



August 2021

DEFENSE TRANSPORTATION

The Army Should Take Action to Better Ensure Adequate Rail Support to Combatant Commanders

Accessible Version

GAO Highlights

Highlights of [GAO-21-411](#), a report to congressional committees

Why GAO Did This Study

According to Army officials and doctrine, rail is the most cost effective and expeditious means of moving large quantities of materiel, such as tanks and ammunition, over long distances. Army officials also stated that during contingencies, approximately 67 percent of Army unit equipment moves by rail from its fort or base of origin to a shipping port.

House Report 116-120, accompanying a bill for the National Defense Authorization Act for Fiscal Year 2020, included a provision for GAO to review military rail capabilities. GAO evaluated the extent to which the Army has taken action to 1) meet potential needs for rail operating crews and 2) inspect, repair, and monitor installations' rail track.

GAO reviewed Army studies, documents, and analyses about rail operating crew needs and the management and oversight of the Army's rail track network, and interviewed Army and other appropriate DOD officials.

What GAO Recommends

GAO is making three recommendations to the Army to determine the requirement for trained rail operating crews, quantify the risk of any shortfall of crews, and require and implement a quality assurance program to inform decision-making in providing oversight of rail track conditions. The department concurred with GAO's recommendations.

View [GAO-21-411](#). For more information, contact Cary B. Russell at (202) 512-5431 or russellc@gao.gov.

August 2021

Defense Transportation

The Army Should Take Action to Better Ensure Adequate Rail Support to Combatant Commanders

What GAO Found

The Army has taken some actions to provide rail operating crews, but has not determined requirements for the number of trained rail operating crews needed. Based on a 2015 analysis, the Army reduced its rail force structure by 70 percent to a single 180-person 757th Expeditionary Rail Center (ERC). As the Army's only rail unit, it provides railroad personnel to assess, plan, coordinate, and conduct rail operations to support the warfighter overseas. Although not part of its mission, the 757th ERC also provides rail operating crews to support the rail movement of Army units in the continental U.S. (CONUS) as a stopgap measure. Officials stated that, since fiscal year 2018, the 757th ERC operated under an exception allowing them to support CONUS operations, and that the demand for these crews in CONUS occurred frequently and regularly. Army officials stated that a possible gap could exist in the event of a large mobilization as the unit would be dedicated to its overseas effort and may also be called to support CONUS movements. A 2020 Army study considered whether rail assets, such as the number of trains, could meet requirements, but officials stated that it did not determine the number of rail operating crews needed to support a large mobilization. Determining this requirement and the risk associated with any shortfall of crews would better position DOD to mitigate those risks.

DOD Personnel Moving Equipment on Non-Restricted Track



Source: Department of Defense. | GAO-21-411

The Army has undertaken efforts to manage the condition of its rail track, but challenges remain in conducting inspections, using waivers, and funding repairs. For example, Army inspectors characterized about half of the Army's rail track as closed due to defects, and four of 60 installations had not met or were not scheduled to meet the 5-year ultrasonic inspection timeline standard set by the Army inspection program. Although the Army has some quality assurance efforts, it has not established an overall quality assurance program to ensure that its track is inspected and that deficiencies are corrected according to existing protocols. Without a quality assurance program, the Army will not have a comprehensive approach for its rail track and will not have coordinated oversight in managing efforts such as inspections and funding repairs.

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Abbreviations

AMC	U.S. Army Materiel Command
CONUS	continental United States
DOD	Department of Defense
ERC	Expeditionary Rail Center
ERDC	U.S. Army Corps of Engineers, Geotechnical and Structures Laboratory, Engineer Research and Development Center
EXORD	execute order
FRA	U.S. Federal Railroad Administration
SDDC	Military Surface Deployment and Distribution Command
UFC	Unified Facilities Criteria

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August 23, 2021

The Honorable Jack Reed
Chairman
The Honorable James M. Inhofe
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Adam Smith
Chairman
The Honorable Mike Rogers
Ranking Member
Committee on Armed Services
House of Representatives

According to Army officials and doctrine, rail is the most cost effective and expeditious means of moving large quantities of materiel, such as tanks and ammunition, over long distances.¹ Army officials also have stated that during contingencies approximately 67 percent of Army unit equipment moves by rail from its fort or base of origin to a shipping port. In 2003, for example, nearly 1 million tons of unit equipment moved by rail in support of Operation Iraqi Freedom. This is the rough equivalent of moving more than twice the total number of M1-series tanks currently in the Army inventory.²

The resources required to effect such a movement are sizeable as well. A 2020 simulation of deployment from a single fort in support of a large-scale combat operation demonstrated the need for more than 2,200 rail cars over a 3-day period.³ More than 600 of those cars were required to move a single Armored Brigade Combat Team. This Army study also noted that such a movement would require a sufficient number of

¹Army Field Manual 4-01, Army Transportation Operations (Apr. 3, 2014).

