



North Carolina Statewide Multimodal Freight Plan

Military Cargo Profile

prepared for
North Carolina
Department of Transportation

prepared by
Cambridge Systematics, Inc.

with
AECOM
Volkert, Inc.
IEM
Baseline Mobility Group



February 1, 2017

report

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Cambridge Systematics, Inc.
730 Peachtree Street NE, Suite 500
Atlanta, GA 30318

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List of Acronyms

ADM	Archer Daniels Midland Company
AFB	Air Force Base
CDL	Commercial Driver's License
DoD	United States Department of Defense
FY	Fiscal Year
MCAS	Marine Corps Air Station
MOTSU	Military Ocean Terminal Sunny Point
NC	North Carolina
NCDOT	North Carolina Department of Transportation
NCRR	North Carolina Railroad
NS	Norfolk Southern Railway
NTC	National Training Center
STC	Strategic Transportation Corridor
STRAHNET	Strategic Highway Network
UPS	United Parcel Service Incorporated
US	United States

1.0 Overview

Military facilities and activities in North Carolina consists of US Department of Defense (DoD) operations and the North Carolina National Guard. The military sector represents freight and cargo movements in North Carolina. This includes the movement of military personnel, supplies and equipment around North Carolina, around the United States and throughout the world. Every branch of the US Military is represented in North Carolina, including the US Army, Navy/Marines, Air Force and Coast Guard. The freight and cargo movements of these seven military bases are described in this report.

1.1 US Department of Defense Military Bases in North Carolina

Table 1.1 provides a summary of the DoD facilities and their corresponding activities in the state. In total, the state is home to seven significant bases representing all branches of the military. Interviews with military personnel indicated a favorable working relationship between the bases and local, regional and state transportation departments. Many of the facilities have witnessed significant growth over the last decade and are positioning for even more. The geographic location, good working relationships with state officials and access to a well-maintained transportation network were noted as advantages for North Carolina operations.

Table 1.1 US Military Bases in North Carolina

Military Base	Location	Military Branch	Description
Fort Bragg	Fayetteville	US Army	Special Operations Command, Forces Command, Army Reserve Command, Womack Army Medical Center, Pope and Simmons Airfields
Military Ocean Terminal Sunny Point (MOTSU)	Southport	US Army	Import and export of weapons, ammunition, explosives and military equipment, operated by the 596th Transportation Brigade
Camp Lejeune	Jacksonville	US Navy Marines	Military training facility and Marine Expeditionary Force, Special Operations Command, Engineer School, School of Infantry, Naval Hospital, Field Medical Training Battalion, Joint Maritime Training Center (USCG) and Special Operations Regiment
Marine Corps Air Station (MCAS) Cherry Point	Havelock	Marines	Air Station for the 2nd Marine Aircraft Wing, Marine Aircraft Groups 14 and 28, 6th Special Security Communications Team, Combat Logistics Company 21 and Fleet Readiness Center
MCAS New River	Jacksonville	Marines	Air Station for the Marine Aircraft Group 26 and 29, Center for Naval Aviation Technical Training, Marine Wing Support Squadron 272, Marine Air Control Squadron 2, and the 362nd Training Squadron
Seymour Johnson Air Force Base (AFB)	Goldsboro	US Air Force	Air Force base for the 4th Fighter Wing, 916th Air Refueling Wing Air Force Reserve Command, and the 414th Fighter Group
Coast Guard Air Station	Elizabeth City	US Coast Guard	Aviation Technical Training Center, the Aviation Logistics Center and Station Elizabeth City

Source: Meetings with military personnel September 6-21, 2016, military websites.

1.2 North Carolina National Guard

North Carolina supports a National Guard, which also transports soldiers, supplies and equipment around North Carolina and throughout the United States for training missions. The mission of the NC National Guard is to deploy military capabilities to defend the State and Nation. This includes deployments to military operations and training sessions throughout the US and overseas. Led by the North Carolina Governor, the NC Guard maintains seven units in the state (see Table 1.2).

