
RAILWAY OPERATING BATTALION REVIVAL PROJECT



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Introduction Letter



SGT. Von Volkenburg, Dean on USAF #7238

My name is Joshua Cirillo and I am a Specialist in the United States Army. I am a UH-60 Blackhawk mechanic and crew-chief. I have served in the Army for nearly 5 years and have one tour of duty to Afghanistan under my belt. It has recently been brought to my attention that the United States Army has plans to dismantle and downsize The Army Railroad Transportation Corps to the point of uselessness. This would be a mistake and a disgrace to a once proud and effective group of men and women. The Army Railroad Transportation Corps was first initiated in January 1862 by the United States War Department during the American Civil War as the U.S. Military Railroad (USMRR). This was the predecessor to the modern Army Railroad Transportation Corps. It has since proven themselves in the Civil War, Spanish-American War, World War 1, World War 2, The Cold War, Korean War, and the Vietnam War. At this rate; by the end of 2016; all railroad engineers, mechanics, and rail maintainers will be forced to find other jobs and a small rail dispatcher job will take their place.

While I may be an Aviator, railroading still runs in my veins. My Great-Uncle, Dean Von Volkenburg at the age of only 19 became the youngest locomotive engineer in the 716th Railway Operating Battalion C Co, in the European Theater during World War2; he delivered allied goods, ran ambulatory trains full of wounded soldiers; and all the while out running the German forces. He proved that The Army Railway Operating Battalion was an important and integral part of the war. The railroad is just as important now as it was in the 1940s. Over the last fifty years or so the Military has slowly alienated and down-sized its railroad systems. The downsizing has made the railroad seem useless, and has made it no longer cost effective to operate. This line of thinking has inadvertently caused military spending to soar due to mass shipment of Military goods by truck. In a bid to save one of the oldest Military jobs, I have developed a three phase plan to not only increase the usefulness of Military railroads but to also aid in cutting costs and saving the military much needed money.

CHAPTER 1

Past Operations.

In late September of 1863 during the American Civil War, Union Soldiers under the command of General Rosecranes was beset on all side by Confederate Soldiers in Chattanooga, Tennessee. Secretary of War Edwin Stanton and Colonel Daniel McCollum devised a plan to send reinforcements that were over 1200 miles away to General Rosecranes by rail. It took only 12 days to send 25,000 Soldiers, 10 Batteries of Artillery, and 100 rail cars of food, ammunition, and medicine to reinforce and hold Chattanooga. This marked the first time rail was used to haul large quantities of military goods and soldiers by the United States Army. Ever since then the Railway Operating Battalions have proved over and over again that they play an important role during times of conflict.

During World War I the Allied forces faced a major problem, to get large quantities of supplies from supply depots to the front lines. The solution was a 600mm gauge railway that was easy and cheap to build. The American Railway Operating Battalions built 100 of miles of 600mm gauge railways to help sustain the Allied troops in the Trenches of WWI. These small Trench Railways carried Soldiers, ammunition, food, and supplies from the Allied Bases to the Trenches on the front lines. Railway Operating Battalions were also deployed on French Railways delivering Troops and supplies from the Allied docks to the allied military installations.

After the attack on Pearl Harbor the Railway Operating Battalions deployed on an unprecedented scale both state side and overseas. Yukon Alaska saw a drastic change when the 770th Railway Operating Battalion deployed to this almost abandoned narrow gauge railroad. The mission was to deliver supplies needed to build the Alaskan Highway. Other Railway Operating battalions like the 725th Railway Operating Battalion saw deployment to India and the 716th railway Operating Battalion saw deployment to France. The Railway Operating Battalions also sent over 2100 S160 class Locomotives to Europe, Russia, Africa, and Asia and many still operate to this date.

The Drawdown of Army Railroads.

By the 1950s there were only two Railway Operating Battalions and one Railway Grand Division left. The Railway Operating Battalions were under strengthening and undertrained in rail operations when the Army deployed to South Korea. Luckily at the time the Korean railways had a developed rail infrastructure but due to the lack of operational training most army railroad men road on the Korean trains to make sure they adhered to a military schedule. As more locomotives and trained personnel began to arrive, the Railway Operating Battalions began to run their own trains. When the Chinese Army pushed the Eight Army back to the 38th parallel the Railway Operating Battalions shipped as much military goods as possible. The Korean War marked the last time Railway Operating Battalions deployed.

After the United States Army assumed a greater role in the Vietnam War in 1965, the United States Army only had one railway operating battalion left. The 714th railway operating battalion only sent 2 of the 11 Rail detachments to Vietnam. This marked the first time that the railway operating battalion played an advisory roll only. The Army Rail detachments were only located at the port of Qui Nhon and Saigon. Since the Vietnamese were the sole operator of the railroad, The soldiers of the rail detachments only processed transportation movement dispatches and port clearances. By the end of the war only 2 soldiers of the 2 rail detachments were left due to the drawdown of unneeded personnel.

During Operation Iraqi Freedom in 2003 the 757th 1st rail detachment deployed to advise rail operations in the Port of Umm Qasr. As the result of small rail operations the first humanitarian shipment was shipped by truck instead of rail due to heavy fighting in the city of Umm Qasr and the road being the only secured route. The United Nations (UN) needed an immediate way to transport humanitarian aid to the Iraqi people however because only an 8 soldier sized detachment was deployed and not the 757th Railway Operating Battalion, only small track and locomotive repair could be accomplished so the UN shipped the goods by truck. The only locomotives that the 1st rail detachment could use were the ones they could find on the railroad. The 757th never deployed any rolling stock or locomotives. Other problems that hindered rail use was the lack of military awareness of an operating railroad as well as high theft rate of tools from the Iraqi work force working on the railway. By 2004 the Iraqi railroad was being used to haul mostly class IX parts from Umm Qasr to Taji. However in April of 2004 during the uprising of Al Sadr's Madhi militia; the railroad was attacked ending rail operations. In 2008 the Army reopened the rail line again to reduce military convoys on the road and reenergize the Iraqi economy.

