Military Ocean Terminal Sunny Point

Joint Land Use Study

JULY 2019

BENCHMARK

STUDY FUNDING

This study was prepared under contract with the Cape Fear Council of Governments with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the entities partnering in the study and does not necessarily reflect the views of the Office of Economic Adjustment.

ACKNOWLEDGMENTS

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SECTION 1: INTRODUCTION

1.1 OVERVIEW AND STUDY PURPOSE

Across the country, as communities surrounding military installations experience population growth and urban development, the military's ability to maintain its testing, training, and operational missions can be impacted. In an effort to encourage military installations and communities to plan for the future collaboratively, the U.S. Department of Defense created the Joint Land Use Study (JLUS) program, which is administered by the Office of Economic Adjustment. The JLUS process brings together business leaders, citizens, local, state and federal officials, property owners, military officials, and others to identify opportunities for growth that is compatible, helping to preserve the military's ability to test, train ,and operate, while also supporting the community's ability to expand its economic opportunities.

Although a Joint Land Use Study (JLUS) is primarily funded by the Office of Economic Adjustment, the communities that receive JLUS funding are responsible for developing and implementing the JLUS. Through their participation, the local government partners are working toward the betterment of the entire region by identifying potential areas of compatibility concern and developing recommendations that each community may choose to implement at its own discretion.

The Cape Fear Council of Governments served as the region's sponsor for the Military Ocean Terminal Sunny Point (MOTSU) JLUS, managing the grant process and the completion of the study. The study partners included Brunswick County, New Hanover County, and the municipalities of Boiling Spring Lakes, Leland, Carolina Beach, Kure Beach, Southport, the Cape Fear Council of Governments, Military Ocean Terminal Sunny Point, as well as a wide range of regional stakeholders and partner organizations.

As a quick summary, Military Ocean Terminal Sunny Point (MOTSU) is the largest military munitions terminal in the world, the key ammunition shipping point on the Atlantic Coast, the Army's primary east coast deep-water port, and one of a handful of Department of Defense terminals equipped to handle containerized ammunition. MOTSU serves as a transfer point between rail, trucks, and ships for the export (and limited import) of ammunition, explosives and military equipment for the Department of Defense. The installation is operated by the Army's 596th Transportation Brigade, which is subordinate to the Military Surface Deployment and Distribution Command (SDDC).

The overarching purpose of conducting the MOTSU JLUS was to identify ways (1) to protect and preserve the military and defense-related operational capabilities of MOTSU; (2) to support continued and safe growth and economic development of MOTSU's neighboring communities; (3) to enhance communication and collaboration between military commanders and local officials; and (4) to establish policies and procedures for managing compatible land uses adjacent to and encroaching on MOTSU.