Table 1.2 North Carolina National Guard Units

National Guard Unit	Location
60 th Troop Command	Raleigh
449 th Theater Aviation Brigade	Morrisville
30 th Armored Brigade Combat Team	Clinton
113 th Sustainment Brigade	Greensboro
139 th Regiment	Fayetteville
130 th Maneuver Enhancement Brigade	Charlotte
145 th Airlift Wing	Charlotte

Over 11,000 soldiers and airmen serve at these units. There is a steady stream of personnel and cargo transported to and from the National Training Center (NTC) in California. A TIGER Team moves equipment when needed, comprising 800 truck drivers, 380 of whom are CDL-certified (Commercial Driver's License). Between 50 and 80 trucks are deployed to other states for training missions. For deployments over 400 miles, commercial trucks and/or CSX rail must be used. All NC Guard heavy equipment is located at Fort Bragg. Off-Bragg US Army convoy movements must be coordinated by the NC Guard.

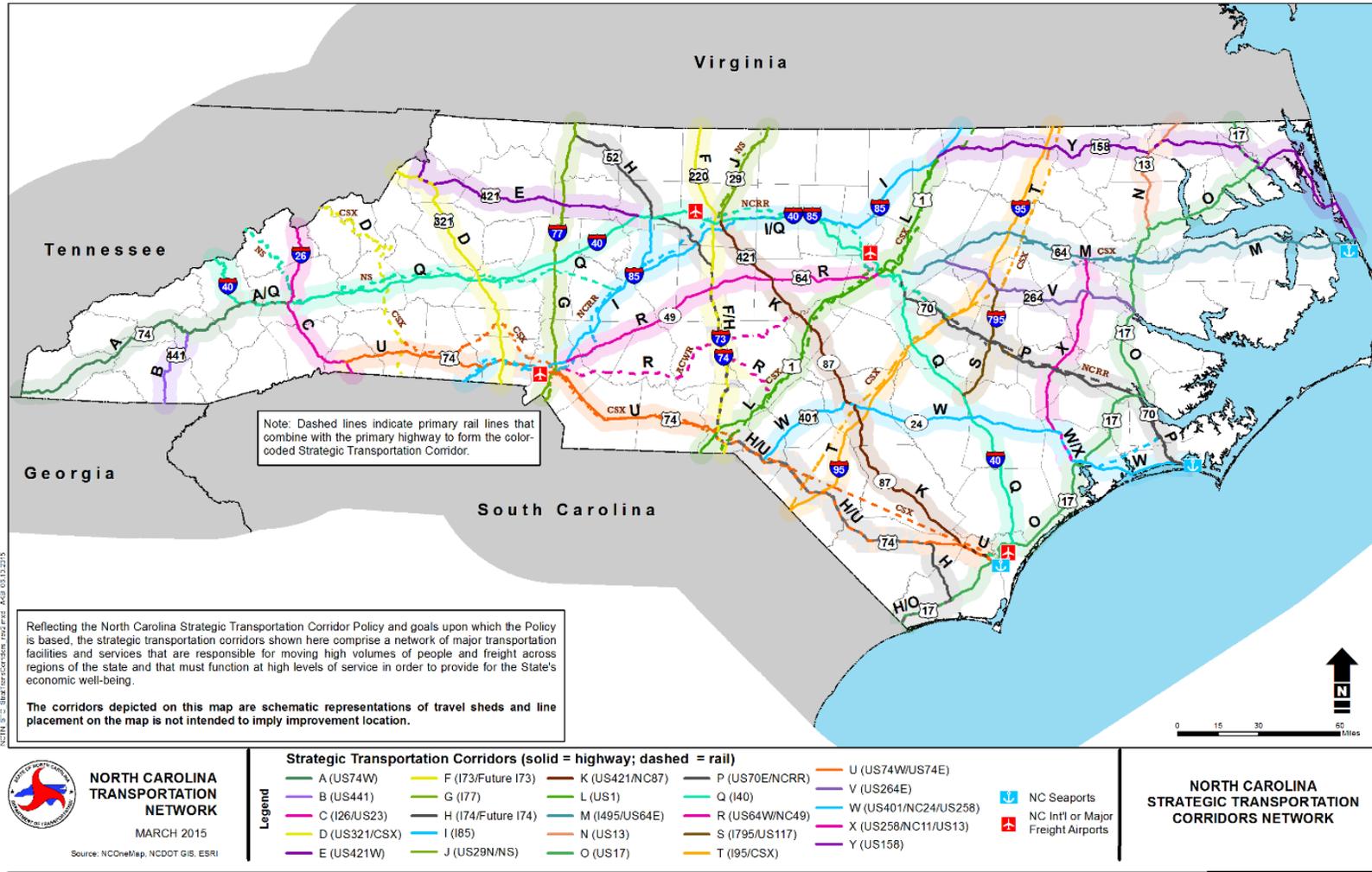
1.3 Military Base Access and the North Carolina Strategic Transportation Corridors