²According to the Army, the latest M1 Abrams tank variant, the M1A2 SEPv2, weighs 71.2 U.S. tons. Commercial sources report that there are about 6,300 tanks in the U.S. inventory.

³In the 2-year period 2017 through 2018, the Army reported an increased operational tempo that included more than 135 opportunities to practice deployment or redeployment tasks including brigade-size unit movements.

qualified rail operating crews to operate the trains in addition to well-maintained rail track over which the trains would travel.⁴

The House Armed Services Committee Report 116-120 accompanying a bill for the National Defense Authorization Act for Fiscal Year 2020 included a provision for us to examine the extent to which the Army has assessed rail capabilities and addressed any identified gaps in meeting combat requirements.⁵ In this report, we examine the extent to which the Army has taken actions to (1) meet potential needs for rail operating crews and (2) inspect, repair, and monitor installations' rail track.

To address the first objective, we reviewed documentation, such as Army studies and analyses of rail operating crew needs and interviewed Army officials about the Army's efforts to address gaps in rail capabilities. We reviewed information contained in Army mobilization execute orders (EXORDs) to identify any potential shortfalls concerning the number of rail operating crews that would be required to support a mobilization. We also compared the Army's efforts to address potential shortfalls in the number of rail operating crews to Army Techniques Publication 5-19, *Risk Management* (ATP 5-19), which provides doctrinal guidance on managing risk in the conduct of operations.⁶ We collected and reviewed documentary and testimonial evidence regarding the 757th Expeditionary Rail Center (ERC)—the Army's only rail unit—to include its missions and activities and efforts to mitigate any gaps in Army rail capability support for combatant command activities.

To address the second objective, we collected and considered documentary and testimonial evidence related to the management and oversight of the Army's rail track network. Specifically, we reviewed the Army's stated objectives, standards, inspection reports, and documented communication and decision outcomes regarding any identified challenges and risks related to the management of rail track operations. We then compared this information to requirements in ATP 5-19, *Risk Management*, which provides doctrinal guidance on managing risk in the

⁴Rail operating crews include personnel such as locomotive engineers, brake operators, and conductors. Rail track refers to a structure composed of rail, ties, and ballast that support the loads of railroad cars and locomotives and guides their movements. Department of the Army Pamphlet 420-1-3, *Transportation Infrastructure and Dams* (Apr. 9, 2009).

⁵H.R. Rep. No. 116-120, at 100 (2019).

⁶Army Techniques Publication 5-19, *Risk Management* (Apr. 14, 2014) (incorporating change 1, effective Sept. 8, 2014).

conduct of operations. We interviewed officials from the Office of the Secretary of Defense, Joint Staff, and various Army offices to include Army Headquarters G-9, Army Engineer Research and Development Center, 757th ERC, Army Materiel Command (AMC), Military Surface Deployment and Distribution Command (SDDC), Army Installation Management Command, and Army Joint Munitions Command to discuss how the Army manages its various rail-track efforts and information.

We conducted this performance audit from December 2019 to August 2021 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

There are more than 120 defense installations and activities in the continental United States (CONUS) that require the use of rail to meet their assigned missions. The Army is responsible for 60 of these installations, which contain approximately 1,100 miles of track. Further, these Army installations are linked to 33,000 miles of main railroad track that has been identified as important to national defense and designated as the Strategic Rail Corridor Network under the Department of Defense's (DOD) Railroads for National Defense Program.⁷ In a large-scale combat operation, these railways would be used to move unit equipment and ammunition from home bases or forts to ports for movement overseas.

It is Army policy to provide a safe, reliable, efficient, and cost-effective transportation infrastructure on its installations.⁸ To that end, Army Regulation 56-3 states that all Army activities and installations will comply

⁷The nation's 780 commercial railroads operate on more than 200,000 miles of track under the regulatory oversight of the U.S. Federal Railroad Administration (FRA). In collaboration with the FRA, United States Transportation Command's Army component, SDDC, determines if this off-installation network meets minimum defense readiness requirements for maintenance condition, clearance, and gross weight capability.

⁸Army Regulation 420-1, *Army Facilities Management* (Feb. 12, 2008) (incorporating change 3, effective Mar. 6, 2019).

with federal regulations.⁹ Army rail cars that operate outside of Army installations over commercial railroads are subject to the standards established by the Association of American Railroads and the U.S. Federal Railroad Administration. However, Department of Transportation officials stated that the Army's captive fleet of locomotives and rail cars—i.e., those intended to operate only on Army installations—are not subject to these standards and regulations.¹⁰ Army officials stated that the same exemption from federal regulations and inspection is true for rail track on Army installations.¹¹

Army EXORD 036-18 designates the Commander of the AMC as the Army's single manager responsible for managing its captive-fleet rail operations, accountability of assets, and equipment readiness.¹² Through its subordinate commands—Army Sustainment Command, Installation Management Command, and Joint Munitions Command—AMC is responsible for management of captive-rail operations, accountability of

⁹Army Regulation 56-3, *Management of Army Rail Equipment* (Aug. 31, 2009). Specifically, the regulation states that Army activities and installations will comply with chapter II of title 49, Code of Federal Regulations (C.F.R.). The regulation also states that when compliance with the C.F.R. is not possible because of funding constraints, deviation requests will be submitted to the appropriate Army headquarters for approval.