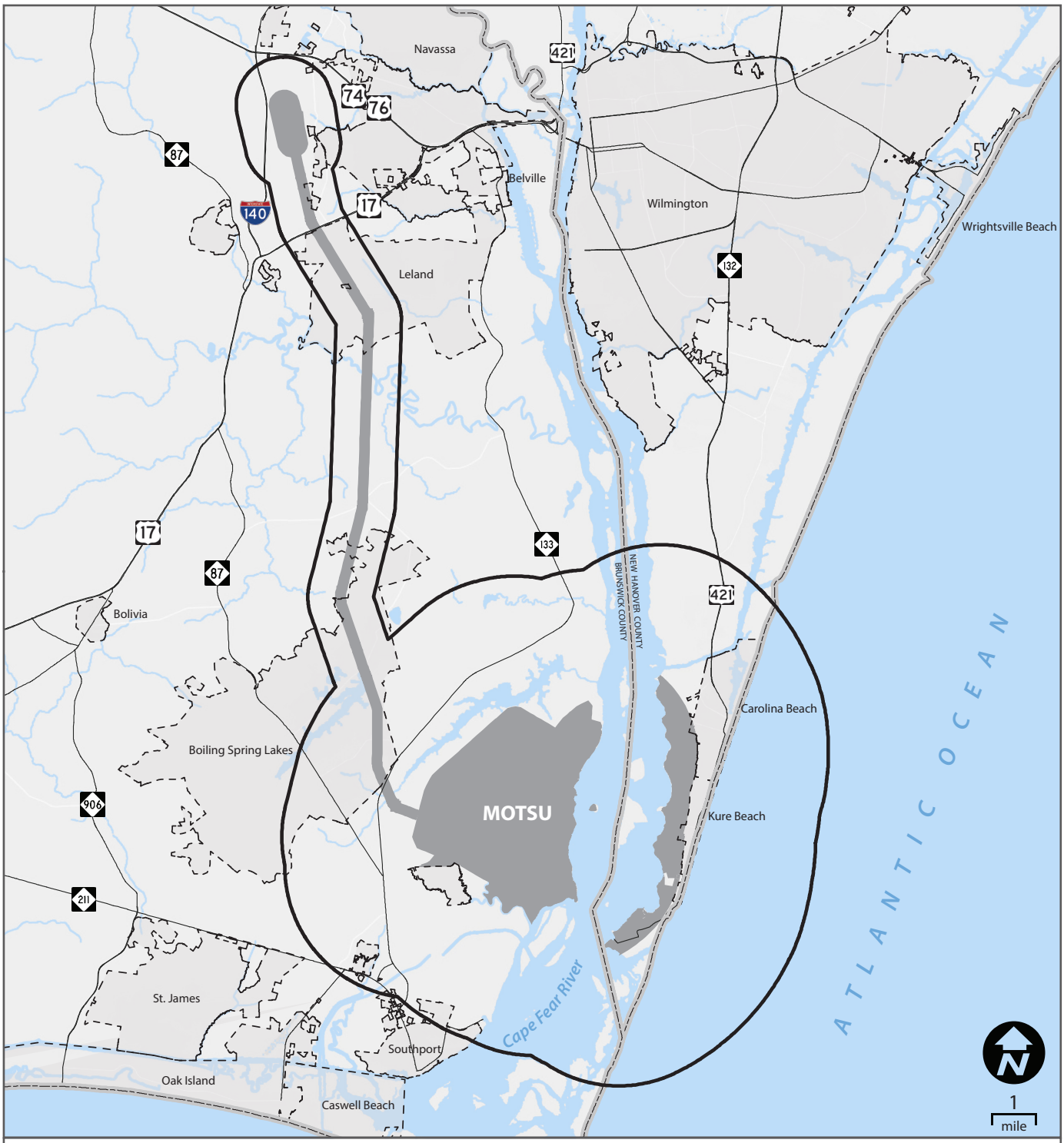


Figure 1.1: JLUS Study Area Map

1.2 STUDY AREA

The study area (see Figure 1.1) includes a 3-mile area around MOTSU's main terminal in Brunswick County and the Pleasure Island explosives safety clear zone (ESCZ)(which is also known colloquially as the "buffer zone") across the Cape Fear River in New Hanover County. The study area also includes a 3/4-mile area along either side of the MOTSU rail corridor and around the Leland interchange yard. The study area covers portions of unincorporated Brunswick and New Hanover Counties, as well as all or portions of the City of Boiling Spring Lakes, the Town of Carolina Beach, the Town of Kure Beach, the Town of Leland, and the City of Southport. MOTSU is located in one of the fastest growing regions in North Carolina. MOTSU's main terminal operations are located in Brunswick County, which is the fastest growing county in the state. MOTSU's boundaries cross the county line into New Hanover County where the ESCZ abuts growing oceanfront communities as well as significant tourist attractions like Carolina Beach State Park, Ft. Fisher Aquarium, Ft. Fisher State Historic Site, Ft. Fisher State Recreation Area, and the Ft. Fisher-Southport Ferry. Additionally, the US Air Force Ft. Fisher Recreation Area is located partially within the MOTSU ESCZ, as are a number of municipal parks and utility infrastructure, while Dow Road, an alternative to US 421 and major bicycling route on Pleasure Island, crosses through the clear zone on MOTSU property. As a result, the project study area contains a rapidly growing population and a significant seasonal tourist population. The project's intent was to open lines of communication between MOTSU, local governments, and other key stakeholders, who have worked collaboratively to achieve the project's goals. The State of North Carolina has made it a priority to protect the continued operation of its military facilities and this study was undertaken with the goal of supporting that effort while also accommodating the growth in population and tourism in the region.

1.3 PROJECT TEAM AND OVERSIGHT

The Cape Fear Council of Governments selected a consulting team to prepare the MOTSU Joint Land Use Study. The consulting team, led by Benchmark Planning, also included White & Smith (planning and legal specialists), Dial-Cordy (environmental specialists), and Marstel-Day (military encroachment policy specialists). The COG's Local Government Services Director served as the Project Manager; providing direct engagement with the consulting team, OEA, as well as two oversight bodies appointed to provide guidance through the study process. The oversight boards were appointed with members representing each of the local governments participating in the JLUS. The JLUS Advisory Committee was comprised of senior staff leaders from each community, including managers and planning representatives. This committee provided direct technical input into the study and worked closely with the consulting team. A second committee, comprised of elected officials from each jurisdiction, served in the role of the JLUS Policy Committee. This committee provided high level leadership and oversight of the process, and was responsible for serving as liaisons to each of the governing boards of the participating jurisdictions. The Policy Committee also accepted the final report at the conclusion of the study process.

1.4 STUDY PROCESS & PUBLIC ENGAGEMENT

The initial step in preparing the MOTSU JLUS involved several project meetings with the JLUS Project Manager during the first three months of 2018. During these initial meetings, key dates were discussed for the project schedule, initial stakeholders were identified, and the basic study process was discussed in more detail. The consulting team and Project Manager developed a Public Participation Plan that was designed to encourage participation in the process by key stakeholders and the general public (see Appendix G). In addition, the consulting team and Project Manager held weekly phone conference calls to help keep the project moving forward in an efficient manner.

PROJECT TIMELINE

Since this project involved multiple groups and individuals in the planning process, a schedule of events was established, which included meeting dates for the project kickoff and installation tour, stakeholder interviews, public meetings, advisory review meetings, policy committee meetings, and final presentations. The key milestones and meeting dates are displayed in the table below:

Dates	Meeting
2018	
February 23	Project Team Meeting
April 11	Project Kickoff, Installation Tour, and Committee Meetings
May 21-24	Stakeholder Interviews
June 26	Advisory Committee Meeting – Review Draft Background Research
July 30	Public Kickoff Meeting – Study Overview & Background Research (Southport and Carolina Beach)
August 28	Advisory Committee Meeting – Review Compatibility Analysis
October 16	Advisory Committee Meeting - Review Conflict Resolution Strategies
November 19	Policy Committee Meeting – Review Conflict Resolution Strategies
December 4	Advisory Committee Meeting – Draft Recommendations
December 4	Public Meetings – Interim Findings (Boiling Spring Lakes and Carolina Beach)
2019	
January 29	Policy Committee Meeting – Draft Recommendations
February 25	Advisory Committee Meeting – Present Draft Study Documents
March 25	Advisory Committee Meeting – Finalize Study Documents
April 30	Advisory Committee Meeting – Finalize Study Documents
May 14	Policy Committee Meeting – Finalize Study Documents
June 24-25	Public Meetings – Final Presentation (Kure Beach and Southport)
July 15	Policy Committee Acceptance of Final JLUS

COMMUNICATION STRATEGY

The development of a strategy for public outreach was a meaningful part of the process. In this effort, the project team worked together to establish meeting locations and to notify stakeholders and the general public of the meeting dates and times. The project team also provided updates to the CFCOG for posting information on the Cape Fear Council of Governments website for those seeking additional details. Meetings were advertised widely, including on local government study partners' websites, in regional print media, and via press release to regional broadcast (television and radio) outlets, as outlined in the Public Participation Plan.

STAKEHOLDER ENGAGEMENT

Engagement with the broader set of MOTSU stakeholders required extensive coordination by the project team. The CFCOG staff assisted the consultant team in communicating with stakeholders to schedule interviews. A key component of the project team's background research was information obtained from individuals directly involved with the various governmental and private entities influencing land use in the region. The project team gathered information related to planning, economic development, utilities, transportation, and environmental issues through interviews with a wide range of entities in the region. The stakeholders interviewed during the initial phase of the project included principal staff and officials from:

- Military Ocean Terminal Sunny Point
- Brunswick County
- City of Boiling Spring Lakes
- Town of Leland
- City of Southport
- New Hanover County
- Town of Carolina Beach
- Town of Kure Beach
- Cape Fear Council of Governments
- NC State Port Authority
- NCDOT Division 3
- Wilmington MPO
- Cape Fear RPO
- H2GO
- Cape Fear Regional Jetport
- NCDEQ (Coastal Management)
- NCDNCR (Natural & Cultural Resources)
- Military Surface Deployment & Distribution Command
- Orton Plantation Preserve
- Wilmington District USACE
- Atlantic Commercial Properties