The North Carolina Strategic Transportation Corridors (STCs) represent a future network of 25 high priority, integrated multimodal facilities (links) promoting efficient, reliable connectivity to critical transportation and economic activity centers (nodes) throughout the state. These corridors include Interstate and US highways, Class I railroads, select Short Line railroad and connections to International airports, major seaports, and other transportation terminals (see Figure 1.1). As stated in 2015 NCDOT Policy, the goals of STCs include “providing essential connections to national transportation networks critical to interstate commerce and national defense” and “supporting efficient transport logistics and economic development.” This language indicates the importance of efficient freight and military movement to the development of STCs and how the

identification of these facilities match up with national known networks such as the Department of Defense's (DoD) Strategic Highway Network (STRAHNET)¹.

¹ The STRAHNET is a 62,791-mile system of roads deemed necessary for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, repair parts, food, and other commodities to support US military operations. The STRAHNET is critical to the DoD's domestic operations.

Figure 1.1 North Carolina Strategic Transportation Corridors



2.1 Fort Bragg

Fort Bragg is the largest military base in the world, supporting over 50,000 active duty personnel. This represents 12 percent of the US Army's active personnel. Freight and cargo is transported to and from Fort Bragg to support military missions and training operations around the US and overseas. In total, five different federal agencies move cargo into and out of Fort Bragg. Transportation modes include truck, air and rail. Truck shipments include supplies and equipment transported to the base and transported all over North Carolina. There is an on-base rail operation with three locomotives to move cargo and equipment to and from the CSX railroad in Fayetteville. Two airfields support global airlift and special operations. The Port of Charleston is primarily used for debarkation of convoys of troops and equipment. Ammunition and explosives are transported to Fort Bragg and to the Military Ocean Terminal at Sunny Point (MOTSU) in Southport. Fort Bragg also supplies cargo to the other six military bases in North Carolina.

Fort Bragg Shipments FY15	
Surface Movement Center	
11,731	Shipments
1,798	LTL Loads
30,595	Pieces
Airfield Control Group	
1,036	Outbound Trips
172	Inbound Trips
71,781	Soldiers
5,932	Pieces
Rail Operations Group	
763	Outbound rail cars
1,299	Inbound rail cars
1,292	Outbound pieces
2,437	Inbound pieces

The base currently has 17 truck staging areas with truck parking. There is a general receiving warehouse where the bulk of trucked goods arrive. However, there are specialized shipments that are delivered directly to their final destination. In addition, there is a separate entrance and storage facility for ammunition.

Fort Bragg Strategic Corridors

Located adjacent to I-95 and CSX Railroad (Corridor T), Fort Bragg is well positioned for north and south truck and rail shipments. Nearby I-40 (Corridor Q) and NC 24 (Corridor W), provide access to the east and west. The US Army uses the Port of Charleston for transporting equipment and convoys requiring maritime access. It was noted that the base does not use Port of Wilmington for three primary reasons:

- Insufficient staging area for convoys;
- Insufficient dockside access; and
- Transit time up and down the Cape Fear River.

Projections are for Fort Bragg to continue to grow and expand its mission. This will lead to increases in all types of cargo, resulting in pressure on the local and state roadways and other transportation facilities serving the base. Recent and on-going roadway investments have significantly mitigated congestion and improved the safety of traveling public. This includes a truck only entrance where nearly all deliveries enter the base.

