Moving Military Operations Forward

The railroad is as critical today as it was in the "days of old"

by MSgt Patrick Grabowski

Since 1869, when the last spike of the Transcontinental Railroad was driven, rail has played a vital role in America, linking the Atlantic to the Pacific. Moving goods to market, the railroad provides the infrastructure necessary for our Nation to compete globally as an economic and industrial powerhouse. As technology continues its meteoric advance, particularly on the battlefield, amateur logisticians may errantly dismiss the value of rail today. At home and abroad, its strategic worth continues to provide our military with the agility to move massive amounts of materiel during times of war; to subconsciously relegate rail to archaic practice is to forfeit the strategic advantage it avails.[1]

Rail was first leveraged for military advantage during the Civil War. It was the Union's superior rail infrastructure which gave it the logistical edge and, in some cases, the ability to even outmaneuver the Confederacy. As World War I and II unfolded, the strategic use of railroads became refined; the transport of millions of troops for forward deployment became common practice. Rail lines hauling coal, iron ore, and the steel needed to produce military supplies became indispensable, particularly when moving finished products to strategic bases, installations, and seaports.

At the onset of World War II, Joseph Stalin quickly recognized the USSR's inability to out-maneuver the Nazis without a robust railroad infrastructure. Over the vast swaths of land in Russia, Ukraine, and the Baltic States, construction began. Nearly 75 years later, Vladimir Putin effectively utilized the same Soviet era infrastructure to invade the Crimea in 2015. Not to be outdone

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that same year, the People's Liberation Army of China utilized its high-speed rail system to move an entire brigade over 300 miles in just under 4 hours. Satisfied with the proof of concept, in 2018 China spent $112 billion of its annual budget to continue modernizing its high-speed rail infrastructure. A testament to its rapid mobilization capability, the People's Liberation Army can now successfully move a division (minus) over 600 miles in under 5 hours.

With the increasing capabilities of our global competitors and potential adversaries, it is imperative that the U.S. military lean forward in understanding opposing forces' rail innovations and effectively leverage the rail transportation industry for ourselves. Properly controlled, railroad is as critical to the modern U.S. military as it was in "days of old." With in-transit visibility (ITV) advancements and state of the art command and control, rail is still the king of overland movement.

Enabling Global Logistics Awareness

One of the key characteristics of the rail transportation industry is its global logistics awareness system. This system integrates ITV sensors which provide accurate enterprise-wide visibility and accountability of equipment. Currently within the rail transportation industry, redundant levels of ITV sensors exist. Each railcar is equipped with the radio frequency identification tag system, referred to within the industry as an automatic equipment identification tag, which provides real-world updates on the location, speed, destination, and current status of every railcar. The advantage of this system when applied to rail is that sending or receiving units can track very large amounts of equipment with a single search vice interrogating enumerable trucks from multiple carriers.

Through systems such as Railinc, the rail industry already has systems in place which provide continual data on all military movements. This can be utilized during the initial planning phase of a movement as it provides detailed, fact-based information on the movement timeline and capabilities of specific units. Similar to the MAGTF Deployment Support System or Sea Service Deployment Module, Railinc can provide granularity down to the lowest unit levels or collect and measure data for large-scale movements—such as the recent 2d MarDiv's movement from the East Coast to the latest MAGTF Warfighting Exercise in Southern California.

A recent shipment of M1 Main Battle Tanks from Marine Corps Logistics Base (MCLB) Albany to MCLB Barstow tested a new ITV sensor, which provides even greater detail. With the use of the telemetry tracker application attached to a specific vehicle, the shipping installation was able to track equipment via this web-based system. During this single shipment, the trackers provided over 25,000 updates both in motion and at rest. Through the use of the telemetry website, the shipping unit was able to provide detailed reports to higher headquarters on the location

and movement of the tank. In realtime, telemetry captured every change in action or location with a time stamp. The details show the arrival of various items, including shipments, assets, and sensors to the final delivery location.[2]

Diversify Distribution

The concept of diversifying distribution is characterized by resiliency, scalability, and unpredictable movements. Rail transportation provides a level of resiliency by identifying any threat level against a specific line or movement and then diverting shipments to alternate routes. Resiliency minimizes potential threats which might exist against any movement. Additionally, because rail requires a minimal number of personnel to move large amounts of equipment, the potential for loss of life is extremely limited.