¹⁰Army Regulation 56-3 states that every effort will be made to comply with FRA regulations for domiciled equipment utilized on Army installations and that the captive fleet will be maintained to the same general standards practiced by private industry operating similar fleets. However, DOD is not required to meet federal regulations for equipment within the boundaries of its installations and it conducts its own captive-fleet inspections. Equipment such as rail cars or locomotives that depart an installation must meet federal safety regulations and are subject to federal inspection. See 49 C.F.R., ch. II, parts 215, 229.

¹¹Outside of DOD installations, the FRA rail-safety oversight framework relies on FRA inspections to ensure that railroads comply with federal safety regulations. See 49 C.F.R., ch. II, part 213. Within DOD installations, the minimum required maintenance condition levels for railroad track are defined in DOD, Unified Facilities Criteria (UFC) 4-860-3, *Railroad Track Maintenance and Safety Standards* (Feb. 13, 2008). DOD installations are not required to meet federal regulations for track infrastructure and they conduct their own inspections, although UFC 4-860-3 states that safety inspection of track will be performed in accordance with FRA Track Safety Standards.

¹²Headquarters, Department of the Army, Execute Order 036-18, *In Response to United States Army Audit Agency (USAAA) Army Rail Operations Audit Recommendations* (Nov. 20, 2017).

assets, and equipment readiness at 60 Army installations.¹³ Those responsibilities include directing and executing oversight of the captive-fleet rail program, to include analyzing data and submitting funding requirements for maintenance.

Army Has Taken Steps to Evaluate and Improve Some Rail Capabilities, but Has Not Determined Requirements for Rail Operating Crews

Force Structure Changes Have Reduced Available Rail Operating Crews

In 2015, Army analysis of its force structure led Army decision makers to make changes to their rail units. The Army implemented its force development processes to make decisions about how to allocate end strength of units that deploy to support combat forces. The Total Army Analysis process was to determine organizational requirements and translate those requirements in force structure. According to Army force developers, they concluded that there was no requirement for Army soldiers to act as rail operating crews either in CONUS or overseas.¹⁴ Rail officials said that the Army's plan was to rely on civilian operators in the CONUS and on the host-nation government operators overseas. Rail officials also said that the Army's analysis led to a 70 percent reduction in the Army rail force structure—from over 600 personnel in four rail battalions to the single 180-person 757th ERC.

The 757th ERC is the only rail unit in the Army. It provides railroad personnel to assess, plan, coordinate, and conduct rail operations in support of the warfighter. From its inception in 2015, the 757th ERC has served the geographic combatant commanders by undertaking a variety

¹³Army Sustainment Command sustains Army and joint forces worldwide in support of combatant commanders, bringing the right equipment to the right place and time in the right condition. Installations Management Command supports the Army by handling the day-to-day operations of U.S. Army installations around the world. Joint Munitions Command manages the production, storage, distribution, and demilitarization of conventional ammunition for all U.S. military services.

¹⁴Rail operating crews include personnel such as locomotive engineers, brake operators, and conductors.

of tasks, such as deploying overseas to liaise with host-nation forces, assessing overseas rail conditions and equipment, and advising on railhead operations overseas.

According to rail officials, the 757th ERC retained personnel with skills such as rail operating crews even without a mission to operate railroads overseas or in CONUS. Instead, the 757th ERC's mission is to perform capability assessments, serve as the combatant commander's adviser concerning rail operations in their respective area of responsibility, and advise and assist host-nation and contracted-rail personnel.¹⁵ In addition, force development officials said this change was because there was no longer a requirement for Army soldiers to act as rail-operating crews and Army rail-operator training ceased.

Nonetheless, the demand continued for rail crews to support CONUS rail operations. According to officials, although sufficient staffing positions were available on installations to hire rail operating crews, demand continued for additional rail operating crews at CONUS installations. As a stopgap, the 757th ERC continued to provide installations with rail operating crews to augment rail activities on an as-available basis from its reduced pool of skilled engineers, brake operators, and conductors. 757th ERC officials said that demand increased even as operator availability in their unit decreased.

Army headquarters elements recognized that 757th ERC personnel were meeting a constant demand to augment CONUS installations with rail operating crews even though it was not the 757th ERC's mission. Consequently, in fiscal year 2018, Army headquarters elements collaborated to create an exception to Army policy. According to 757th ERC officials, this exception allowed 757th ERC soldiers to be recertified as rail operating crews and to provide some surge capability to CONUS installations, thereby codifying a practice that had already been occurring.