Present Operations.

Today the Army Railroads only transports battalion level deployments, occasional fuel, coal, and civilian freight depending on the installation. At present, all Railway Operating Battalions have been deactivated and Army railway operations are under civilian contract. The Railway Operating Battalions have been reclassified and replaced by a single Expeditionary Railway Center. The focus of the new Expeditionary Railway Center is to advise, plan, and perform capability assessments of allied railways. The Expeditionary Railway Center no longer provides railway operations and instead performs only an advisory role.

Summary.

From the Civil American War to the Second World War the Railway Operating Battalions proved that railroads were important during times of conflict. The need for fully functioning Railway Operating Battalions became apparent from the Korean War all the way to Operation Iraqi Freedom as the lack of personnel and locomotives hindered and delayed operations. The present day Expeditionary Railway Center (ERC) plays an important role in advanced deployment railway operations, however the ERC cannot properly maintain, operate, or effectively deliver military goods by rail without a proper Railway Operating Battalions. Fully functional Railway Operating Battalions would also be able to deploy rolling stock, locomotives, and Maintenance of Way equipment during times of conflict to quickly maintain and operate the railway.

CHAPTER 2

Revival Project Overview

The Railway Operating Battalion Revival Project is a 3 phase plan designed to reactivate and reenergize the Railway Operating Battalions while saving the Army budget. This is all accomplished by switching most cross country military freight from truck to rail. Phase 1 is designed to be the test bed for all DOD installation's logistical movements. Phase 1 covers reactivating Railway Operating Battalions, what freight is expected to be received and shipped, and what installations need to be able to receive and ship freight by rail. Phase 2 covers the construction of Military rail corridors between close installations, the construction of 2 Joint Support Supply Centers, and starting Phase 1 operations for all DOD installations. Phase 3 consists of optional improvements meant to further enhance and improve the Railway Operating Battalions, such as Ambulatory/ Disaster relief train, troop trains, and Rail Ferries.

PHASE I

Reactivation of Railway Operating Battalions

The first step in phase I is to reactivate 7 to 12 Railway Operating Battalions. The home stations for these Railway Operating Battalions is based upon the size of the installation, units based in the installation, if the installation has an active Airfield, and if that installation is in close proximity to other DOD installations. Each Railway Operating Battalion will have dedicated Locomotive parking, Locomotive and rolling stock maintenance facility, and Maintenance of Way storage. Estimated number of personnel per Railway Operating Battalion is 90 to 130 persons. The estimated number of personnel required for 7-12 railway operating battalions is 630 to 1560 persons.

HHC. The Company is in charge of providing adequate trained personnel, S1-S6, and dispatching logistical rail movements. Estimated number of personnel in this company is 25 soldiers. The HHC is also known as the administrative branch of the Railway Operating Battalion.

A Co. The Company provides mechanics to repair both locomotives and rolling stock. Soldiers in this company will be trained to properly assess rolling stock and locomotives during deployments and to quickly repair railroad assets. The estimated number of personnel required is 20 soldiers.

B Co. The company performs track and track side electrical equipment maintenance. Soldiers in this company will be trained to re-rail rolling stock and locomotives after a derailment and to be able to install new sections of rail. The estimated number of personnel required is 20 soldiers.

C Co. The company performs railway operations and light locomotive maintenance. Soldiers are trained in proper hand, arm, and electrical signals, locomotive operations, and to communicate and coordinate with yardmasters and dispatchers. To further enhance railroad safety all trains leaving the railyard must have 4 personnel on board, an Engineer, Forward Brakeman, Rear Brakeman, and Conductor. Estimated number of personnel in this company is 25 soldiers.

Civilian Contractors

In installations deemed too small for Railway Operating Battalions and in all Army Depots Civilian Contractors will be used. Army railroads ran by contractors will use Army locomotives and maintenance facilities. These railroads will often have only two or three locomotives and a single track maintenance shop. Though the facilities will be much smaller all of the necessities for operating a railroad will be provided. These will include locomotive wash racks, refueling facilities, break rooms, track mobiles, and overhead cranes.

Current Rail Freight

The Army currently ships only vehicles and containers for Battalions that are deploying or on route to a training facility by rail. The Army also occasionally ships fuel and coal depending on installations needs and facilities. The Army railroads are rarely used and trucks have instead taken their place.

Projected Rail Freight

Listed below is projected freight the Army can ship to and from most Army installations. However not all Army installations are the same and the volume of traffic will be different depending on the size and units in the installation.

NOTE

Installations with local businesses that have access to rail or wanting rail access should be accommodated by the Military railroad. By serving local businesses on military railroads will generate revenue for future projects or plans into giving back to the community creating a stronger bond between military and civilians alike.

Inbound Freight

A. **JP8 and JP5** This Class 3 item and is the number one fuel source used by all branches of the Armed Forces. Costs can be saved by shipping JP8 by rail instead of trucks. Installations that have fuel delivered by pipeline will still use the pipeline instead of rail.

B. **Food** This Class 1 item is one of the most used consumable goods in the military. Hounded thousands of pounds of food are shipped daily to Military installations around the United States. To ease the burden on the DOD budget; food distribution centers should move to Joint Support Supply Centers and be distributed by rail to each Army installation.

