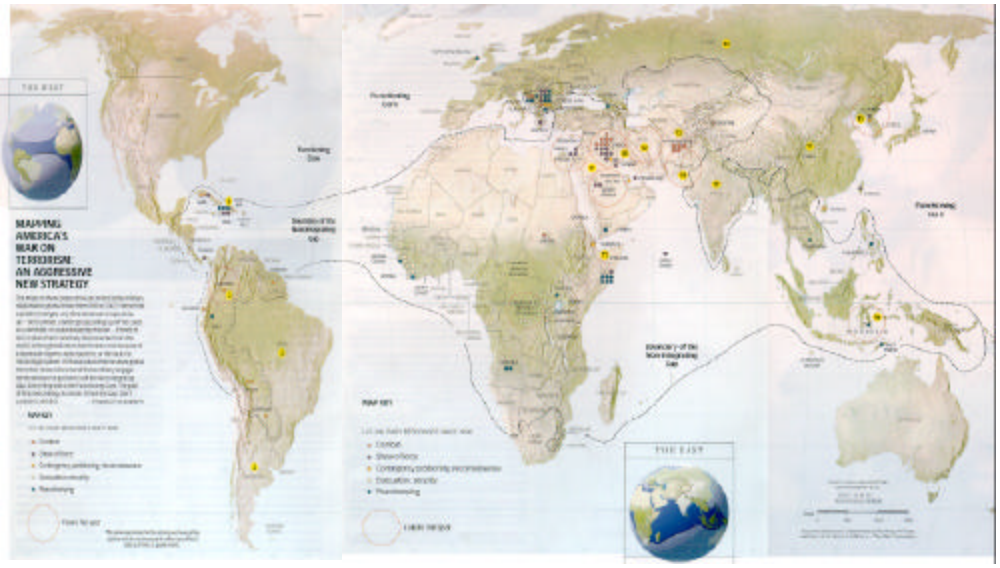
The Army has wrestled with "broaden the portfolio of capabilities" while reducing the footprint for the past four years. The introduction of the Stryker Brigade Combat Team (SBCT) provided a lighter force structure that is capable of conducting combat operation throughout the full spectrum of military operations (offensive, defensive, stability, and support). The SBCT is structured to deploy rapidly and sustained itself with an austere support structure for up to seventy-two hours. The capabilities of a SBCT will bridge the gap between the light and heavy forces beginning at peacetime military engagements, smaller scale contingencies and into MTW. A single engineer company serves as the SBCT's primary enabler for mobility. The engineer company consists of three engineer mobility platoons and one mobility support platoon. However, contingencies that require survivability positions or construction capabilities require additional engineer assets.[4]

As requirements dictate, additional combat forces can deploy from force projection platforms in CONUS utilizing the Strategic Mobility Triad (SMT).[5] Developed after Desert Storm,

SMT includes the technologies of strategic sealift, airlift, and pre-positioned stocks. Pre-positioned sites have one or two heavy brigade sets of equipment readily available throughout the world. Strategic airlift moves soldiers into theater to link up with the pre-positioned or with equipment just arriving by sealift. Divisional engineer equipment in the Army Pre-positioned Stocks provides support to the maneuver brigades but has limited capability to support units performing Joint-Logistic-Over-The-Shore (JLOTS) or Receiving-Staging-Onward movement-and-Integration (RSO&I) operations. In the most recent military operations, engineer support was not critical because host nation support provided modern airfields and ports fully equipped with a robust infrastructure.