PUBLIC KICKOFF MEETING & INTERIM FINDINGS PRESENTATION

Once the stakeholder interviews and background research were completed, public kickoff meetings were held on one day in two locations to provide more opportunity for input across the study area. An informational meeting was scheduled on each side of the Cape Fear River, with one held in southeast Brunswick County at the Southport Community Center and one held on Pleasure Island at Carolina Beach Town Hall, to provide an opportunity for the general public to learn about the Joint Land Use Study process and the key issues facing the region. Over 70 people attended each of the meetings. A presentation was given at each meeting by COL Mueller (former MOTSU

Public Kickoff Meeting - Carolina Beach

Public Kickoff Meeting - Southport

December Public Meeting - Carolina Beach

December Public Meeting - Boiling Spring Lakes

Commander) and representatives of the project team. Following the presentations, meeting participants were given an opportunity to ask questions and provide comments. The meetings were advertised through the CFCOG website, email distribution lists, and the local news media in accordance with the Public Participation Plan. The meetings generated significant media attention both before and after they took place.

Near the mid-point of the study, a second round of public meetings was held on December 4, 2018 for the project team to present the interim findings of the study. This was an opportunity for the public to receive a briefing on the same material that the committees had been reviewing over the previous six months. As with the first round of meetings, the general public was provided the opportunity to ask questions and provide comments. The second round of meetings were held at Boiling Spring Lakes City Hall and Carolina Beach Town Hall. Approximately 50 people attended each meeting. As with the initial public meetings, these were advertised through the CFCOG website, email distribution lists, and the local news media in accordance with the Public Participation Plan.

JLUS ADVISORY COMMITTEE REVIEW MEETINGS

The Advisory Committee primarily consisted of staff from the various local governments and partners within the study that were familiar with technical issues and the policy implications related to the preparation and implementation of the Joint Land Use Study. The Advisory Committee was a key part of the public participation process, representing the elected officials and citizens of the local governments they serve. The Advisory Committee members served as a liaison to the elected officials, staff colleagues, and the general public. The project team met with the Advisory Committee seven times over the course of the project. The first meeting included an overview of the process and the installation tour, with the second meeting focusing on the review of background research prior to holding the first public meetings. At the third committee meeting, the group reviewed the compatibility analysis followed by a review of the conflict resolution strategies prior to the presentation of interim findings to the public. The Advisory Committee then met four additional times to review draft recommendations and draft study documents prior to making a final recommendation to the Policy Committee.

MOTSU Joint Land Use Study Committee Kickoff and Installation Tour - April 2018

JLUS POLICY COMMITTEE REVIEW MEETINGS

The Policy Committee primarily consisted of elected officials representing each local government in the study area. The Policy Committee provided oversight of the study process and work of the Advisory Committee, endorsing the final study upon its completion. The project team met with the Policy Committee 4 times during the study process. As with the Advisory Committee, the first meeting included the installation tour and an overview of the study process. The second meeting focused on the review of the compatibility analysis and conflict resolution strategies prior to the presentation of the interim findings to the public. The Policy Committee then met twice more to review the draft recommendations and to review the final draft Joint Land Use Study document.

FINAL PUBLIC PRESENTATIONS

Once the Policy Committee completed its review and approved the final draft of the study documents, a final round of public presentations of the Joint Land Use Study and its recommendations were made to the public at Kure Beach Town Hall and the Southport Community Center on June 24 and June 25, 2019. The presentations were primarily informational, providing the general public an opportunity to learn more about the completed study and the implementation strategies. Both meetings were advertised in accordance with the Public Participation Plan, and were well attended by residents as well as officials from the participating local governments. Each meeting concluded with an opportunity for attendees to ask questions, with the consulting team and MOTSU staff providing responses.

Final Public Meeting - Southport

Final Public Meeting - Kure Beach

FINAL POLICY COMMITTEE ACTION

With the final public meetings completed, and having received no substantive public comments on the final draft of the JLUS following its posting for approxiuamtely 6 weeks on the Cape Fear COG website, the Polcy Committee accepted the Military Ocean Termiinal Sunny Point JLUS as complete by assent on July 15, 2019. The final study document was then made avaialble to the participating local governments and the public following the action of the Polcy Committee.

SECTION 2: SUNNY POINT (MOTSU)

2.1 INSTALLATION OVERVIEW AND HISTORY

Military Ocean Terminal Sunny Point (MOTSU) was established by Congress in 1951, with land acquisition and construction completed in 1955. The installation was conceived as a purpose-built ammunition transshipment terminal in response to safety concerns that had emerged during World War II, in particular the Port Chicago disaster, which claimed the lives of 320 servicemen, wounded 390 and caused significant damage in the urban area surrounding the port when an accidental detonation destroyed the port during ammunition loading operations in 1944. With the disaster fresh in the mind of military planners, the Department of Defense identified rural southeastern Brunswick County on the Cape Fear River as an ideal location to establish a well-buffered munitions terminal that could handle significant volumes of explosive cargo safely and well away from the dense urban environments that surrounded most major port facilities in the United States.

Designed around the concept of the safest operational environment possible for handling hazardous cargoes, the Army acquired over 8,600 acres of land in southeastern Brunswick County, just north of Southport, in an area along the river that had previously been used for rice plantations and forestry activities. In addition to the main terminal, the Army also acquired over 2,000 acres of land on the eastern shore of the Cape Fear River, on what is known as Pleasure Island. Prior to its incorporation into the installation as an explosives safety clear zone (ESCZ), much of this area had previously been occupied by Civil-War area coastal defenses for the Wilmington Harbor, and later was home to the Ethyl-Dow chemical plant, and a US Army Air Corps (later US Air Force) installation.

Additional land acquisitions were made in the area that is now Leland, 16 miles from the terminal, where a 600+ acre rail interchange yard was established for the hand-off of ammunition trains from commercial carriers to the Army's railroad. To facilitate movement to the interchange yard, the Army also acquired (primarily as easements) and constructed a rail corridor connecting the main terminal to the interchange yard. Rounding out the land acquisition were additional purchases of easements around the main terminal, totaling nearly 5,000 acres, which remain in private ownership, but have compatible use restrictions on them to ensure public safety in the area immediately around the main terminal. A map detailing the various components of the installation is shown on the following page in Figure 2.1.