2.2 Military Terminal at Sunny Point (MOTSU)

MOTSU is the largest military terminal in the world and serves as a transfer point between rail, trucks and ships for the import and export of weapons, ammunition, explosives and military equipment for US Army. It is the key ammunition shipping point on the Atlantic Coast for the Department of Defense and the Army's primary east coast deep-water port. Approximately 30 ships per year call at the terminal, all of which are commercial vessels chartered by Military Sea Lift Command. The port can handle up to six ships

simultaneously and features large cranes for loading and unloading vessels. A network of 62 miles (100 km) of railroad tracks move munitions and supplies around the facility. Landside shipments include 85 percent transported by rail and 15 percent by truck. Highway access to and from the facility is adequate for the current volume of truck shipments. The US Army contracts with CSX Transportation for rail shipments, the last 17 miles of which are on the Military-owned Cape Fear Railway between Leland and Southport. The US Army also leases the Cape Fear Railway to three commercial customers, including Duke/Progress Energy, Capital Power and Archer Daniels Midland (ADM).

MOTSU Strategic Corridors

Since many of the truck, shipments arrive from the south and west, NC 74 (Corridor H/U) is the primary highway corridor used to access Southport. US 17 (Corridor O) and NC 87 (Corridor K) are used for truck shipments. Rail access via CSX and the Cape Fear Railway is sufficient to support current operations. The ocean terminal is located at the entrance to the Cape Fear River with good access to the Atlantic Ocean.

MOTSU Shipments FY 15

Year	Direction	Tons	Containers
FY 2015	Outbound	135,000	3,833
	Inbound	121,700	3,177
FY 2016 YTD	Outbound	195,000	5,648
	Inbound	126,000	3,682

2.3 Camp Lejeune

Camp Lejeune, located in Jacksonville, North Carolina, is the largest US military *training facility* with 43,500 personnel. The base's 14 miles of beaches make it a major area for amphibious assault training and its location between two deep-water ports (Wilmington and Morehead City) allows for fast deployments. Freight and cargo movements include equipment and supplies to support the deployment and training operations. Most supplies are transported by truck (90 percent) and a small amount by rail (10 percent). Trucks and convoys were deployed in 2015 to support training operations in California, Oregon, Tennessee and Virginia.

Camp Lejeune Strategic Corridors

Due to the location in Jacksonville along the coast of North Carolina, Camp Lejeune is considered an “isolated installation” with limited access to interstate highways. However, there is good access to NC Ports and North Carolina Railroad (NCR). The base contracts with Norfolk Southern Railway (NS) for rail shipments, particularly those requiring heavy cargo. Negotiations with NS sometimes result in the decision to ship by truck if the loads do not meet NS tender requirements.

Camp Lejeune Shipments, FY15

Small Shipments in US	5,275
Small Shipments outside US	1,574
Less-than-Loaded (LTL) Outbound	2,364
Arms & Ammunition Outbound (Trucks)	170
Railcars Outbound	12
Railcars Inbound	111
Truckloads Outbound	1,758
Truckloads Inbound	2,916

The primary highway access to the facility includes NC 24 (Corridor W), US 17 (Corridor O) and US 258 (Corridor X).

This results in higher costs for transporting equipment and supplies and delays in military shipments.

2.4 MCAS Cherry Point

The Marine Air Station at Cherry Point is located in Havelock, NC, serving both as a major point of debarkation for the 2nd Marine Aircraft Wing overseas missions and as a training facility. Aircraft are also maintained and served at the Air Station. Trucks entering and exiting the base use NC 24, and US 70 with the majority of trips on US 70. Suppliers include Navy Munitions Command Detachments Yorktown, VA., Earle, N.J., and Hawthorne, NV, Army Ammunition Activities in Letterkenny, PA, Crane, IN, Anniston, AL, McAlester OK and Tooele, UT. Munitions are transported to and from many locations, including Yuma, AZ, El Centro, CA, 29 Palms, CA and locations overseas. Modes include truck, air and multi-modal. Some bottlenecks occur in the Town of Havelock. Existing infrastructure is adequate for the department’s needs. A future Havelock Bypass will improve transit time to and from NC 24. Jet fuel (JP5) is shipped from TransMontaigne in Selma, NC to the base using approximately 175 trucks per month and four railcars per month.