With established longstanding routes and infrastructure, any form of sabotage taken against rail infrastructure can easily be detected prior to movement on the tracks. Through the use of inspectors and pre-run movements, any defects or attempts at sabotage can be easily identified and remedied in short order. Recent advancements in maintenance of the way technology, track maintenance, repair, and sensors have significantly improved the resiliency of track infrastructure.

Rail movement can be extremely scalable. When departing a port of embarkation, specific pieces of equipment may be loaded in such a manner that each specific "package," or set of equipment, can be loaded for each disaggregated unit. Through precision loading and load planning, much smaller movements can be dispatched via different routes to ensure successful delivery without incident. Use of telemetry trackers provide shipments realtime ITV offering situational awareness of all distribution movements to higher headquarters. This realtime visibility of movement allows commanders the information necessary to shift shipments on-the-fly as the mission dictates.

Moving large amounts of equipment into a specific region will likely start with ocean movement into a large port of entry. Throughout the world, major seaports are serviced by one form or another of rail infrastructure. The ability to plan and move equipment along unpredictable routes from a port is always an option. Europe, for example, has over 230,000 kilometers (143,000 miles) of rail infrastructure. Diversifying the movement of cargo at the point of embarkation allows the logistics planners to avoid utilizing the same routes and routines, which could be exploited by potential adversaries. The decision on which mode of transportation to utilize at the seaport would be based on the urgency of need and quantity of equipment to be moved.

Rail transportation is a global endeavor. *(Photo by Cpl Immanuel Johnson.)*

Improving Sustainment

At an operational level, the utilization of rail transportation in a contested environment would be ill-advised. This said, the importance of rail transportation during the War on Terrorism in Afghanistan cannot be overstated. The Northern Distribution Network, in which U.S. Transportation Command was the lead, turned to rail transportation as a vital supply line for operations in support of Operation ENDURING FREEDOM. With shipments departing German-based Defense Logistics Agency depots, these trains traversed Poland, Ukraine, Russia, Kazakhstan, and then continue by rail to Uzbekistan. The equipment and materials were then trucked or flown into the contested environment.

The utilization of rail to support large-scale movement helped speed the resupply and availability of equipment close enough to the battlefield so that other modes could be used to distribute materials and equipment to disaggregated units in a timely manner. Utilizing rail transport in this manner reduced transportation costs and transit times to more effectively support the warfighter.

Restaging of equipment within reach of battlefield commanders is another advantage of rail transportation. By preloading and staging equipment close to the front lines, commanders can better regulate and manage the war reserve equipment, materials, and supplies with positive inventory control methods in place.

For CONUS prepositioning and movement, installations such as MCLB Albany and MCLB Barstow provide power projection platforms for war reserve materials and equipment. MCLB Barstow is strategically located within 48 hours by rail of five separate seaports, which can be utilized for rapid deployment. Additionally, the base features multiple LZs, is located at the apex of two major interstates, and is within ten minutes from Daggett Airfield, which is capable of supporting C-130 and C-17 aircraft. Within a 45-min-

ute drive, Southern California Logistics Airport has two 9,000-plus foot runways. MCLB Barstow possess multiple capabilities and avenues in which to support the movement of large quantities of equipment to ports and Fleet Marine Forces rapidly and efficiently.