2.2 MISSION AND OPERATIONS

From the point of its activation, MOTSU has served as an indispensable component of the Department of Defense's surface transportation operations. Although the installation did not become active until after the Korean War ended active hostilities, MOTSU was soon called into heavy service with the outbreak of the war in Vietnam. During that conflict, Sunny Point supplied approximately 85% of the munitions shipped to the theater of operations. Following a relatively quiet period in the

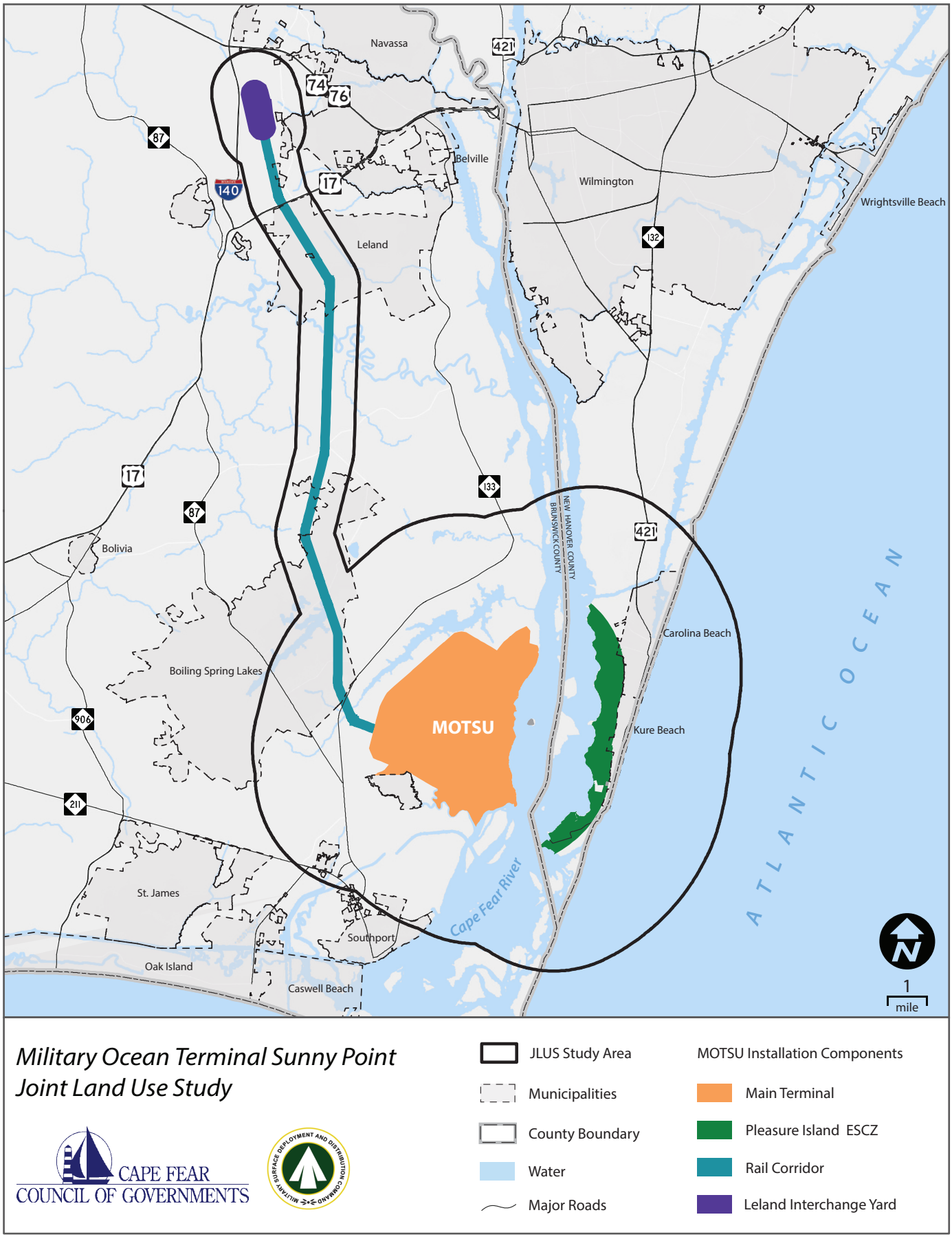
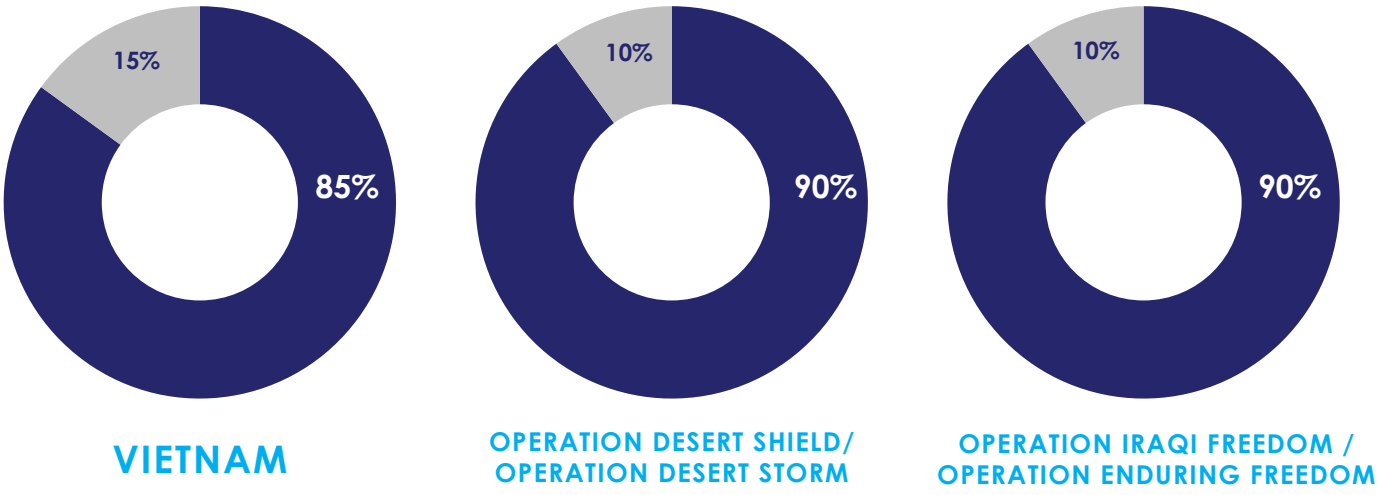