WHERE IS THE ARMY GOING?:

Thomas P.M. Barnett, an Assistant for Strategic Futures in the Transformation, Office of the Secretary of Defense, has written extensively about globalization and its affects on countries that have embraced the new global rule set and those countries that will not or cannot achieve a global position.[6] Barnett purposed that countries with growing economies have improved living conditions and have accepted globalizations are in the “Core” of the globalizing world. Those countries in abject poverty or that have rigid political cultural differences or refuse to align themselves with the Core countries fall into the “non-integrate Gap” category (Figure 1).[7] Using data from the 1980 Center for Strategic Studies, Barnett traced U.S. military involvement over the past twenty years. According to Barnett, “If we draw a line around the majority of those military interventions, we have basically mapped the Non-Integrating Gap. Obviously, there are outliners excluded geographically by this simple approach, such as an Israel isolated in the Gap, a North Korea adrift within the Core.”[8] His analysis indicated that more time and military effort was spent dealing with countries inside the Gap. Problems from these countries inside the Gap, (predominately terror, drugs, and pandemics from non-governmental players as well as ineffective governments) determine where the U.S. military will most likely deploy to in the prosecution of the Global War on Terrorism (GWOT). Deploying units will likely find these areas have poor infrastructure, limited points of entry, and little host-nation support, and widely disparate climates, terrain, and cultures.



NOTE: reproduced with permission from author: Thomas P.M. Barnett and map author: William McNaulty.

FIGURE 1 WORLD MAP WITH NON-INTEGRATION GAP DEFINED

The Army's ability to gain and sustain access into these theaters is critical to the success of future operations and could be the center of gravity during the entry phases. A judicious study of operations in Operations Desert Shield and Iraqi Freedom revealed that Saddam Hussein could have used conventional or weapons of mass destruction (WMD) on the ports of debarkation (POD), seaports, and the airfields.[9] Complicating the build up of U.S. forces could have won Saddam Hussein the initial battle as well as the critical information war that would have crumbled the Arab coalition. Due to size and known locations of sealift assets and ports of debarkation, targeting is still a relatively simple task. Equipped with conventional munitions or WMD, any adversary force, whether a state-sponsored or transnational actor, can deny or impede access into the region. General Ronald Fogleman, then Air Force Chief of Staff, summed it all up when he said:

> saturation ballistic missile attacks against littoral forces, ports, airfields, storage facilities, and staging areas could make it extremely costly to project U.S. forces into a disputed theater, much less carry out operations to defeat a well-armed aggressor. Simply the threat of such enemy missile attacks might deter U.S. and coalition partners from responding to aggression in the first instance.[10]

Saddam Hussein's failure to act has not been lost on U.S. future adversaries, especially with the proliferating weapon systems and commercial information technologies that enable

them to track movements into their regions. The Army Training and Doctrine Command (TRADOC) addressed this point in the *Force Operating Capabilities* pamphlet stating, “The threat’s overall strategy to preclude theater access will take many forms, and likely comprise varied and simultaneous operations across the theater.”[11] U.S. success during the past two Gulf Wars has proven that ground forces have the capability of winning if allowed to gain access through ports and build up strength.

History has shown that engineers are critical enablers who have made considerable contributions to the success of military operations. Future deployments will not change the paradigm and transitioning the military to a leaner force structure does not dismiss the critical role of the engineer. Supposing Barnett, General Fogleman, and TRADOC literature are correct, the U.S. is going to deploy its military to regions of the world that will require JLOTS. Ninety percent of all cargo by weight is still be transported by sealift.[12] Mission will determine the size of the force and duration of the operation. RSO&I process for linking soldiers up with their equipment will continue to grow with the size and duration of the operation.[13]

By current doctrine and assuming the worst-case scenario, seventeen different engineer (company to group size) units are needed to move a brigade and supporting units into a theater of operation using JLOTS and RSO&I. The majority of these required engineer units are in the U.S. Army Reserve Component. During the next decade, the number is to increase to eighty percent (all of the port opening companies are in the reserve force). Activation and training of Reserve units for Operation Iraqi Freedom can take up to six months prior to deploying the unit into the theater of operation. Once these Reserve units deploy, they are performed admirably, however, without change to current doctrine they cannot support the Chief of Staff of the Army’s envisioned deployment timeline, JLOTS or RSO&I.

DISCUSSION

The focus of combat engineers is to provide the maneuver commanders mobility and countermobility during offensive and defensive operations. As operations transitions to stability and support operations, construction skills are required. In an asymmetric environment, engineers find themselves reacting to events that will require the performance of several different engineer missions in relevantly short time spans. The overlap of skills (combat and construction) during these transition periods provides a potential to combine skills to obtain greater capabilities. The transitioning to stability operations is marked by an infrastructure severely damaged or destroyed. Remnants of past battles, combined with a potential for lingering hostilities or the arrival of insurgents, necessitates the use of military engineers.