MCAS Cherry Point Shipments

Truck Shipments	Trips/Mo	Capacity	Gal/Year
Jet Fuel to Base	175	8,000 gals	16.8 Million
Fuel Service Stations	8	8,000 gals	64,000
Parts to Air Depot	12	Semi-trailers	144 trucks/Yr.
Rail Shipments	Cars/Mo	Rail Capacity	Gals/Yr.
Jet Fuel to Base	4	20,000	80,000

Cherry Point Strategic Corridors

Similar to Camp Lejeune, Cherry Point is located near the coast of North Carolina and is therefore isolated from major highway corridors. Trucks entering and exiting the base use US 70 (Corridor P) and NC 24 (Corridor W), with the majority of trips on US 70. There is good access to the NCR and Norfolk Southern Railroad. However, negotiations with NS regarding minimum railcar requirements often results in more truck shipments as noted previously.

2.5 MCAS New River

The Marine Air Station in New River is home to the Marine helicopter and tilt-rotor base, located in Jacksonville, North Carolina. New River solely uses truck transport, as there is no rail access to the base.

All military freight is ordered and delivered using FedEx and UPS. The Defense Logistics Agency (DLA) delivers 5 to 6 fuel trucks per day for approximately 230,000 gallons/day. Offloading and onboarding stations for fuel are all on the Campbell Street corridor. Overall, an average of 100 trucks per day travel to and from the air station. All Camp Geiger troops are transported by bus, usually requiring 20 buses per movement. The troop debarkation location is MCAS Cherry Point, where troops are bused and equipment is trucked for deployments. The 7-ton truck (dump truck size) is the military standard for New River deliveries.

MCAS New River Strategic Corridors

Similar to Cherry Point, the Marine Air Station at New River is located along the coast of North Carolina and is therefore isolated from major highway corridors. Trucks entering and exiting the base use US 70 (Corridor P) and NC 24 (Corridor W), with the majority of trips on US 70. There have been limited issues with highway deficiencies, other than the fact that access to the interstate highway system is difficult.

2.6 Seymour Johnson AFB

The Seymour Johnson Air Force Base, located in Goldsboro, is home to the 4th Fighter Wing, 916th Air Refueling Wing Air Force Reserve Command and the 414th Fighter Group. There are 11,000 personnel on the base, approximately half of which are in active duty. The 4th Fighter Wing accomplishes its training and operational missions with 92 F-15E Strike Eagles, assigned to four different squadrons. The 916th Air Refueling Wing supports routine refueling missions for other Air Force, Navy, Marine Corps and allied aircraft. To support the base, the Defense Logistics Agency (DLA) supplies common user logistics, including aircraft, construction equipment and food. The Transportation Officer oversees shipments of parts and fuel through truck and rail movements to the base. Norfolk Southern transports 280,000 gallons of fuel two days/week to the Miller Siding, where fuel is transported via pipeline to the five storage tanks. Another 240,000 gallons per day are transported three times weekly from Selma, NC by tanker trucks. Additional shipments of unleaded gas and diesel fuel are transported to the Base once weekly at 8,000 gallons each.

Seymour Johnson Annual Fuel Totals

Fuel Shipments	Annual Gallons
Jet Fuel Rail	29,120,000
Jet Fuel Truck	37,440,000
Unleaded Gas Truck	416,000
Diesel Fuel Truck	416,000
Total Fuel	67,392,000

Seymour Johnson AFB Strategic Corridors

There is good access to the Airforce Base due to the proximity to the I-95 and CSX Railroad (Corridor T). Additionally, US 70 (Corridor P) and I-795 (Corridor S) are used for truck shipments of equipment and parts. While there are no issues with highway access to the base, the rail access and infrastructure could be improved.

2.7 Air Station Elizabeth City

Air Station Elizabeth City is located along the Pasquotank River near the opening of the Albemarle Sound. It is the largest and busiest Coast Guard air station in the US, operating missions as far away as Greenland, the Azores and the Caribbean and coordinating maintenance for all 26 USCG air stations nationwide.

In addition, the Base Elizabeth City complex houses the Aviation Technical Training Center, the Aviation Logistics Center and Station Elizabeth City. Currently, CGAS Elizabeth City maintains and operates five HC-130J Hercules aircraft and four MH-60T Jayhawk helicopters. In addition, the USCG repairs or maintains 10 Class 60 and 22 Class 65 rotary wing aircraft, four C-130 and four C-144 fixed wing aircraft each year or a total of 40 aircraft at the facility.

To supply the operation, eight 53' tractor/trailers/day transport aircraft parts to and from Norfolk, VA, where Estes and YRC Freight Companies have operation hubs. These are primarily less-than loaded (LTL) trips. In addition, Fed Ex and UPS make daily trips.