Figure 2.1: Military Ocean Terminal Sunny Point Installation Components

MOTSU CONTRIBUTIONS

WARTIME RESUPPLY MUNITIONS

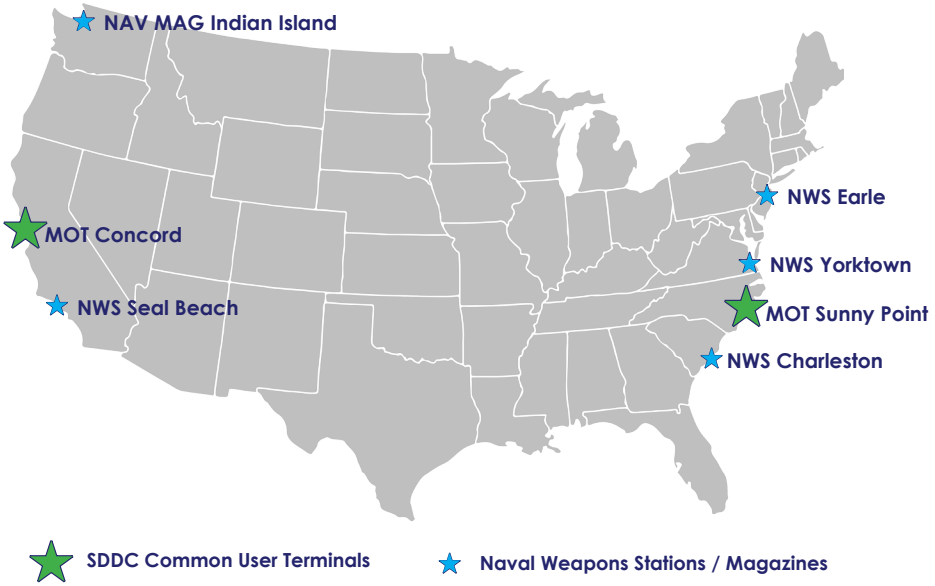


post-Vietnam era, MOTSU again played a critical role during Operation Desert Shield / Desert Storm in 1990-1991, this time supplying 90% of munitions to the theater of operations. Over the last 15+ years of wartime and contingency operations in Iraq and Afghanistan (Operation Iraqi Freedom, Operation Enduring Freedom), MOTSU has once again supplied 90% of munitions to wartime theaters of operation.

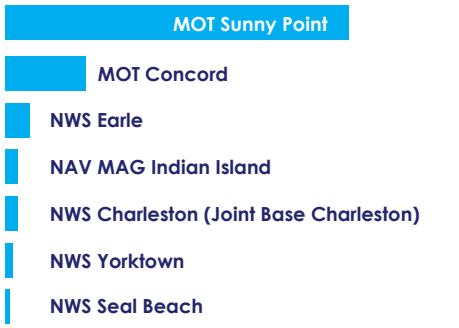
The out-sized role that MOTSU has played in supplying munitions to war-fighting efforts over the past 60+ years, and its overall importance to maintaining peacetime contingency munitions stocks prepositioned around the world, is due to the fact that MOTSU has a greater ammunition handling capability (measured in tons of net explosive weight) than all other Department of Defense munitions terminals combined. It's nearest peer is its sister installation, Military Ocean Terminal Concord (MOTCO), in the San Francisco Bay Area of California, which sits on the area where Port Chicago was located. Despite also being a similarly designed munitions terminal, MOTSU has 4 times the net explosive weight capacity of MOTCO. Other Department of Defense munitions marine terminals are much smaller, and are typically focused on supplying naval munitions.

As a Department of Defense asset under the Military Surface Deployment and Distribution Command (SDDC), MOTSU provides munitions transshipment capabilities for all branches of the US Armed Forces, as well as allied nations through the DoD's Foreign Military Sales program. Over the last decade, the installation has been responsible for transshipping up to 500,000 tons of cargo during a single fiscal year, with an average workload in the range of 250,000 to 300,000 tons in a given year, comprised of DoD ammunition resupply missions, preposition munitions stocks, and foreign sales.