Military engineers provide the technical expertise to insure construction tasks are performed in accordance with established safe construction practices and provide a combat capability to protect critical infrastructure. Initially, engineering efforts focus on providing support and services for soldiers, as well as establishing basic life support for civilians. As operations move closer to predominately supporting tasks, the use of civilian and contracted engineer support increases to rebuild the civilian infrastructure and assume support to the remaining military units.

Historically, the Reserve components have been the “come as you are warriors,” reaching the theater of operation after initial operations had secured the ports. After Operation Desert Storm, training and funding resources were tied to premiere Reserve units that would deploy first. Follow on units would have an opportunity to "get fixed" as mobilized. The policy of designating priority units was discarded during the late 1990’s, as the needs of the Combatant commanders did not coincide with the selection of priority units. The limited funding now focuses on the units’ needs. Mobilized units now can request additional funding to fill shortages that arrive at the mobilization station. Mobilization “alert, mobilize, train, and deploy” provides the unit a “ramping up” time to train critical tasks the commander has determined necessary for combat operations. It also provides the commander time to validate property accountability and distribute equipment before embarkation.

“Train, mobilize, and deploy” has become the new mantra for Reserve commanders but it is a flawed concept. Reservist and reserve units are to maintain proficiency at home stations in preparation for deployment yet equipment and training areas are unavailable. Mobilization units move directly to power projection bases and undergo regional familiarization training prior to moving to the theater-of-operation. Yet, the organization processes and structures of Reserve units have not changed since conceptive during the Cold War. Unlike active duty units, with approximately 219 annual training days, a Reserve unit has an average of 38 training days (12 weekend drills and 14 annual training days). Reservists do not have enough consecutive training days to develop Tactics, Techniques and Procedures (TTPs) for standard training events an engineer unit must have to survive on tomorrow’s battlefield. These training disparages are readily identifiable at the mobilization stations where unit validated combat proficiencies. A quick check of basic skill sets necessary for crew served weapons is not trained to standards. Shortages of typical equipment required for deployment is unavailable causing units to miss their deployment windows. Secretary of Defense Donald Rumsfeld has even spoken about the Reserve’s inability to deploy, stating that ways must be found to “shorten the

period it takes to get someone from a reserve unit into a position where they are functioning... We can shorten that period. We can do whatever it takes."[14]

Mobilization of Reserve units will continue for the near future. The extended training periods necessary to prepare the Reservists for duty in a hostile environment coupled with the yearlong deployment may cause some Reservists to reconsider reenlistment. The reenlistment problem will acerbate further when Reservists realize an organizational design flaw-- one that the Army Reserve Federal Reserve Restructuring Initiative (ARFRRI) will not fix but is a step in the right direction-- is producing a units' readiness problem. ARFRRI will bring a Reserve unit on "active duty" every five years for one continuous year. Deployments can occur at anytime during this period, but Reservists are comfortable with the knowledge that they are receiving critical survival skills. However, the range of proficiency the unit will gain during this year will begin slipping almost immediately as soldiers readjust and move on with their civilian employment. Arrival of newly assigned soldiers and the lack of additional monthly-inactive-duty training periods will increase the downward spiral of unit readiness, especially in larger units with multiple military occupation skills. The requirement to have rapidly deployable, highly survivable, mobile, modular designed and equipment units prognosticates more than ever before the need for changing the structural design of Reserve engineer units.

The 2001 Quadrennial Defense Review and the draft Joint Operations Concept released in February 2003 emphasized the importance of being able to project significant combat power into the theater quickly, even if the enemy denies access to the traditional entry points. The current system is the result of the Army Strategic Mobility Plan and Mobility Requirements Study Bottom Up Review that launched $48 billion program after the 1991 Gulf War to fix problems of accessing regions that did not have adequate port facilities.[15] It provided for the purchase of strategic airlift (C-17), fast sealift ships, and the required hardware necessary to support movement from point of embarkation to debarkation. It did not provide funding for improving the supporting units capabilities to move combat force forward.