C. **Issued Gear**. Class 2 items that cover gear that is normally issued at Central Issue Facilities (CIF) on Army installations. This gear includes uniforms, hand tools, Rucksacks, cold weather gear, and body armor.

D. **Meals Ready to Eat (MRE)** are also a Class1 item however it is used in mass quantities during training missions, deployments, and emergencies. Having MRE's shipped directly from the manufacturing facilities to Joint Support Supply Centers or each Army installation for distribution to the individual units will cut costs.

E. Ammunition. A Class 5 item that requires the most safety measures taken during shipment. Most installations still have rail access to their ammunition storage facilities. Shipping ammunition by rail is a far safer alternative, safety can be further enhanced by requiring all railroads to not mix cars with Hazardous materials and military explosives in the same consists. Even further safety measures can be enacted by putting ammunition into a specialized shipping container to be loaded into box cars. Also brass shell casings can be shipped back to the ammunition factories for reuse or scrap.

F. Construction Material. A Class 4 item used for Installation improvements and building construction. These Class 4 items that include cement, iron, and gravel would be shipped in bulk by rail. This also includes premade steel or iron structures made in another location and shipped to an installation.

G. POL. Petroleum, Oil, and Lubricants (POL) are class 3 items that are used in everything from HMMWVs to UH-60s. Coolants, Deicers, Antifreeze, and bulk chemical supplies are also classified as class 6 items.

H. Vehicles. Inbound Class 7 items will include new civilian and military vehicles from Army depots and vehicles coming back from reset. Expected inbound vehicles that might be delivered are HMMWVs, M1 Abrams, tractor trailers, generators, gators and golf karts.

I. Medical. Class 8 and Class 8a items include medical supplies and equipment. This includes blankets, medical clothing, hot/cold packs, gauze, and bandages but will not include Class 8b; ie blood and blood components.

Outbound Freight

A. Household Goods and POVs. By far the most commonly shipped goods in any installation no matter how big or small is household goods. By transporting household goods by rail the military can insure safer and faster shipments between installations while saving costs. When a soldier goes on an overseas tour their POV can be transported by rail and stored in DOD long term parking facilities. Soldiers PCSing to state side installations will have their goods shipped by boxcar while Soldiers PCSing overseas will have their goods shipped in 20ft containers to Military Ocean Terminals for transfer over seas.

B. Scrap and Recycling. With the Army trying to reduce costs by going green, costs can be cut by shipping scrap metal, plastics and paper by rail from the installations recycling center to a large trusted recycling facility. Military installations should creating a scraping plan to accommodate small scrap metal that is currently viewed as trash (used safety wire, cotter pins, bolts, washers, nuts, ect) by collecting scrap metal that is currently viewed as trash, can save the military tens of thousands of dollars.

C. Used POL. All installions have central collection facilities for disposing of used POL. These Central Facilities for POL will be used to transfer used bulk POL to a recycling facility by rail. An Army depot can be chosen to be a main recycling facility for all used POL for redistribution and sale.

D. Manufactured Goods. Many manufacturing companies for the Military are scattered across the United States. Manufacturers will deliver their goods to the closest military rail hub for cross country shipment. Most Class 1,2,3, and 8 goods will be delivered to the new Joint Support Supply Centers that will be attached to the Military Ocean Terminals. The other class shipments like vehicles, large parts, and ammunition will be delivered to Army depots.

E. Deployments. Just as it is like now when a Battalion deploys or goes on a training mission the battalions will load their vehicles and supplies on to flat cars for transport. This will be the highest probity freight the Railway Operating Battalion will haul.

Infrastructure Needed for Freight Operations

NOTE

To ease the Army spending budget during the construction process this Phase was designed to introduce the new freight types incrementally with Rail Operational Facilities and Fuel Facilities being the priority. Contracted Civilian ran Army railways will have smaller Rail Operational Facilities but will still have everything needed to run the railway safely and efficiently.

Rail Operation Facilities.

- **Rail Yard.** The rail yard must large enough to accommodate the installations training rolling stock and rail traffic during peak operating times.
- **Inbound/Outbound yard.** A three track siding long enough for large rail consists attached to the railyard made for building up and tearing down rail consists coming or leaving the installation. These small yard sidings will only be at installations with rail corridor routes.
- **Interchange yard.** A long three track rail yard designed to leave built up consists next to the interchange point were the Army railroad meets a civilian railroad.
- **Fueling point.** Fueling point for locomotives and rail vehicles.
- **Wash Rack.** Corrosion prevention being key for railway equipment longevity.
- **Locomotive Parking.** Parking with built in POL containment and mobile heavy duty fire extinguishers.
- **Maintenance Facilities.** Proper maintenance facilities with overhead cranes, inspection pit tracks, annual inspection bays, and maintenance bays. Facilities should be the same size as the Fort Eustis Rail Shop.
- **MOW Storage.** Will have track side loading docks for loading railroad tie and rail segments. Sidings for large Maintenance of Way (MOW) rolling stock like locomotive cranes, specialty shop cars and Flangers for use in cold weather climates. Storage for trackside electrical components such as railway crossing guards, signs, signals, and electrical boxes. Storage for speeder cars and High-rail vehicles will also be required.
- **RIP Track.** Repair in Place (RIP) track for rolling stock awaiting maintenance.

- **Caboose Track.** A siding designed to hold Caboose used for operations outside of the Railroad Operational Facilities. Due to the increasing demand of Military safety 4 rail crew members (Engineer, Forward Brakeman, Rear Brakeman, and Conductor) will be with an Army train whenever it leaves the rail yard limits.