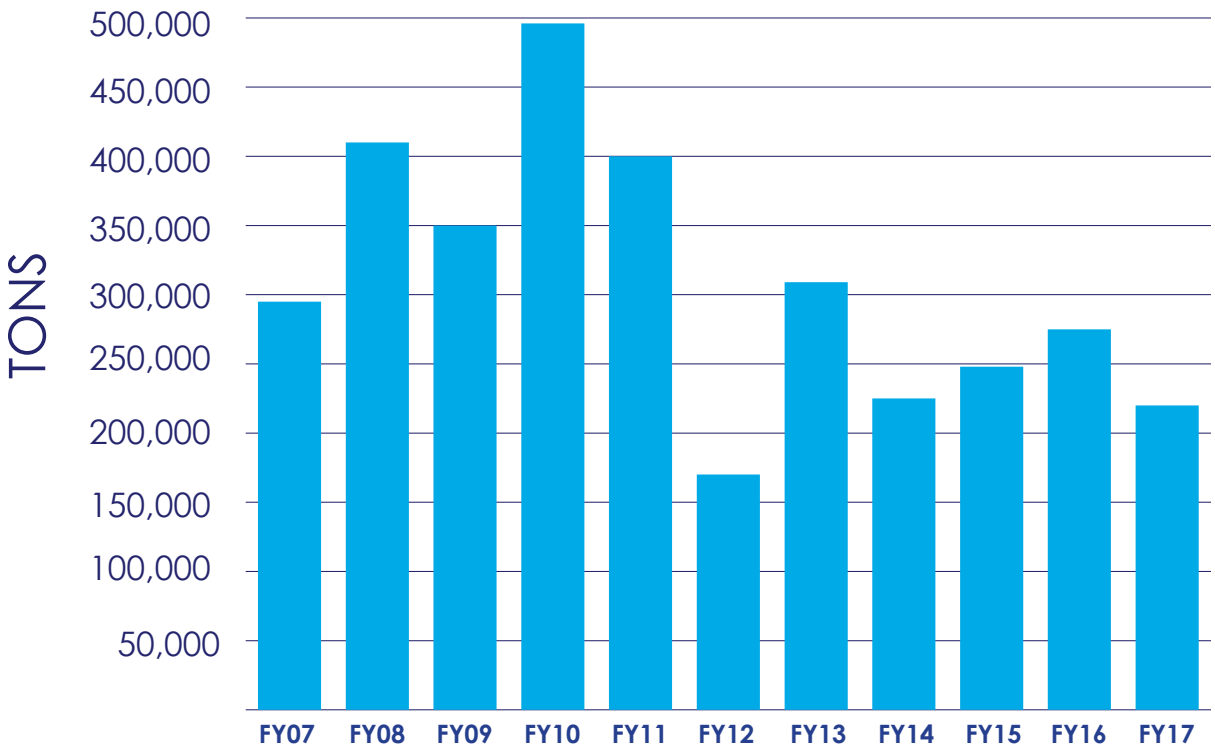
SERVICE SURFACE AMMO CAPABILITY



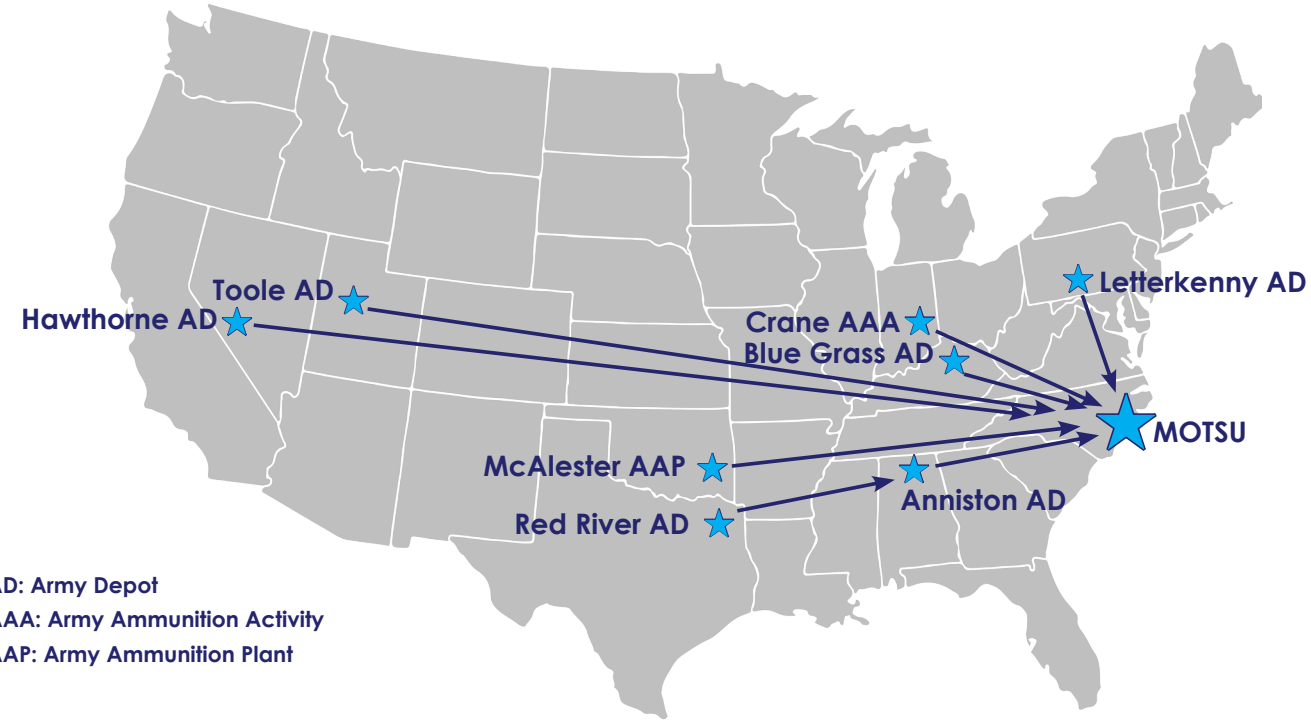
CAPACITY COMPARISON
[MILLIONS OF LBS NET EXPLOSIVE WEIGHT]