Combat heavy engineer battalions are still being modernized with a Cold War mentality that overburdens organizations that are incapable of supporting or moving independently. Companies come complete with carpenter, masons, plumbers, electricians, heavy construction equipment operators, mechanics, and a limited headquarters section divided into four different platoons. Three companies form a battalion that occupies roughly the same amount of shipping space as an armor brigade. It is equipped to meet a full continuum of possibilities but is cumbersome to scale-down for specific missions. Heavy construction equipment is the "Achilles heel" of Reserve engineers and the typical Reserve combat heavy engineer battalion has over

three hundred pieces of rolling stock that is older than the soldiers operating it.[16] Seventy percent of a Reserve units equipment is stored at Equipment Concentration Sites (ECS) where government employees are responsible for maintaining the equipment at a fully mission ready status. CW2 Jack L. Beckman, Maintenance Technician, 244th Engineer Combat Battalion (Heavy), operating in Iraq commented on his unit's equipment and the entire idea of stored engineer equipment;

> "Long-term storage without exercising the seals leads to premature failure. We experienced that here in Iraq with the equipment drawn from ECS. Everything that was in ECS before we deployed had premature hydraulic leaks while the equipment from home station, used for weekend projects, did not. That problem has been a key argument against consolidation and storage of equipment in the "climate-controlled" sites. No matter what the brass says, putting equipment into storage does not mean it is in a glass bubble or some kind of suspended animation. Seals dry out if they are not exercised."[17]

Construction equipment needs to be stressed under actual conditions if it going to be used for its intended mission. Anything short of pushing, lifting, spreading or hauling is not meeting the necessary requirements to have the equipment fully capable of meeting its or the operators wartime mission. All of the Armed Services are increasing the reliance on commercial industry to provide the technologies and systems necessary for tomorrow's operations. The USAR should capitalize on learning about alternative methods of equipping units preparing for deployments. The commercial industry has long been a source of defense innovation. Companies such as Hertz Equipment Rental may provide a solution to long-term storage of construction equipment; especially the low-density items that are readily available directly form vendors. Alternatives must be found to the current method of purchasing heavy equipment with minor military modifications and placing it in storage for when a reserve engineer unit deploys. The Navy is working to simplify its procurement processes through acquiring less-costly, easily up-gradable, commercial heavy construction equipment.[18] The Navy bottom line is to save resources and obtain modern, "leading-edge-of-the-shelf" equipment for its sailors.

The Reserve Engineers have to configure or packaged to be expeditious and meet deployability requirements. Deployability of combat heavy battalion or a port opening company (two of the largest engineer units in the reserve inventory) is hampered by the mandatory administrative details that consume vast amounts of training time. A primary example is the mandatory requirement to conduct annual property accountability inspections. An active duty company commander requires seven to ten days to conduct a 100% inventory of a single engineer company. A Reservist inventorying the same company using the same amount of time has consumed half of the units drill periods for a year doing a single inventory. Additional drill

periods will not fix the problem. Bringing all soldiers together for a single event for an active duty unit is difficult and virtually impossible in the Reserves. A possible solution is to have all Reserve engineer companies modeled like the port opening companies that are divided into thirds. Each of the platoons is an exact mirror of the other two. Maintenance is in a single platoon and equipped to provide habitual contact teams to each platoon. Using cyclic training as a guide, only one platoon would actually need its entire allocation of construction equipment during a monthly drill period.