Fuel Facilities. Two Central Fuel Facilities are recommended for each Army installation. The first Central Fuel Facility will be for aviation use only near the Airfield. The other Central Fuel Facility will be located next to ground support elements. Fuelers will pick up fuel from the Central Fuel Facility and distribute it to their unit's fuel points.

Warehouse Facilities. Most Army installations have preexisting warehouses on Army rail lines. Upgrading and some refurbishment are required. New warehouses will only be required if the current warehouses at that installation are condemned or not enough are excising.

Food Warehouse. A specialty warehouse designed to keep bulk food cold, frozen, and safe from outside elements is required for food shipments by rail. Food warehouses will ensure foods expiration date, proper handling, and that installations DFACS are properly stocked.

Vehicle Loading Ramps. Most installations have proper vehicle loading facilities already built however not all installations have the proper vehicle loading facilities as some installations still use short concrete ramps with inadequate space for rolling stock parking. Proper vehicle loading facilities should have a dedicated railyard and long loading spurs with gradual inclining ramps for improved vehicle visibility and loading safety.

Intermodal. Intermodal facilities should have improved surfaces for loading and container storage areas. Intermodal facilities only needs one to two tracks for loading containers and should be located near the Vehicle Loading Ramps for shared dedicated rail yards and ease of deployment operations.

Team Track. Team tracks are one to two tracks and are several rail cars in length. Team Tracks will have side loading docks and large open areas for the loading and unloading of containers and oversized loads from flat cars by forklift. Team tracks should be placed by Airfield hangers, Supply Support Activity (SSA) facilities, and recycling facilities.

-Example-

Biggs Army Airfield, Ft Bliss, TX

Biggs Army Airfield has rail access to fuel facilities and its own container intermodal yard. Rail has to be extended to the fuel facility and offloading spur added. The intermodal facility requires improved surface upgrading. Ft Bliss; like most Military installations still has the old warehouses and rail access to them. Rails need to be added to the small section from the main siding to the warehouse siding. Ft. Bliss also has two team tracks located near the Aviation fuel Depot. Team track sidings like these can be useful for offloading bulky items like rotor blades for an aircraft. Used POL is located near Airfield team tracks and a fuel depot next to the rail line.

Used Locomotive Initiative

To further ease the Army budget when completing Phase 1 and Phase 2, All “new” locomotives the Army acquires should be used and in good condition. Before these locomotives get sent to installations they will be required to be fully repaired, tested, cleaned, and painted. When funds are available locomotives will be upgraded to Tier 4 Genset when next brought in for reset.

Road to Rail Critters. While not considered a locomotive road to rail Critters provide rail shop maintenance power for moving heavy locomotives in and around the shop. Having the capabilities to move on both the roads and rails it can provide versatility in both times of peace and conflict.

Industrial Locomotive. Small industrial locomotives rated at 500 HP and below for use in Army and Navy depots and Naval shipyards. Industrial locomotives can be easily shipped by truck due to their small nature and can be easily deployed if needed. **NOTE:** only known Tier 4 Genset industrial locomotive is the TP56.

80 ton Center Cab. Center Cabs provide increased visibility in either running direction which improves safety when operating in shipyards, railyards, and depots. 80 ton Center cab locomotives have two 470 HP engines.

SW1500. Yard Switching locomotives to be used in large Depots, Army railyards, Military Ocean Terminals, and as primary movers in Air Bases. Switching locomotives in this category have around 1200 to 1500 HP engines.

GP10/ GP Series. Road switchers are the primary locomotives for all Army installations, Military Ocean Terminals and some Air Bases. Road locomotives have higher speed ratings and 1500 to 3000 HP engines.

SD40/ SD Series. Are a six-axle diesel electric locomotive to be used on Army railroads with rail corridor routes that see heavy freight traffic. Locomotives of this series has 3000 to 5000 HP engines.

Army Recycling Initiative

The Army Recycling initiative is to decrease the amount of waste while increasing potential revenue and easing the Army budget. While the Army does recycle paper products more initiative needs to be taken to recycle wood and metal products.

Paper. The Army currently only recycles paper and paper products like cardboard and it is taken to a local recycling facility. When collected bulk paper products can be sold and shipped by rail with wood products to DOD approved recycling facilities.

Wood. Scrap wood and wooden pallets can be collected at installation recycling facilities and can be sold and shipped with paper products to a DOD approved recycling facility.

Metal. No metal recycling program currently exists within the DOD. Metal recycling initiative calls for all maintenance facilities and metal shops to have scrap metal bins or collection points. Scrap metal will be taken to the installations recycling facility for shipment by rail to a Army Depot that will be designated as the DOD Metal Sorting facility.

DOD Metal Sorting Facility. This metal recycling facility will receive Red Tagged parts that are deemed unrepairable items to be stripped of their components and sorted. Scrap metal from installations will be sorted and all scrap metal from the Sorting Facility will be sold and shipped to a DOD approved Metal Recycling facility.

PHASE II

Joint installation Railroads

All Air Force, Navy, and Marine Corps rail operations will switch over control to the Army Railway Operating Battalions. Phase 1 will then commence on all installations upgrading and resuming rail service and replacing all cross country trucking routes to rail. Most rail service at these installation will be provided by civilian contractors.

Military Rail Corridors

Military installations that are within 50 radial miles of each other will be connected by a Military rail line between installations for an increase of rail transportation efficiency, while keeping needed personnel and equipment low. Route planning and land acquisition for the main line should be completed during Phase 1. Maximum length for Military Rail Corridors should be kept to 200 miles.