However, 757th ERC officials stated that the ERC also retained its mission to advise and assist overseas combatant commanders. According to these officials, the use of 757th ERC soldiers to support rail operations in CONUS while also being committed to their overseas mission created a possible capability gap in rail operating crews. Officials of the 757th ERC and the Army stated that they could not quantify this

¹⁵Army Techniques Publication 4-14, *Expeditionary Railway Center Operations* (May 29, 2014).

gap. 757th ERC officials noted that the demand for rail operating crews occurred frequently and regularly. 757th ERC officials also stated that should there be a large-scale mobilization, the same 757th ERC soldiers that would be needed overseas to fulfill the 757th's primary mission might also be required to assist with rail operations at CONUS installations.

Army Implemented Two Initiatives to Assess Rail Capabilities for Mobilization, but Has Not Determined Requirements for Number of Trained Rail Operating Crews or Analyzed the Risk of Any Shortfalls

The Army implemented two initiatives to assess rail capabilities. In 2019, the Army published EXORD 088-19 that addressed rail capability.¹⁶ As one of the key tasks of this EXORD, the Army sought to rapidly expand mobilization and deployment capacity to meet large-scale combat requirements. Specifically, the Army Deputy Chief of Staff, G-4, was tasked with validating the logistics support required to execute Army missions in support of approved operations plans and combat operations under all levels of mobilization.¹⁷ Additionally, the Army Deputy Chief of Staff, G-3/5/7 was tasked with ensuring that CONUS and overseas forces were adequately resourced to meet requirements of mobilization.¹⁸ EXORD 088-19 further tasked this Army official to identify materiel, personnel, and training deficiencies, which precluded attainment of Army readiness objectives.

Army officials directed the 757th ERC to provide rail operating crews to CONUS installations while also meeting the requirements of the overseas combatant commanders. Rail officials told us that in response, the 757th ERC, in April 2020, recommended a mission statement change to permit its soldiers to address both deploying overseas—its primary mission—and providing rail operating crews for CONUS installations. The mission change proposal included, among other things, increasing the size of the 757th ERC. However, Army force developers told us that they did not support this change because there is currently no formal Army

¹⁶Headquarters, Department of the Army, Execute Order 088-19, *ISO Army Mobilization Plan* (June 3, 2019).

¹⁷The Department of the Army G-4 enables a ready Army by providing and overseeing integrated logistics policies, programs, and plans in support of force generation.

¹⁸The Army Deputy Chief of Staff G-3/5/7 is responsible for Army operations, plans and training.

requirement to provide rail operating crews within CONUS and they did not want to establish such a requirement. Officials told us that the 757th ERC continues to provide rail operating crews to CONUS installations on an as-needed basis. Officials from the 757th ERC told us that they realize that their short-term actions in providing these crews may mask a long-term shortfall. They added that the 757th ERC would likely be unable to meet the simultaneous overseas and CONUS missions during a large-scale combat operation, but that they saw no other solution to the lack of sufficient, trained rail operating crews.

In 2019, the Army issued EXORD 065-19, a second initiative that focused on Army unit movement readiness with the purpose of enhancing the Army's ability to rapidly mobilize the total Army in support of the warfighter and support the National Defense Strategy.¹⁹ This initiative was the result of an Army conclusion that a high tempo of operations had degraded the Army's ability to rapidly deploy in support of large-scale combat operations. Subsequently, the Army issued an order that laid out installation deployment standards necessary to assess the sufficiency of the Army's rail fleet. SDDC, a major subordinate command of AMC, conducted a study assessing the sufficiency of the Army's installation rail capability as part of this initiative. The 2020 Captive Fleet Rail Analysis identified peacetime needs and analyzed surge deployment requirements.²⁰ SDDC assessed wartime requirements for key aspects of rail movement through detailed modeling of deployment processes as well as considering peacetime demands. In particular, the study identified requirements for locomotives and captive-fleet railcars.²¹

Transportation officials told us that the study did not determine the total number of rail operating crews that would be needed to support a large-scale mobilization. Nor, according to these officials, did it consider the ability of the 757th ERC to provide rail operating crews or whether there

¹⁹Headquarters, Department of the Army, Execute Order 065-19, *Total Army Unit Movement Readiness* (Apr. 11, 2019).

²⁰Office of the Army Deputy Chief of Staff, G-4, Strategic Mobility Division, *Captive Fleet Rail Analysis* (July 2020). Specific study objectives included determining locomotive fleet size, identifying railcar requirements, and identifying rail operating crew requirements.

²¹Installations were measured against their ability to deploy the personnel and equipment of a brigade-sized element within 96 hours.

were sufficient numbers of crews.²² Instead, the study assumed that sufficient qualified rail operating crews would be available to support deployment facilities and activities. Although the study provided recommendations for the number of rail operating crews that would be required to support 24-hour rail operations at CONUS installations, officials acknowledged that it was silent on whether there were a sufficient number of trained rail operating crews available to meet this requirement during a large-scale mobilization.