Except the hydrostatic equipment, two thirds of the company's equipment (including vehicles) could go into an "Army Reserve Pre-positioned Site" (ARPS). ARPS sites could be strategically located on either coasts of the U.S. to support deployments. Like existing Army preposition stocks throughout the world, ARPS equipment would not belong to any units. The facility would account for and report readiness of each piece of equipment regardless of its report-ability code. The USARC would identify unit sets to support deploying units. A contractor prepares and ships the equipment directly to the port for shipment. Similarly, the configuration of sets, kits, and outfits (SKOs) should change so they all to fit into an International Organization for Standardization (ISO) cargo containers configured as portable tool sheds for the lowest using unit. These containers would be pre-packed and transportable by palletized load system vehicles. Contractors would perform the necessary maintenance (to include exercising the seals), inventories, and upgrades in accordance with applicable supply catalogs. The majority of tools used by engineers are readily available on the open market resulting in a cost savings by delaying purchases until the actual need arises. Each contractor would have to meet deployment time lines necessary to have the supported unit make its deployment window.

Configuration of training sets held at home stations would replicate the configuration of ARPS equipment allowing soldiers to become familiar preparing the containers of intra-theater transportation. When a unit deployed from a home station (AT or mobilization), equipment and SKOs would return to the ARPS for upgrades. Shipping equipment directly from the ARPS would reduce time at the mobilization station, focus training on theater specific requirements, and insure the soldiers had the best possible equipment upon deployment. Upon de-mobilization, the unit would return with its authorized training set. The other equipment would return to the ARPS in "as is" condition for inventory and repackaging for follow on deployments. Accurate property accountability and cost of the deployments are captured while the unit is again focused on mission training.

Unit modularity provides a force design package that is capable of meeting the supported commander's mission requirements. An engineer battalion in a modular system would provide

the maintenance, supply, and life support to three to five companies or engineer detachments. More robust than the current configured engineer battalion, the modular battalion structure would provide all logistical and C4I requirements to assigned companies of any configuration. The modular company structure would be lighter than currently configured and based on three (mirrored) platoons and a headquarters section. Specialized units with duplicate capabilities would be stripped of the overlapping capabilities and be able to focus on a single specialty. For example, a Port Opening Company currently has soldiers with the same skill sets as the battalion they are to support. Elimination of the duplication would reduce the size and weight of the company. Company commanders could focus engineer training on maneuvering barges and driving piles. Plugging them into an engineer battalion would provide the other assets necessary to complete all construction necessary to open a port. Employing a single soldier concept, a company's structure would morph to meet the mission requirements by pulling or pushing assets from the battalion to meet construction requirements. Company teams or task forces could quickly form by cross-leveling at the different levels of command.

RECOMMENDATIONS

After advanced-individual-training (AIT), a Reservist assigned to a construction unit does not receive additional combat engineer training until the basic non-commissioned officer course (BNCOC). Weekend drill periods, for newly assigned soldiers, are focused on basic requirements: individual operator permits, fitting the protective mask, weapon assignments, and issuing of individual equipment. Unless the unit is actively involved in civic action projects, a new Reservist may not work in his or her military specialty for more than a year. A possible way of overcoming the training disparages between the active and reserve component is to combine the engineer career management fields (CMF) 21B, 21E, 21F, 21J, 21K, 21R and 21W into create a single engineer track for Reservist (see Table 1).

Old MOS	Job title	New MOS
12B	Combat Engineer	21B
12C	Bridge Crew Member	21C
51B	Carpentry and Masonry Specialist	21W
51H	Construction Engineer Supervisor	21H
51K	Plumber	21K
51R	Interior Electrician	21R
62E	Heavy Construction Equipment Operator	21E
62F	Crane Operator	21F
62G	Quarrying Specialist	21G
62H	Concrete and Asphalt Equipment Operator	21V
62J	General Construction Equipment Operator	21J
62N	Construction Equipment Supervisor	21N

TABLE 1 ENGINEER MOS CONVERSION TABLE

Unique skills such as bridge crewmember, topographic, soil and surveyor, diver, prime power, firefighter or power transmission specialist do not lend themselves to consolidation and are not included in this discussion. The premise of this consolidation is to provide trained engineers capable of supporting an entire spectrum of military operations. The pace of mobilization, deployment, battle duration and the need for flexibility unit structure demands a versatile engineer soldier. The asymmetrical threat dictates that all engineers have combat skills normally associated with combat engineers supporting maneuver units. Maneuver commanders do not have the luxury of making a distinction between engineer military occupation skills (MOS) and expect each one to be fully capable of performing the basic engineer traits.