MOTSU EXPORT WORKLOAD



AMMO SHIPPERS

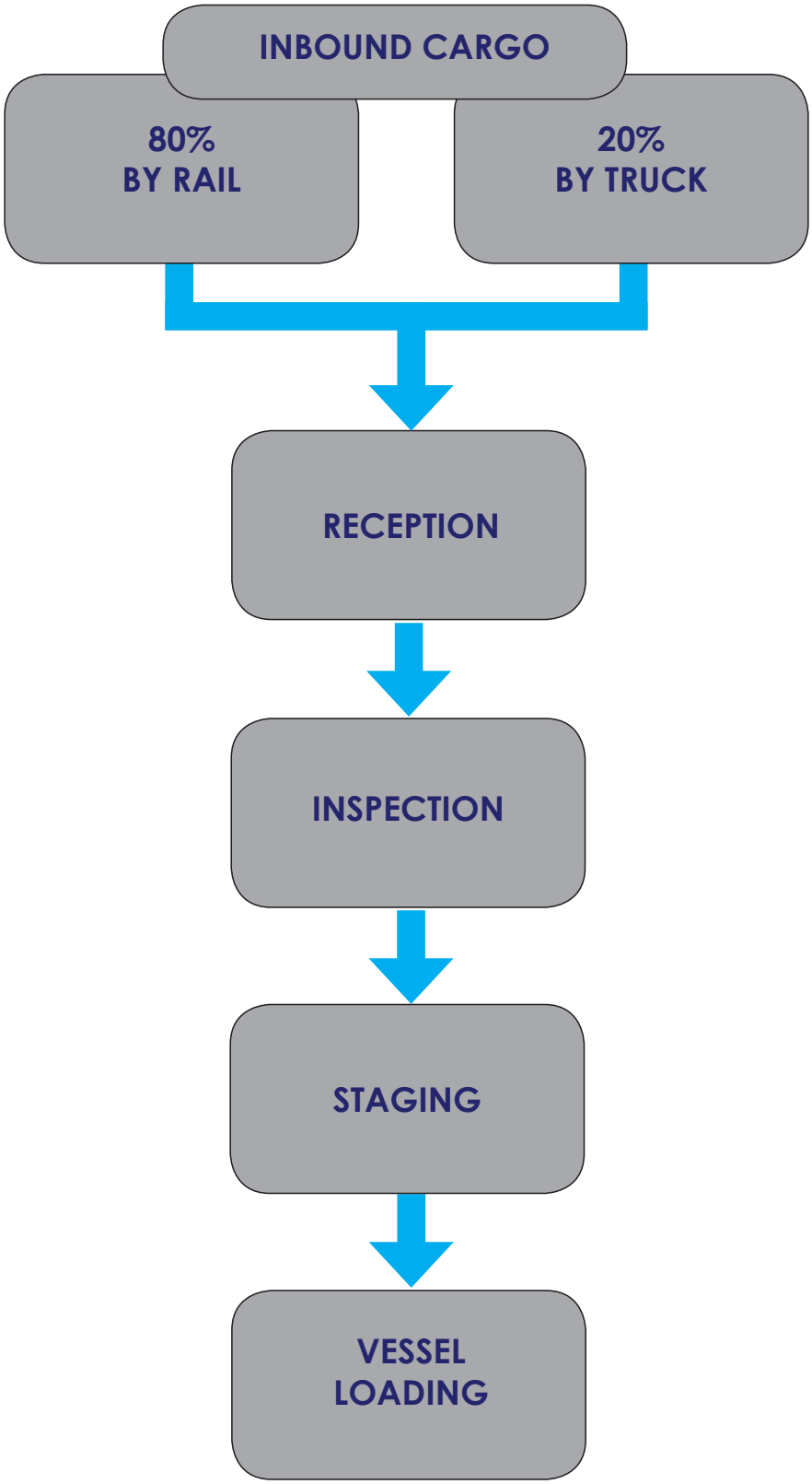


The vast bulk of MOTSU's workload is comprised of the export of munitions, with a much smaller portion of the annual tonnage being comprised of retrograde ammunition distributions from overseas back to munitions depots in the US. Typical operations involve munitions being shipped to MOTSU by rail and/or truck from the primary depots shown on the map on the following page. Currently, and historically, the mix of inbound shipments have been typically 80% by rail and 20% by truck, due to the greater capacity and efficiency of rail transportation for such cargo.

As a purpose-built munitions transshipment facility, MOTSU is not designed or used for the long term storage of ammunitions or other explosive cargoes. The throughput process, diagrammed on page 2-6, is designed to ensure that munitions remain on the installation for as short of a period of time as possible before they are loaded on a ship and sent to their final destination. This concept of operations is designed to minimize exposure to explosives safety risks, including risks to the host communities.

Although MOTSU does have some capability to host the download, inspection, repackaging, and upload of munitions stocks stored aboard Maritime Preposition Ships, this also makes up a small fraction of the overall workload. The typical course of operations at MOTSU involves the reception of munitions cargoes by either truck or rail, followed by inspection of the cargo to ensure safety. Once it has been received and inspected, the munitions are staged on the terminal in accordance with

TERMINAL THROUGHPUT PROCESS



the installation's explosive license, which governs the quantity, separation, and location of munitions on the terminal. The staged munitions (typically containerized) are then brought to the wharves by either truck or rail for loading onto cargo ships by highly skilled stevedores (longshoremen) who are specially trained in handling explosive cargo.

With regard to inbound rail shipments, it should be noted that when commercial carriers deliver trains to the Leland interchange yard, US Army locomotives are typically on-site with security personnel to immediately receive the shipment and transport it to the terminal. In those instances where locomotives are not immediately available, munitions cargoes will typically only remain in the yard for several hours, at most, under guard.

Although MOTSU is a military installation that is under the command of the 596th Transportation Brigade, it relies primarily on a workforce comprised of DoD civilians and civilian contract personnel for its operational capacity. Civilians serve in roles ranging from cargo operations, law enforcement / security, fire fighting, ammunition surveillance, to more typical roles in public works and administration. Munitions loading operations are entirely the responsibility of civilian contractors. In addition to its unique nature as a primarily civilian-operated military installation, MOTSU is also somewhat unique, in that it provides rail support to three nearby commercial entities. Since the MOTSU rail line is the only railway access to southeastern Brunswick County, neighboring industries have relied on Army locomotives to deliver commercial cargoes under unique contractual arrangements with these enterprises. Industries supported by this arrangement include Archer Daniels Midland (ADM), Duke Energy (Brunswick Nuclear Station), and Capital Power.

2.3: MISSION COMPATIBILITY FACTORS

Threats to the long term sustainability of MOTSU's operational mission are directly tied to the nature of the operations that are conducted on the terminal. The primary potential threat to the mission is from incompatible urban growth / incompatible uses in areas that fall within its explosive hazards safety zones, which are known by the acronym ESQD - explosive safety quantity-distance - a measurement of the hazard potential of explosives related to their net explosive weight (NEW). A more thorough discussion of explosive safety and ESQD arcs is found in Section 5. Simply stated, MOTSU's mission is dependent on its ability to maintain the full use of the areas within the established ESQD arcs, and encroachment into these areas by incompatible uses could put the mission at risk. An overview map showing the location of the primary ESQD arcs that fall outside of the installation boundary is shown in Figure 2.2, while a more detailed map is included in the compatibility analysis in Section 5.

The second primary compatibility factor is related to the installation's mission as a transportation dependent hub for munitions transshipment. MOTSU is served by rail and highway networks that span the country, but lead to a local transportation network that falls within the overall study