The AMC Commander is the Army's single rail manager for captive-rail fleet operations and SDDC, AMC's subordinate command, was tasked by EXORD 065-19 to assess the Army's rail operating force assets in the CONUS in support of Army installations for both known demand operations and large-scale combat operations. The SDDC study also provided recommendations for the number of rail operating crews required to support 24-hour rail operations and the study acknowledges the consideration of risk in relation to Army decisions about rail operating crews. Also, according to ATP 5-19, *Risk Management*, commanders should continually assess risk levels and the effectiveness of control measures.²³ Further, this doctrinal guidance states that planners develop actions that mitigate risks—controls— and, through continuous assessment, commanders adjust mitigation measures as appropriate.

However, it is unclear if SDDC has a sufficient number of trained rail operating crews to achieve its objective because it has not determined the requirement for trained rail operating crews in the event of a mobilization and compared that requirement against its existing capability. Additionally, transportation officials acknowledged that the study had not analyzed and quantified the risk associated with any shortfalls in the number of trained rail operating crews required and available to support a large-scale mobilization.

Force projection is the ability to project the military instrument of national power from the U.S. into another theater in response to requirements for

²²The analysis calculated the notional number of crews to satisfy the crew-rest requirements of chapter 211 of title 49, U.S. Code, for the safe operation of a notional number of locomotives. See 49 U.S.C. ch. 211.

²³Army Techniques Publication 5-19, *Risk Management* (Apr. 14, 2014) (incorporating change 1, effective Sept. 8, 2014).

military operations.²⁴ Deployment is the movement of forces to an operational area in response to an order and rail provides this onward movement of the force and its sustainment.²⁵ However, demand for rail operating crews at installations is being satisfied on an ad hoc basis by members of the 757th ERC, an option that likely would not be available in the event of a large-scale combat operation, as previously discussed. In addition, combatant commanders rely on the advice and guidance provided by 757th ERC personnel in their respective areas of responsibility. If the Army does not determine the requirements for trained rail operating crews in the event of a mobilization and compare that requirement to its existing capability, the Army may not know if it is able to meet its rail mission. Moreover, combatant command plans could be put at risk due to the potential late arrival of equipment. Additionally, without appropriate risk analyses of potential shortfalls, Army decision makers cannot effectively mitigate any risks.

The Army Has Taken Actions to Inspect and Repair Rail Track, but Lacks a Quality Assurance Program to Ensure Timely Repairs

The Army Has Several Efforts to Inspect and Repair Its Rail Track, but Has Not Addressed Several Challenges

The Army has undertaken several efforts to manage the condition of its rail track. The efforts include inspections, waivers for track use, and increasing efforts to fund repairs. However, these efforts have not been fully effective in addressing existing issues, and challenges remain.

²⁴Army Field Manual 3-0, Operations (Oct. 7, 2017) (incorporating change 1, effective Dec. 6, 2017).

²⁵Army Field Manual 3-0 states that large-scale combat operations present the greatest challenge for Army forces, describing such operations as intense and lethal. The Field Manual acknowledges that the Army must adapt and prepare for large-scale combat operations where an enemy can employ capabilities that rival those of the Army.

Inspections

The Army established its current rail track inspection program in 2008.²⁶ The program is based on periodic inspections to ensure that Army rail track can support the movement of materiel. Inspections are conducted by different entities and at different time intervals. For example, individual installations are responsible for conducting a detailed inspection of their respective rail and components, including rail track, at least once annually, although more frequent inspections may be required for rail with heavy traffic. Additionally, all rail track is to be inspected at least once every 5 years for internal flaws by using ultrasonic technologies. The inspection is to be done by the U.S. Army Corps of Engineers, Geotechnical and Structures Laboratory, Engineer Research and Development Center (ERDC).

According to Army officials, during every inspection, the overall condition of the rail is characterized, specific defects are identified, and needed repairs are quantified in dollar amounts based on the type of repair. DOD's Unified Facilities Criteria (UFC) 4-860-03 specifies that the results of these inspections will be used to establish urgent repair plans, and develop and program annual and long-range track maintenance and repair funding requirements.²⁷

Major defects found during inspections can require closing track to rail traffic and removing it from service. Army inspectors characterize rail track that has been closed to traffic due to defects as "red track". Over the past 5 years, Army inspections have characterized over 550 miles of track, or over 59 percent of its track, as red track as reported in its 2021 track condition summary. According to the DOD standards, red track defects should be repaired as soon as practical. However, a number of bases continue to have red track segments on their installations since their last inspection. For example:

- In May 2017, Army rail inspectors reported numerous track deficiencies at Fort Campbell, Kentucky, and noted that many of the deficiencies warranted a significant safety concern. They

²⁶Rail track inspections generally include consideration of the condition of ties, ballast that supports the ties and rails, rails, and other equipment necessary to facilitate the movement of locomotives and rolling stock.