Recruiting and retention of engineers, especially at the lower enlisted ranks, would be enhanced by CMF consolidation. Reservists without prior military service are normally new to the civilian job market or between jobs. A recruiter determines an individual's capability for different CMFs prior to the start of his or her term of service and attempts to fit the applicant into a priority vacancy. Soldiers selecting a construction CMF will attend basic training and common engineer training (CET). CET provides a basic familiarization of combat engineering skills of demolitions, mobility, counter mobility, and survivability training before the soldier attends advance individual training (AIT). Figure 2 indicates the current career progression for engineer soldiers.[19] Changing the system to a single CMF would allow the Reservist to attend basic training and AIT (Combat Engineering). Course completion provides a more versatile engineer able to perform the basic rifleman skills desired by the CSA.

At the end of AIT, the training cadre and the soldier would jointly determine if he or she is suited to attend additional schooling to obtain a construction skill identifier. Completing a construction course would provide the soldier with the necessary proficiencies to work in the commercial construction industry. Training would include licensing and safety related concerns for all related equipment necessary for the additional skill. Figure 3 indicates a proposed career progression for engineer soldiers. The Army returns a qualified professional citizen to the community but gains Reservists who will not loose their affiliation with the military engineering community.

After earning the rank of non-commissioned officer, a soldier would attend streamlined training programs for re-familiarizing combat engineer skills and concentrating on leadership skills. The current NCO education system (NCOES) develops NCOs in their respective MOSs using a three phase systems: primary leadership development course, basic non-commissioned officer course (BNCOC), and advance non-commissioned officer course (ANCOC). Both BNCOC and ANCOC track the engineers separately and provide a program of instruction

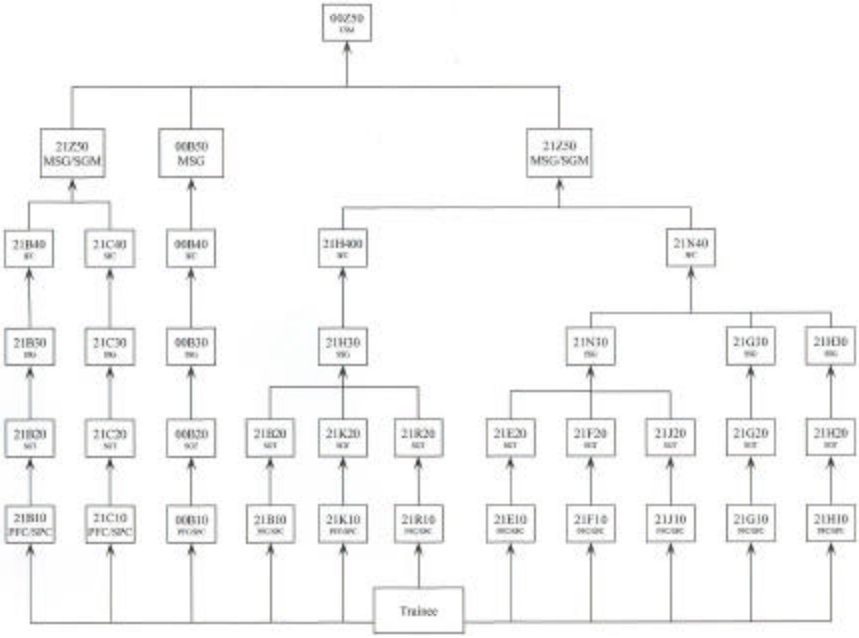


FIGURE 2 CURRENT ENGINEER CAREER PROGRESSION.