-Example-

joint base installation railroads

- **Ft Bliss Rail Corridor.** Ft Bliss, Biggs Army Air Field, McGregor range, White Sands Missile Range, and Holloman Air Force Base
- **Camp Lejeune Corridor.** Camp Lejeun and MCAS Cherry Point
- **Ft Eustis Corridor.** Ft Pickett/ Ft Lee/Ft Eustis, Yorktown naval weapons station and supply yard, Langley Air Force Base, Norfolk naval yard and Naval Air Station Oceana
- **Joint Base Lewis McChord.** Ft. Lewis, McChord AFB, Naval Base Kitsap, and Bangor Trident Base
- **Eieslson Rail Corridor.** Eieslson AFB, Ft. wainwright, and Ft Greely.

Updating the Schoolhouse

Increasing the size of The Army Railway Operating Battalion's Fort Eustis school house to include the addition of Locomotive simulators, common locomotives, signals, and increasing school house track infrastructure. The Schoolhouse will focus on basic railway operations and maintenance for Advanced Individual Training (AIT) as well as teach more advanced courses such as Technical Inspection for Maintenance, Rail Crew Instructor courses for company level crew progression and training, and advanced Maintenance of Way vehicle courses for rail repair.

Joint Support Supply Center

The two Ocean Terminal Facilities located on either end of the United States will become Joint Support Supply Center. These Installations will stock Class 1, 2, 3, 8, and 9 items from food for DFACs, uniforms, to safety wire, screws, and washers as well as household good transfer from OCONUS to CONUS for all branches of the Armed Forces and their installations. These support facilities will provide quick and efficient way to transport common items used by all branches from CONUS to OCONUS installations. The purpose of these Support Centers is to stock the most used consumable parts and goods for all branches, to order and receive supplies from the supplier and or manufacturer, and to receive and ship orders from different installations by rail. From the manufacturer supplies will get shipped to the closest military installation for transfer onto rail to be shipped to the Military Ocean Terminal and Joint Support Supply Centers (JSSC) for warehouse storage and to be shipped to CONUS and OCONUS installations around the world. From the JSSC supplies can be transported by ships to OCONUS installations or by rail to CONUS installations. For installations without rail access, supplies will be shipped by rail to the closest installation with rail access and will be transferred onto a truck to be shipped to that installation. These transfers can also be made at Airfields with rail access onto an aircraft delivering supplies to OCONUS and CONUS installations without rail access.

FIG 1-1 see References

To best build The JSSC while keeping the Army Budget in check the JSSC will also have their own phase plan that can be started at the same time as the Railway Operating Battalion three Phase plan.

Phase 1

Phase 1 will incorporate upgrading rail and railway facilities in needed areas only. Rail yards and maintenance facilities and mainline trackage will be upgraded and repaired first. Large areas designated for JSSC centers will be planed and the area will be cleared and ready for JSSC warehousing construction.

Phase 2

Phase 2 is the construction of two JSSC warehousing facilities in the preexisting Ocean Terminal Facilities on the East and on the West coast. As goods are being introduced to the Army rail system so are the warehouses built for the JSSC facility. Food and household goods will take priority over the other items to be shipped by rail.

New Engine Terminals

During Phase 1 only Army installations with Railway Operating Battalions will have the new engine shops, Locomotive parking, and maintenance equipment storage areas will be built to ease the Army budget during Phase 1 operations. During Phase 2 all other Army and DOD installations that are operated by civilian contractors will have new engine facilities built.

Upgrading Locomotives

Most of the locomotives in the DOD fleet are already several decades old and the used locomotives during Phase 1 acquisition will be the same age. As Locomotives come in to the main DOD reset facility these locomotives will be rebuilt with new cabs, electrical systems, and new Genset ultra low emission engines. To keep the cost low these new engines will only be rebuilt during reset and will be given the Railway Operating Battalions first.

Phase: III

NOTE

Phase 3 is meant to only consist of optional improvements meant to further enhance and improve the Railway Operating Battalion's capabilities both during times of peace and conflict.

Deployment Ready

For a fully deployment ready Railway Operating Battalion new Armored Locomotives built to a European standard with changeable coupling, buffers, and braking systems. Also required would be modular 40 foot rolling stock with a flat car base. These rolling stock can be built up to be anything from boxcars to armored tank cars and will also be built to a European standard. These locomotives and rolling stock will be kept in railway Army Depots and in OCONUS installations.

OCONUS

Besides Alaska there will be no OCONUS positions available during Phase 1 or 2. OCONUS installations should be considered for Locomotive and rolling stock depots for quick response and railway relief during times of conflict. Countries that should be considered for OCONUS railway storage depots are South Korea, Germany, and Italy. Also available would be a new standard gauge railway for Hawaii. This railway would be used to transport supplies from the naval docks and airbases to the Ammunition Depots and Warehouses.

Community outreach program

When natural disasters take out large portions of track often times the railroad has to file for bankruptcy and close its doors. In the event a railroad cannot afford to repair track damage the Army Railroad Transportation Corps can “deploy” to fix the rail line. This gives the Railroad Corps real world experience in deployment like setting.

-Example-

Tillamook Railroad

In 2007 a large storm took out several portions of track and some bridges. The Tillamook Railroad had to file for abandonment and the town of Tillamook has been slowly dying ever since.

Practically all Army installations have civilian industrial rail spurs between the installation and interchange yards of the railroad that service the Army installation. To further ease the burden on the Army budget the Railway Operating Battalions can help sustain themselves by servicing businesses on its own Military railways.

-Example-

Biggs Army Airfield, Ft Bliss, TX

The Rail line running from the northern most Army interchange spur to the southernmost Union Pacific rail yard. This branch line that is currently operated by Union Pacific a class 1 railroad, services and oil refinery, iron foundry, and a cement plant. Also there are additional spurs on this branch line that services several businesses and warehouses.