²⁷DOD, UFC 4-860-03. The U.S. Army Installation Management Command, as a subordinate command of the U.S. Army Materiel Command, provides oversight and funding of these inspections and repair programs for its installations.

recommended a certified track inspector conduct a complete track inspection and that all red track deficiencies found should be repaired prior to any train movement over them. Moreover, those same Army inspectors reported track inspections were not being conducted at Fort Campbell, and that the last known inspection had been conducted in February 2010.

- In September 2018, Army rail inspectors surveyed Fort Bragg, North Carolina, and reported major safety concerns and violations that represented a danger to equipment and rail crewmembers and a liability for the Army. The inspectors also found that notwithstanding previous inspections at Fort Bragg that identified major safety issues with the rail track, nothing had been done to rectify or repair those issues and that the track was not being inspected by a certified track inspector at the required frequencies.

In both instances, although red track had been identified, timely inspections had not occurred and repairs had not been conducted even as the track was being used for several years. At the time of this report, four of 60 installations had not met or were not scheduled to meet the 5-year timeline standard for ultrasonic inspections set by the Army inspection program. As a result, in addition to prolonged use of red track, information regarding track conditions may also be dated beyond the 5-year inspection timeline.

Usage Waivers

UFC 4-860-03 states that a track inspector is intended to apply a required suspension immediately for track removed from service, such as Army red track, until defects are repaired.²⁸ However, such track may be used under written permit from the track management authority and in the presence of a track inspector. According to Army officials, installation commanders are authorized to issue such written permits, which these officials called waivers, for red track on their respective installations.²⁹ According to Army officials, installation commanders may issue waivers

²⁸DOD, UFC 4-860-03, para. 1-6.c.

²⁹AR 56-3. Specifically, the regulation states that the heads of DOD components, the Army Installation Management Command, or their designees have authority to approve requests for waivers of published maximum repair and overhaul allowances when the required maintenance can be accomplished at the organizational, direct support, or general support level, and provides guidance for commanders on approving such requests.

when they need shipments to travel on red track and the defects have not yet been addressed. When rail cars move on red track, they must travel at slower speeds and qualified rail inspectors must be positioned at each defect location to visually ensure safety and communicate with the train operator in case something goes wrong. According to Army officials from ERDC responsible for inspecting Army rail, the continued use of red track through the waiver system increases the risk for unsafe movements and contributes to the worsening of already defective track. Moreover, Army rail inspectors stated that routinely issuing waivers so that red track can be used masks the overall condition and availability of Army track as a whole and undermines Army efforts to address critical rail repair needs.

Funding

AMC provides funding for rail track repair and improvements through its subordinate commands and individual installations. However, according to Army officials, there is no overall prioritization for how this funding is provided, nor is there any oversight to check that needed Army rail track repairs and improvements have been made. Moreover, installation commanders, in accordance with Army Regulation 56-3, can submit deviation requests when compliance with U.S. Federal Railroad Administration regulations is not possible because of funding constraints.³⁰ According to Army officials, an estimated \$41 million would be required to correct all known track defects found by the ERDC's ultrasound rail inspections since 2015. According to AMC officials, although the AMC Commander is designated the single manager for captive-rail fleet operations, each organization within the Army is responsible for their aspect of rail operations to include assuring the quality of rail repairs.

The Army Has Not Fully Implemented a Quality Assurance Program for Rail Track Repairs

Although the Department of the Army Headquarters has undertaken several efforts to manage the condition of its rail track, such as conducting inspections, neither it nor the Commander of the AMC, as the Army's single manager for captive-rail fleet operations, has ensured full implementation of an overall quality assurance program for repairing rail

³⁰AR 56-3, para. 1-5.a. Specifically, commanders will submit these requests to the appropriate headquarters for approval when compliance with chapter II of title 49, C.F.R., is not possible.

track. One of AMC's subordinate commands, Army Installation Management Command, has developed some efforts to perform quality assurance reviews and conduct site visits. For example, Army Installation Management Command provides oversight and funding for rail inspections and repair programs for the 38 installations it currently manages with active rail track. However, even with these quality assurance efforts in place for the Army Installation Management Command, the Army continues to face challenges in inspecting and repairing its rail track on its installations to include Army Installation Management Command-managed locations, as previously discussed. Furthermore, for the remaining Army installations, Army officials stated there is no central oversight for funding inspections and repairs.

Army Regulation 420-1, which addresses the management of Army facilities, states that the inspection of maintenance, repair, and construction work in progress, including rail track, will be on a timely basis with special attention to quality assurance.³¹ The regulation also states that random monitoring of Army repair work may be used by quality assurance inspectors. Additionally, certified track inspectors with knowledge of proper railroad maintenance, repair and construction procedures, and of sampling, testing, and field inspection work, will inspect all contractor work.