Air Station Elizabeth City Strategic Corridors

The highway network between Elizabeth City and Norfolk is adequate for transportation

USCG Elizabeth City Truck Trips

Deliveries	Trips/Day	Trips/Year	Route
LTL Trucks	8	2,920	To and from Norfolk, VA
FedEx trucks	2	730	Fed Ex Hub Norfolk, VA
UPS trucks	2	730	UPS Hub, Norfolk, VA

purposes. They experience no major delays unless there is inclement weather. US 17 (Corridor O) is the primary highway between Elizabeth City, NC and Norfolk, VA. To access I-95, trucks use US 158 (Corridor Y). Both highways have sufficient capacity to support the 12 daily trips to the base.

3.0 Key Findings

The military is a critical economic driver for the state of North Carolina. It is also a driver of freight and cargo movements, especially in the eastern portion of the state. The analysis of the freight transportation activity, needs and challenges of the state's military operations yielded the following key findings:

- Military freight activity and requirements
 - Military facilities in North Carolina move more than 100 million gallons of fuels annually over the state's transportation network. Of this, about 75 percent is moved by truck and the remaining is moved by rail.
 - Combined military operations generate over 40,000 truck trips annually with Fort Bragg shipping goods to every state in the country. Rail is also critical as the military generates 14,000 rail moves annually. This could be higher if the bases had access to better rail service and rates.
 - The NC National Guard has a team of 800 truck drivers, 380 of whom are CDL. These drivers move equipment and supplies throughout the state and to other parts of the US for training missions. Often, the training convoys require permits for oversized loads. The National Guard reported a very positive relationship with NCDOT in terms of securing permits but the process requires 45 days notification.
 - Fort Bragg has the best highway access to I-95 and rail access to the CSX Railroad (Corridor T). The US Army prefers the Port of Charleston, SC to the Port of Wilmington due to issues with staging, access and geography.
 - MOTSU is strategically located for ideal maritime operations at present both highway and rail access is sufficient to support current operations. Located closer to the coast, Camp Lejeune, Cherry Point and New River are considered more isolated installations due to limited access to interstate highways. However there is good access to NC Ports.
 - US 70 (Corridor P), NC 24 (Corridor W) and NC 17 (Corridor O) are all critical corridors for these coastal military installations.
 - Cherry Point contracts with NS Railroad for rail shipments, particularly those requiring heavy cargo. However, negotiations with NS sometimes result in the decision to ship by truck if the loads do not meet NS tender requirements.
 - There is good access to Seymour Johnson Airforce Base due to the proximity to the I-95 and CSX Railroad (Corridor T), US 70 (Corridor P) and I-795 (Corridor S). Rail access and infrastructure could be improved. US 17 (Corridor O) is the primary highway between USCG Elizabeth City and Norfolk, VA, and is adequate for transportation purposes.
 - Being able to efficiently and safely move the cargo required for military operations in a cost effective manner is vital to the retention and expansion of military operations. The transportation network and the connectivity it provides has been a key factor in expansion decisions at the state's major bases.

- Existing challenges and bottlenecks
 - Camp Lejeune, Cherry Point, the Marine Air Station at New River are all isolated from major highway corridors, resulting in higher costs for highway freight.
 - Fort Bragg currently does not use Port of Wilmington due to insufficient staging area for convoys; insufficient dockside access; and transit time up and down the Cape Fear River.
 - While rail cargo opportunities exist for some of the military bases, requirements for minimum loads sometimes prevent more rail transportation options, particularly in the case of heavy equipment.
 - Bridge conditions can restrict movements of some of the large equipment, resulting in the need to make the moves by rail, which significantly increases the cost.

- Future trends and needs
 - Many of the facilities have witnessed significant growth over the last decade and are positioned for more growth in the future, resulting in pressure on the local and state roadways and other transportation facilities serving the bases.
 - Projections are for Fort Bragg to continue to significantly grow and expand its mission, leading to increases in all types of cargo shipments.
 - The NC National Guard has decreased its number of facilities from 105 to 99 to 95 with the intent to consolidate even more into regional armories along I-40 and I-95.
 - Natural gas will replace coal at several bases, resulting in a shift from rail to pipeline transport.