Rail Ambulatory and Disaster Relief

During times of emergencies or natural disasters, hospitals can be over crowded, understaffed and often times too far to reach. During these times an Army Disaster Relief Train can be called in to supply medical aid, food, tents, provide mobile landing pads for helicopters, and emergency power by using the locomotives as a mobile power station.

Troop Trains

The Army uses buses to shuttle thousands of soldiers from their home installations to Army training facilities across the nation. Ft. Lee considered Troop trains in 2010 to transport soldiers from Ft. Lee to A.P Hill for training. Troop trains will get soldiers to training facilities faster, cheaper, and more safely then if transported by bus. There are several options for the Army to run troop trains,

- **Option one** is for full Army run troop trains with army locomotives, rolling stock, and crew. These troop trains will be run much like Amtrak runs their passenger service in the States.
- **Option two** is for the Army to have passenger rolling stock with contracted Class 1 railroads operating the troop trains between installations
- **Option three** is to contract Amtrak to run troop trains between installations with Amtrak locomotives and rolling stock.

Rail Ferry

To lessen the burden on the Alaskan railroad and their ferry service and to facilitate fast and efficient Railway Operating Battalion deployments, an ocean worthy Rail Ferry capable of transporting rolling stock and locomotives is needed. The Rail Ferries must be able to ship at least 25 to 30 railcars and a minimum of two ferries should be constructed.

CHAPTER 3

Truck to Rail

To best look at the benefits of rail transportation is by having a closer look into the everyday needs of an Army installation. For this Fort Bliss was chosen to represent the needs of an Army installation.

Fuel. The aviation unit in Ft. Bliss is considered a heavy Combat Aviation Brigade. (CAB) and according to FM 3-04.111 A heavy CAB is composed of 52 UH-60/HH-60s, 48 AH-64s, 12 CH-47s.

- UH-60 holds 2,400lbs of fuel w/o external tanks
AH-64 Holds 2,440lbs of fuel w/o external tanks
CH-47 holds 6,900lbs of fuel
- 52 UH-60 X fuel = 124,800 lbs of fuel X2 mid flight refuel = 249,600 lbs of fuel
- 48 AH-64 X fuel = 117,120 lbs of fuel X2 mid flight refuel = 234,240 lbs of fuel
- 12 CH-47 X fuel = 82,800 lbs of fuel

During training missions both the UH-60 and AH-64 refuel mid flight and are not equipped with external tanks. The calculations for every aircraft that fly once per week for training missions is estimated at a total fuel consumption of 566,640 lbs of fuel or 84,573 gals (JP8 weighs 6.7 lbs per Gal)

- normal tractor trailer fuel capacity is 9500 gal, due to DOT weight restrictions they can only hold 8500 gals
- Railroad tank car can hold 20,000 to 25,000 gals

For a weekly consumption of 84,573 gals per week means 5 tank cars a week by rail or 10 tractor trailers a week by road.

Food. In Fort Bliss there is an estimated 24,000 active Soldiers, www.militaryonesource.mil says that 56.1 % of soldiers are married; that leaves 43.9 % for single soldiers.

- 24,000 active soldiers Ft. Bliss
- 13,464 married soldiers (56.1 %)
- 10,536 single soldiers (43.9 %)

Most military installations only need to provide enough food for all single soldiers plus a couple of extras in their Dfacs. A person eats an average of 5lbs a day.

- 5lbs X 10,536 single soldiers = 52,680 lbs of food per day needs to be delivered to Ft. Bliss.
- A 50ft refrigerator rail car has a max load limit of 130,000 lbs ~ 165,000 lbs

A 50ft truck trailer has the maximum freight weight of 42,000 to 45,000 lbs What is not stated is the size of the load but only the weight, It is assumed to double the amount of needed trucks or rail cars as to accommodate the size of the load. For 52,680 lbs of food a day the Army would need 1 to 2 rail cars a day or 3 to 4 trucks a day.

Household Goods. In Fort Bliss there is an estimated 24,000 active Soldiers ranging from E1 to O6 and above. PCS maximum allowable weight ranges depending on rank and if the soldier is married. According to Move.mil PCS weight chart, max allowable weight ranges from 5,000 lbs to 18,000 lbs. A Married E-5 will be used as the example Max allowable weight which averages 9,000 lbs. 8x12 PODS container will be used to average the size of this move which is good for 2-3 rooms. On average every soldier PCS's every 3 years which is 1,095 days

- 24,000 soldiers divided by 1,095 days (3 years) = 21.9 soldiers a day PCS. Let's round up that number to 22 a day.
- 22 soldiers a day X 9,000 lbs = 198,000 lbs
22 soldiers a day X (8'x12' PODS) = 264' length of packing space.
- as per the Department of Transportation the maximum allowable load weight on a tandem axle trailer is 36,000 lbs.
- According to Union Pacific the maximum allowable load weight on a 50ft Box car is 146,000 lbs ~ 215,000 lbs

The estimated number based on weight is 5.25 or 6 trucks a day to ship house hold goods while using a box car is 1.2 or 2. According to Caltran the maximum length for a semi-trailer is 40ft while railroad box cars are known to be between 50ft to 60ft. the average length for all 22 soldiers PCSing a day is 264 feet. This means 6.6 to 7 trucks a day to ship household goods or 4.4 to 5 boxcars a day. In conclusion based on the provided data using rail to transport military goods is more economically viable and cost productive.