Optimizing Installations to Support Sustained Operations

As the Marine Corps continues to optimize installations in support of sustained operations, priorities must be established which focus on critical support functions such as readiness, training, deployment, employment, force protection, and sustainment. For the past several years, MCLB Barstow, which operates the DOD's largest throughput railhead, has been making sweeping changes in their rail operations as well as base operations to support such initiatives.

In order to leverage the advantages of rail in support of the Fleet Marine Forces, both CONUS and OCONUS, the primary focus must be on training. Prior to Operation IRAQI FREEDOM, Marines from across the enterprise were trained and practiced at conducting rail operations, oftentimes in support of training such as CAX. During the IRAQI FREEDOM and ENDURING FREEDOM missions, utilizing "green suiters" on the railheads became less a priority and the utilization of civilians and contractors became the norm. This provided additional downtime for Marines when not deployed and prevented unnecessary injuries. As well, the availability of other contingency operations (OCO) and global war on terror (GWOT) funds led to the use of more costly motor carriers during that time.

In 2013, with the dissolution of the OCO and GWOT funds, Marines became more judicious and frugal with their transportation funds. We reverted back to rail operations and quickly discovered the vast majority of the enterprise expertise was lost; we lacked the organic capability to properly conduct rail operations. In 2014, the Railhead Operations Group Training School was established at MCLB Barstow to teach Marines the skills necessary to leverage rail as an effective and efficient mode of transportation. Within three years, the course was recognized by HQMC Deputy Commandant Installations and Logistics as the Center for Excellence for Rail Operations training. Today, this course is the only intermediate or advanced training available in rail operations and conducts dozens of classes per year across CONUS and OCONUS locations. Railhead Operations Group Training School Classes for 04XX and 3112 Marines offered by MCLB Barstow include:

- 14-day rail operations subject matter expert certification.
- 90-day rail operations instructor certification.
- SOF-rail interdiction course was developed with U.S. Army Special Operations Command and U.S. Special Operations Command to train special operations force personnel DOD wide.

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Through training, advisory assistance, and installation analysis, instructors from the school have been able to incorporate more efficient processes at a variety of DOD installations, making rail operations a more effective mode of transportation. Recent major cost and time saving initiatives include a $6 million dollar savings for a unit destined to Alaska for annual training, a new location for operations to support weapons and tactics instruction movements in and out of MCAS Yuma, AZ, and a joint initiative with Surface Deployment and Distribution Command for west coast deployments to specific regions, cutting down sail times by nearly a month.

As the only training facility capable of certifying individual active duty personnel in rail operations, MCLB Barstow courses are also available to certify units in the mission essential tasks and mission essential task lists for rail operations. With creation of the new 90-day instructor development course, the school is now able to train and certify personnel to return to their home station as a certified rail instructor. This empowers units with an organic capability to train in-house. Courses are available in European Command, NATO, and Pacific Command operations and may even be tailored to the need of the specific students and units.

As the home to the West Coast War Reserve, MCLB Barstow is continually improving its position and ability to support the sustainment requirements of the Fleet Marine Forces. With an influx of trained, certified personnel, MCLB Barstow will continue its legacy of supporting the Marine Corps' logistical requirements.[3]

Conclusion

As written in the *Sustaining the Force in the 21st Century*, the end state identifies the need for "allowing commanders to outpace the enemies' decision cycle by being able to allow our logistics enterprise to deliver the right resources, to the right place, at the right time, for the right reasons."[4] Marine Corps logisticians would do well to view rail transportation as an effective and timely mode of movement for personnel and equipment in the 21st century. When it comes to large-scale movements of equipment, rail remains the prime mode to successfully accomplish this.

Notes

1. Headquarters Marine Corps, *Sustaining the Force in the 21st Century*, (Washington, DC: 2019).

2. Chad C. Hildebrandt, *Rail Operations Supervisor*, (Barstow, CA: Marine Corps Logistics Base, Barstow, 2019).

3. Steve Palmer, "In Transit Visibility of High Value Assets Using Telemetry," *Tactical Edge*, (2019).