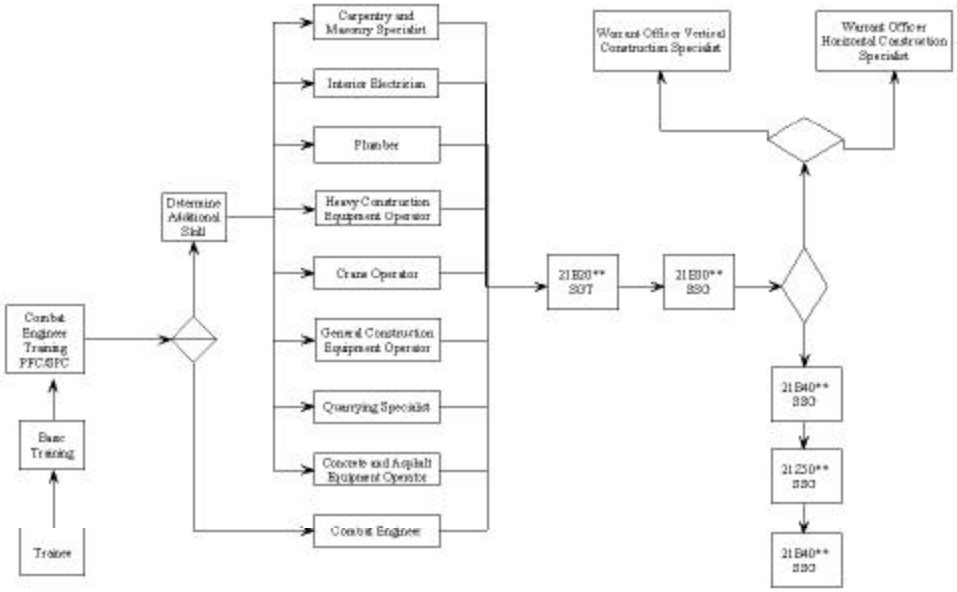


FIGURE 3 INDICATES A PROPOSED CAREER PROGRESSION

separated by skills: combat engineering, vertical engineering and horizontal engineering (Table 2). As in CET and AIT, there are commonalities that lend themselves to combining these course curriculums into single specific NCOES based on the combat engineer curriculum such as adding the 159-hour vertical construction class and the 154-hour horizontal specific training class to the 334-hour 21B course.

21B BNCOC	Hrs
COMBAT CONSTRUCTION	25
COMBINED ARMS/TACTICAL TRAINING	88
COMMON LEADER TRAINING (CLT)	85
CRITICAL SKILLS	23
DEMOLITIONS	45
MANDATORY TRAINING ANNEX (MTA)	2
MINE WARFARE	37
RECONNAISSANCE	29
Total hours:	334

21H30 Construction Supervisor	
COMBAT CONSTRUCTION	25
COMBINED ARMS/TACTICAL TRAINING	88
Common Engineer Training (CET)	66
COMMON LEADER TRAINING (CLT)	85
CRITICAL SKILLS	23
DEMOLITIONS	45
Mandatory Training	5
MANDATORY TRAINING ANNEX (MTA)	2
MINE WARFARE	37
RECONNAISSANCE	29
Situational Training Exercise	86
Vertical Construction Operations	159
Total hours:	650

21N30 Equipment Supervisor	
Common Engineer Training (CET)	66
Mandatory Training	5
MOS 62N30 Specific Training	154
Situational Training Exercise (STX)	86
Total hours:	311

21B ANCOC	Hrs.
Administrative Annex	39.5
Basic Knowledge and Skills	10
Combat Engineering	18
Computer Orientation/Battle Systems	15
Determine Military Load Classification	17.5
Fixed Bridging	18
Float Bridging	12.5
General Engineering	13.5
Mandatory Training Annex	3
Mobility, Countermobility, Survivability Doctrine	79
Situational Training Exercise	88
Total hours:	314

21H40 Construction Supervisor	
Administration	28
Common Engineer Training (CET)	33.5
Mandatory Training	9
Situational Training Exercise (STX)	86
Vertical Construction Operations	66.3
Total hours:	223

21N40 Equipment Supervisor	
Common Engineer Training (CET)	33.5
Mandatory Training	9
MOS 62N40 Specific Training	74
Situational Training Exercise (STX)	72
Total hours:	189