Safety Benefits

Using rail to transport military goods also increase the safety for the crew and the goods that are being transported. With safety being United States Army's number one concern while during both times of peace and conflict and according to the Tennessee-Tombigbee Waterway and adapted from Haulk, a single truck has a safety record of 0.84 deaths per billion ton miles. A 100 car train has a record of 1.15 deaths per billion ton miles. To fairly compare them however the number of trucks has to be translated into rail, therefore according to the Iowa Department of Transportation a single truck has a cargo capacity of 26 tons and a 100 car train has a capacity of 10,000 tons. We can figure that one 100 car train is equal to three hundred and eighty-four 26 ton trucks. This means the safety numbers for 384 trucks carrying 26 tons is 322 deaths per billion ton miles. Trains are by far the safest means of transportation of Military equipment and goods.

Cost Benefits

The University of Iowa states that a heavy unit train with four 3,000 HP locomotives carrying 10,500 tons going 1,000 miles costs \$1.19 per ton-mile while a general freight truck costs \$8.42 per ton mile. That's nearly an 86% savings.

Environmental Benefits

FIG 1-2

According to the Rocky Mountain Institute, a single truck has a fuel consumption of 105 ton-miles per gallon while a train has a fuel consumption of 455 ton-mile per gallon. This shows that rail is 76% more fuel efficient per ton of goods shipped than trucks.

Theft Control Benefits

Unlike trucking routes all major railroads have dedicated railroad police to prevent and investigate Theft, Threats of Terrorism and derailments. Along with State Police and occasional DOD security teams for high security shipments, Railroad police adds an extra level of security that truck routes cannot provide.

Cargo Corrosion Prevention Benefits

Insulated boxcars can be acquired to ship corrosion sensitive parts to prevent corrosion during transport. Unlike Insulated box trailers, insulated boxcars have high ceilings and wide flooring and thick insulation making it better for shipping large items that are corrosion sensitive like helicopter rotor heads.

War Time Benefits

When deployed Railway Operating Battalions can increase allied freight transportation to meet war time demands, repair railways that have been damaged by war, and to ship military goods near the front lines to decrease the need for Military convoys and to help decrease loss of life from IEDs. During times of conflict only railroads can move large amounts of military goods at once. Being able to move battalion sized elements at one time ensures fast deployment and response time during times of conflict.

Community outreach Benefits

With Army railroads delivering state side goods to businesses along the Army rail line not only generates potential revenue but also help creates a positive relationship with the local community. If the Railway Operating Battalions where to also help repair railroads after natural disasters would not only strengthen the economy around that railroad but also improve community relations with the Army.

Research Benefits

The Railroad Operating Battalion's and the Federal Railroad Administration can team up to test new safety devices, signals, locomotives, and rolling stock on Army railroads. The Army railroads provide testing in harsh weather environments like Cold weather conditions with the Alaskan Eieslson Rail Corridor, hot weather conditions with the Texan Ft. Bliss Rail Corridor and wet raining conditions in Washington's Ft Lewis Rail Corridor.

Summary

Railway Operating Battalions and shipping Military goods by rail can increase Army safety, decrease theft, prevent corrosion during transit, reduce overall shipping costs, create a community outreach, and help the environment by decreasing the Army's Carbon footprint. There are many more hidden benefits for having both an active Railroad Operating Battalion and shipping military freight by rail. One thing is apparent and that is the need for both a deployable Railway Operating Battalion and the need to reduce Army spending by shipping military freight by rail.

CLOSING LETTER

The Army Railway Operation Battalions are an important and integral part of the United States Army. The outrageous cost to move vast amounts of Military equipment by truck or by air implies that The Army Railway Operating Battalions can never truly be obsolete. By transferring the job of moving vast amounts of Military equipment to civilian contractors can have unintended consequences and drive up costs for the Military. While current deployment may not see much use in deployable rail assets; most countries do have railroads that can be used for or against the United States. Ignoring deployable rail assets will cause Military goods to be transported more slowly and more costly in a time of war. A deployed Army Railway Operating Battalion can also help local communities by strengthening preexisting railways and teaching locals how to effectively and safely operate their railways. Operating and repairing overseas railways during times of war to include allied railways will cause a more strengthened bond between our allied forces. It will also provide quick and effective mass transport of Military goods, and with maintained railway lines and modern railway equipment help strengthen the local reputation as draw back and hand over occurs.

My goal is to preserve a legacy and heritage of military railroading, to increase Military efficiency with lower costs, to improve inter-country relations through railroading, and to supply our troops with goods quickly and effectively. I hope you find The Army Railroad Transportation Corps is just as important today as they were in the past and that they can still be used effectively to move equipment safer and cheaper in mass as any other form of transportation. I sincerely hope that you will join me and we can save The Army Railroad Transportation Corps and make them an important part of the Military again. Not just a past heritage that once helped win many wars.

By
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U.S. Army
February 2016

*For comments, questions, or ideas to be considered please email
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Appendix