However, Army Regulation 56-3, which specifically governs the Army's management of its rail equipment, does not require an overall quality assurance program for maintaining rail equipment, including rail track.³² Currently, the Commander of AMC—the Army's single manager for captive-rail fleet operations—has not implemented an Army-wide quality assurance program for managing the rail track on all of the Army's installations. Army officials stated that installations are responsible for managing their own rail track at each location and agreed that there is no overall quality assurance program in place for managing rail track conditions.

As a result of not having an Army-wide quality assurance program for managing rail track on Army installations, the Army has not established a spending prioritization plan to repair Army rail or ensured that amounts designated for rail repair are not diverted to other projects. Additionally,

³¹Army Regulation (AR) 420-1, *Army Facilities Management* (Feb. 12, 2008) (incorporating change 3, effective Mar. 6, 2019).

³²AR 56-3, *Management of Army Rail Equipment* (Aug. 31, 2009).

neither Army nor AMC leadership has been kept informed about the condition of rail track because red track is continuing to be used and information regarding track conditions may be out of date. If the Army does not require a quality assurance program for overseeing the management of rail track, the Army will not have a comprehensive approach for its rail track and will not have coordinated oversight in managing efforts such as inspections, funding for repairs, and ensuring up-to-date rail track conditions.

Conclusions

Rail transportation continues to be important to the Army and DOD as the primary means of moving ammunition, tracked vehicles, and other items needed by deploying units from their bases to ports of embarkation within the United States in support of contingencies and exercises. The Army has acknowledged that aspects of rail operations and force structure have evolved and efforts have been made to identify and address shortfalls. However, the Army has not determined the number of rail operating crews needed to support large-scale combat operations. Without such a determination and a quantifying of the risk of any shortfalls for combat operations, the Army and DOD may not be certain that they can fully support a large-scale combat operation and cannot fully understand the risks associated with their current operating environment.

The Army has undertaken several efforts to manage the condition of its rail track, such as inspections to monitor track conditions and repairs. However, the Army has not addressed a number of rail track challenges because it has not fully implemented a quality assurance program in its rail guidance or in its processes to provide timely information on the condition or repairing of track. If the Army does not require a quality assurance program for overseeing the management of rail track, the Army will not have a comprehensive approach for its rail track and will not have coordinated oversight in managing efforts such as inspections, funding for repairs, and ensuring up-to-date rail track conditions. Moreover, DOD may be unaware of Army rail track conditions and will not be able to fully inform decision makers with timely information so they may address any gaps to help support the missions of combatant commanders.

Recommendations for Executive Action

We are making the following three recommendations to the Secretary of the Army.

The Secretary of the Army should ensure that Army Materiel Command determines the requirement for trained rail operating crews in the event of a mobilization and compares that requirement against its existing capability to meet deployment demands at key CONUS installations in support of large-scale combat operations. (Recommendation 1)

The Secretary of the Army should ensure that the Army Materiel Command analyzes and quantifies the risk associated with the number of trained rail operating crews required and available to support a large-scale mobilization and takes action to mitigate any associated risk, as appropriate. (Recommendation 2)

The Secretary of the Army should ensure that the Commander of the Army Materiel Command—the single manager for Army captive rail-fleet operations—requires a quality assurance program for the oversight of the condition of Army rail track, and implement such a program. The quality assurance program should at a minimum ensure the timely and complete inspection of rail track, the appropriate use of waivers for track use, the tracking and monitoring of repairs, the prioritization of rail improvement efforts, and periodic reporting of updated track conditions to decision makers. (Recommendation 3)

Agency Comments and Our Evaluation

We provided a draft of this report to DOD for review and comment. DOD provided technical comments which we incorporated where appropriate. In its comments on this report, reproduced in appendix I, DOD concurred with all three recommendations and described planned actions it will take to implement them.

We are sending copies of this report to the appropriate congressional committees and the Secretary of Defense. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-5431 or russellc@gao.gov. Contact points for our Offices

of Congressional Relations and of Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix II.


A handwritten signature in black ink, reading "Cary Russell". The signature is written in a cursive style with a large initial "C" and a long, sweeping underline.

Cary B. Russell
Director, Defense Capabilities and Management

Appendix I: Comments from the Department of Defense

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THE JOINT STAFF
WASHINGTON, DC



Reply Zip Code:
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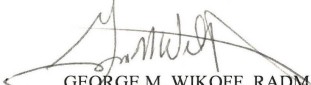
Mr. Cary Russell
Director, Defense Capabilities Management
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Russell:

Attached is the Department of Defense response to Government Accountability Office (GAO) Report, GAO-21-411, "DEFENSE TRANSPORTATION: The Army Should Take Action to Better Ensure Adequate Rail Support to Combatant Commanders," May 14, 2021 (GAO Code 103693).

The Joint Staff point of contact is Lieutenant Colonel Keith Brown, USA; J-44; 703-571-9891, keith.w.brown46.mil@mail.mil.