TABLE 2 ARMY TRAINING COURSES FOR NCOES

An Army sponsored program similar to the College Level Examination Program (CLEP) would provide soldiers an opportunity to demonstrate acquire industry-recognized skills (apprentice, journeyman, and master levels) for promotion points and to acquire an additional skill identifier (ASI). At the rank of Staff Sergeant, a soldier could apply for a construction warrant officer program, similar to the Navy and United States Marine Corps' program. Construction warrant officers would provide certified industrial specialists in construction related skills (electrical, plumbing, carpenter, masonry, topography, construction survey, and horizontal construction) and safety standards. Adding the construction warrant officer at company and battalion level increases the manning requirements but the impact on quality control and

construction training is immeasurable. These construction warrant officers would improve unit quality control, assist with preparing soldiers to meet industry standards, and provide construction experts capable of supporting higher-level staffs in prepare tailored engineer units or contractors for transiting from combat to stabilization operations.

CONCLUSION

The Army's strategic responsiveness is an integral element of National power, requiring it to deploy rapidly to influence world events. "Strategic mobility is both a catalyzing capability that allows the United States to exercise Global power and our Achilles heel."[20] We have invested heavily in the concept of the Strategic Mobility Triad that has provided the resources of getting to the theater. However, we have not fully addressed the process of getting off the ships and to the fight. I believe this hidden time bomb will blow up in our faces when we are confronted with access denial. Both strategic airlift and sealift require developed ports of debarkation, while both can operation in less improved locations throughput suffers. Unable to land forces and flow forces quickly enough may cause us to commit units piecemeal. Breaking a cordial rule learned long ago at Gettysburg. The engineers required to support JLOTS remains too large to deploy rapidly and decisively to support global contingencies. Secretary of Defense Rumsfeld has the institutional authority to force the individual military services to demonstrate the ability to move forces in accordance with the CSA's timeline. It is time we tested our ability, without using the established infrastructure, to get into theater as the combat maneuver training centers support training of combat forces in a combat environment. As for the Army Reserves, we can no longer continue to do business as usual by assuming responsibility for those engineer units that are too expensive to maintain on active duty. Funding and a modernization plans must accompany the units moved into the reserves.

Engineer units are designed to be mission centric. Combat engineer training focuses only on mobility and countermobility of the maneuver forces. Training for the construction engineers focus on only construction with a little combat training thrown in to give them the "Combat" title. Historically, purely combat-trained engineers have accomplished tasks outside their skill set when given the proper tools. COL Paul Hilton, Chief of Program, Army G3, stated that we had to reach into two or three reserve units for qualified soldiers to make one unit deployable.[21] Reservists with multiple MOSs were identified to fill shortages in deploying units despite having not worked in that skill for years. Training doctrine needs to change to exploit the flexibility of the Army Engineers and become soldier centric. Converting the Reserve engineer into a multi-skilled combat engineer will support future deployments by provided readily trained Reservist

with construction skills capability of surviving on an asymmetric battlefield. Knowing that access denial is possible in other regions, the Army is planning for deployment of forces that are prepared to conduct combat operation “immediately upon arrival.”[22] Modularity of engineer units is essential to support future deployments. Properly equipped engineers deploying with the initial entry force could “reach back” to APS stocks for the tools they need and not wait for the arrival of another unit. Possible reducing the need for mobilizing duplicate units until lift assets are available. The duration of battles has shrunk considerably for the United States over the past two decades. Transitioning to the stability phase of an operation normally frees combat engineers of their mobility mission making them readily available throughout the battlefield for stabilization missions. If provided the proper tools and equipment these units can speed the transition to stability operations in their areas. Construction battalions developed during the Cold War era take up the same space necessary to deploy a M1 equipped armor brigade and do not lend themselves to rapid deployment schemes that focus on SBCT sized units. Valuable space on strategic lift is limited and can no longer support units that a contractor can replace.

WORD COUNT=5,360

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[16] Paul Grosskruger, "A Calculated Risk," The Army Engineer Magazine, January—February 2004. 50

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[18] Mark V. Favetti, <FavettiMarkV@JohnDeere.com>. “Navy Procurement” Electric mail message to Derek Sentinella <Derek.Sentinella@us.army.mil>. 27 February 2004.

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