FIG 1-1

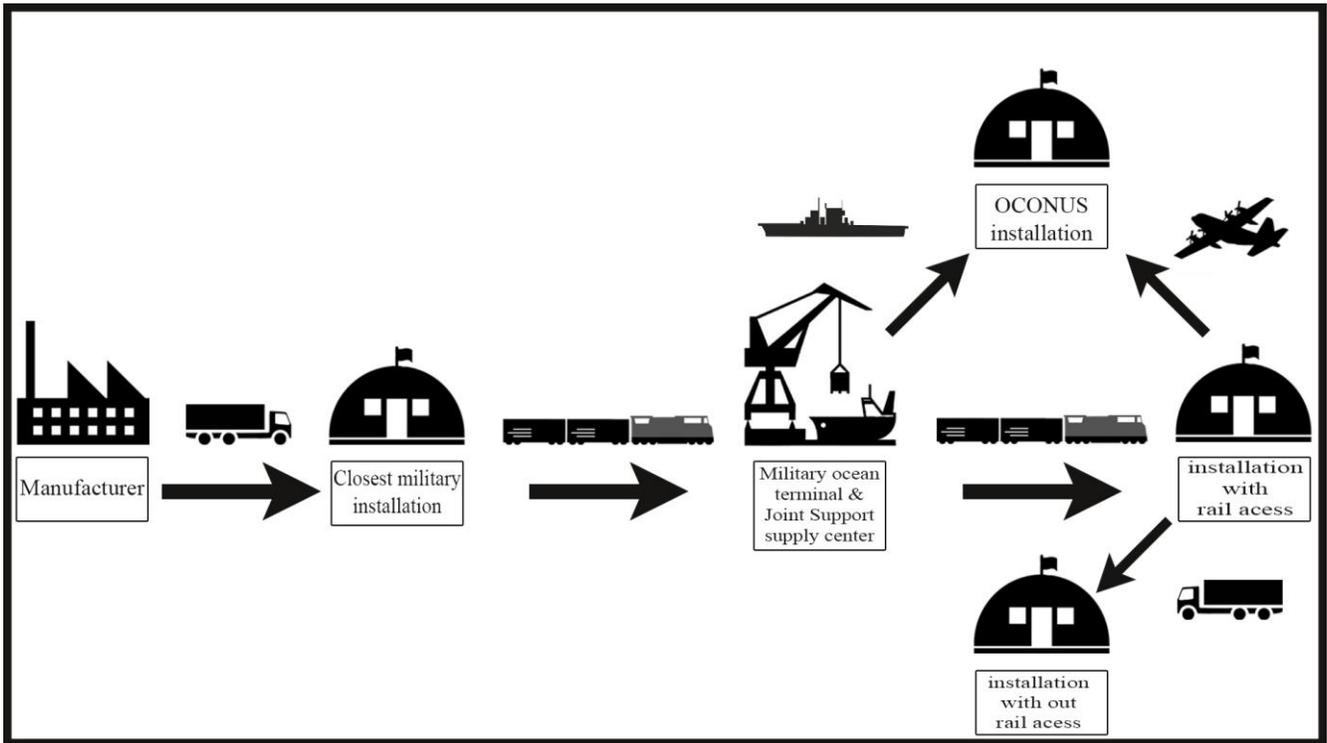
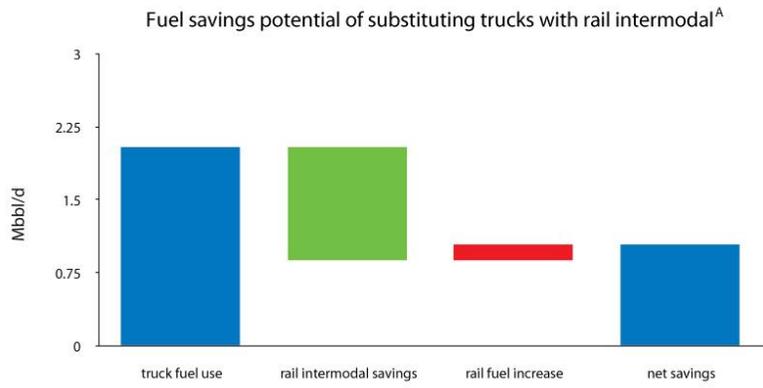


FIG 1-2



Truck and rail platform comparisons^B

MODE	FUEL CONSUMPTION	INFRASTRUCTURE CAPACITY	COST (TO USERS)	SAFETY
Railroad	455 ton-miles per gallon	216 million annual tons per mainline	2.7 cents per ton-mile	0.6 fatalities per billion ton-miles
Truck	105 ton-miles per gallon	37.8 million tons per lane	5 cents per ton-mile	1.5 fatalities per billion ton-miles

Lettered sources in chart are detailed below.

Rocky Mountain Institute © 2011. For more information see www.RML.org/ReinventingFire.

Goods that can be shipped by rail.

1. Inbound goods

- Consumable Goods – *MRE's, uniforms, parts, Benchstock, etc.*
- Oversized loads – *any load that needs to be shipped by flat car other than vehicles like Rotor blades*
- Ammunition – *5.56, 7.62, 30mm, etc.*
- JP8 – *Fuel type used by all military vehicles and generators*
- Vehicles – *HMMWV, HEMTT, M1A2, POVs, etc.*
- Container loads – *Containers used for easier truck, rail, to ship transfer*
- Building materials – *Cement, Steel beams, rebar, etc.*
- Household goods- *Household goods for PCSing or for storage for Overseas missions*
- Medical- *Blankets, gloves, syringes, bandages, drugs.*

2. Outbound Goods

- recycled metals – *used copper, iron, steel, ect for recycling and cost savings*
- recycled plastics – *jugs, bottles, ect for recycling and cost savings*
- recycled paper – *newspaper, shredded paper, cardboard, ect for recycling and cost savings*
- used POL – *Oil, hydraulic fluid, contaminated JP8 ect for recycling and cost savings*
- Brass/Shell casings – *5.56, 7.62, 9mm, ect for reuse or recycling and cost savings*
- Consumable Goods – *MRE's, uniforms, parts, Benchstock, etc.*
- Surplus – *old unused equipment for shipments to surplus facilities for recycling or sale.*
- Household goods- *Household goods for PCSing or for storage for overseas missions.*
- Vehicles – *HMMWV, HEMTT, M1A2, POVs, etc*

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