Sincerely,



GEORGE M. WIKOFF, RADM, USN
Vice Director, Joint Staff

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**GAO DRAFT REPORT DATED MAY 14, 2021
GAO-21-411 (GAO CODE 103963)**

**“DEFENSE TRANSPORTATION: THE ARMY SHOULD TAKE ACTION TO BETTER
ENSURE ADEQUATE RAIL SUPPORT TO COMBATANT COMMANDERS”**

**DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATION**

RECOMMENDATION 1: The Secretary of the Army should ensure that Army Materiel Command determines the requirement for trained rail operating crews in the event of a mobilization and compares that requirement against its existing capability to meet deployment demands at key CONUS installations in support of large-scale combat operations.

DoD RESPONSE: Concur with comment. AMC is tracking holistic power projection requirements across the Army. AMC will prioritize investments according to Army Senior Leader guidance as part of the Program Objective Memorandum (POM) process. AMC is currently assessing the number of rail operating crews required to support surge requirements (24 hours a day for up to 120 days) for large-scale mobilization operations at key CONUS locations. In addition, AMC is assessing the shortfall to meet surge requirements, which includes mitigation strategies. AMC will complete the assessment no later than March 2022. Once the assessment is complete, AMC will capture the requirements as a part of the POM process.

RECOMMENDATION 2: The Secretary of the Army should ensure that the Army Materiel Command analyzes and quantifies the risk associated with the number of trained rail operating crews required and available to support a large-scale mobilization and takes action to mitigate any associated risk, as appropriate.

DoD RESPONSE: Concur with comment. The Army accepted a significant risk to its rail operations when it reduced the force structure by 70 percent. As part of the assessment described in the first recommendation, AMC is assessing risk and mitigation strategies for rail operating crews at each location not meeting the 120-day surge requirement. AMC will review contract options to meet surge requirements. AMC will address locations without a mitigation strategy and program requirements in the POM process.

RECOMMENDATION 3: The Secretary of the Army should ensure that the Commander of the Army Materiel Command – the single manager for Army captive rail fleet operations – requires a quality assurance program for the oversight of the condition of Army rail track, and implement such a program. The quality assurance program should at a minimum ensure the timely and complete inspection of rail track, the appropriate use of waivers for track use, the tracking and monitoring of repairs, the prioritization of rail improvement efforts, and periodic reporting of updated track conditions to decision makers.

DoD RESPONSE: Concur with comment. AMC has a Quality Assurance Quality Control (QAQC) oversight program, managed by Installation Management Command (IMCOM), that

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Appendix I: Comments from the Department of Defense

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addresses the condition of rail infrastructure through inspections, waivers, and funding. IMCOM partners with the Engineer Research and Development Center (ERDC) to conduct QA inspections of railroad track readiness and modernization projects continuously. In addition, Land Holding Commands (LHCs) conduct triennial reviews of installation dams and transportation infrastructure programs. AMC will program resources for the immediate and future repairs of deficiencies identified through IMCOM's QAQC oversight program. The IMCOM CG will provide a comprehensive rail summary during his Tri-Annual update with the AMC CG. AMC will also incorporate this as a recurring topic during the bi-weekly AMC Commander's Update until all recommendations are closed and monitoring going forward.

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Text of Appendix I: Comments from the Department of Defense

Mr. Cary Russell

Director, Defense Capabilities Management

U.S. Government Accountability Office 441 G Street, NW

Washington, DC 20548

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The Joint Staff point of contact is Lieutenant Colonel Keith Brown, USA; J-44; 703-571- 9891, keith.w.brown46.mil@mail.mil.

Sincerely,

USN

George M. Wikoff, RADM

Vice Director, Joint Staff

GAO DRAFT REPORT DATED MAY 14, 2021 GAO-21-411 (GAO
CODE 103963) "DEFENSE TRANSPORTATION: THE ARMY
SHOULD TAKE ACTION TO BETTER ENSURE ADEQUATE RAIL
SUPPORT TO COMBATANT COMMANDERS"

DEPARTMENT OF DEFENSE COMMENTS TO THE GAO
RECOMMENDATION

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DoD RESPONSE: Concur with comment. AMC has a Quality Assurance Quality Control (QAQC) oversight program, managed by Installation Management Command (IMCOM), that addresses the condition of rail infrastructure through inspections, waivers, and funding. IMCOM partners with the Engineer Research and Development Center (ERDC) to conduct QA inspections of railroad track readiness and modernization projects continuously. In addition, Land Holding Commands (LHCs) conduct triennial reviews of installation dams and transportation

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Appendix II: GAO Contact and Staff Acknowledgments

GAO Contact

Cary B. Russell, (202) 512-5431 or russellc@gao.gov

Staff Acknowledgments

In addition to the contact named above, individuals who made key contributions to this report include Guy LoFaro, Assistant Director; Pamela Davidson; Gregory Hanna; Richard Powelson; Yong Song (Analyst-in-Charge); Carter Stevens; and Steve Woods.

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