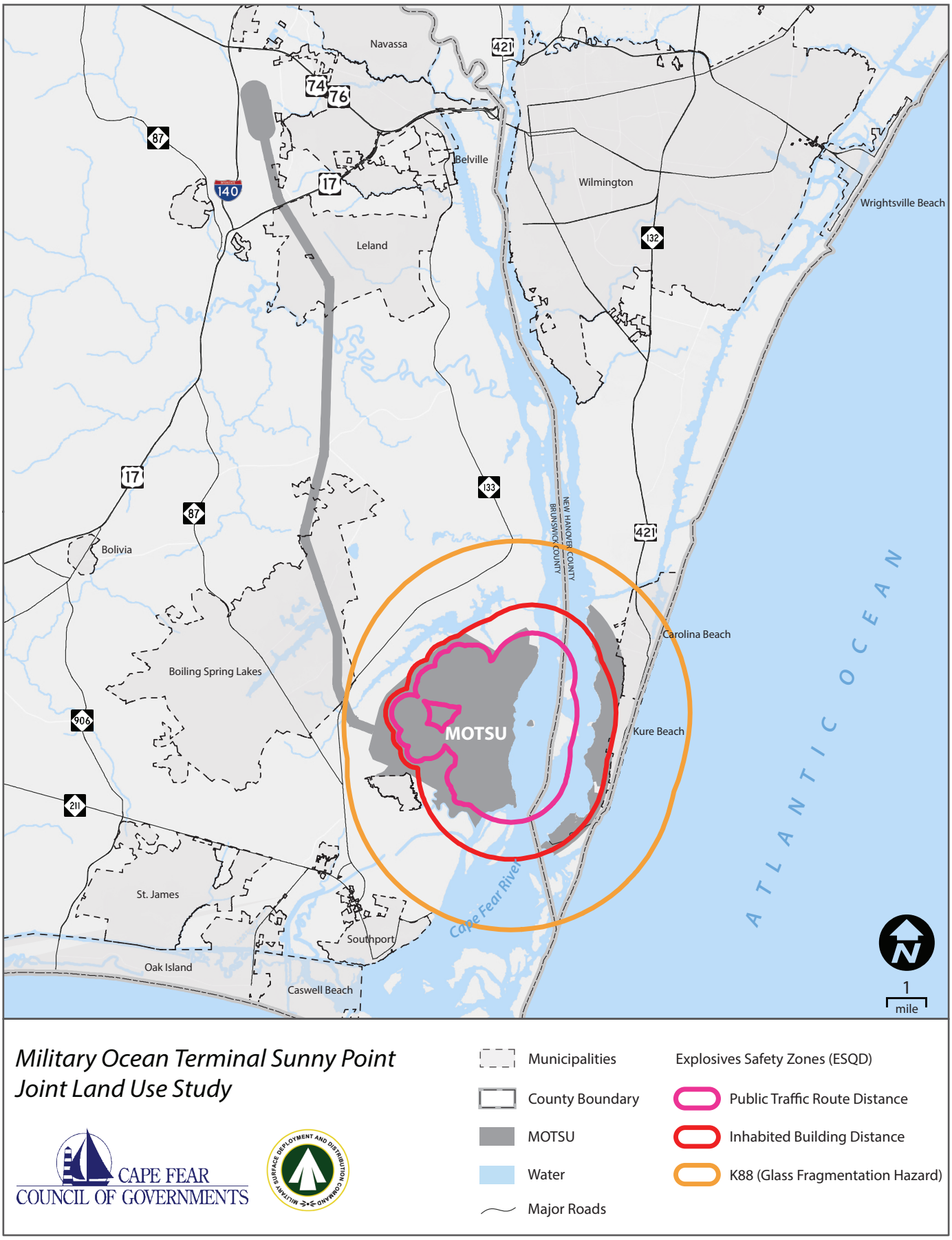


Figure 2.2: Explosives Safety Quantity-Distance Arcs

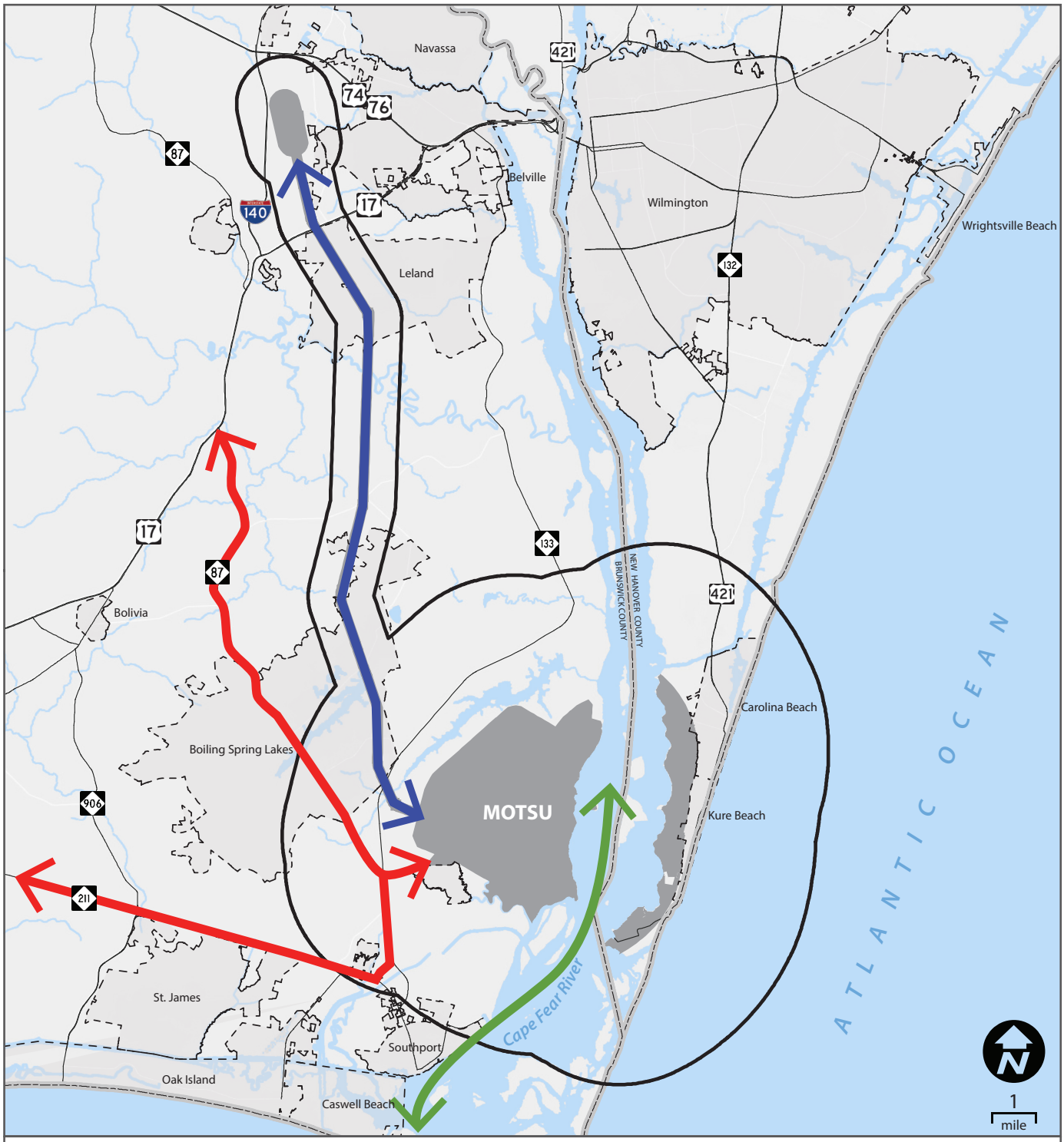


Figure 2.3: Military Ocean Terminal Sunny Point Primary Transportation Routes

area. Although there is little control over external transportation assets, local governments and their partners have the ability to influence the local network. In addition to the rail and highway networks that facilitate the movement of cargo to MOTSU, the installation is also dependent on the Cape Fear River for maritime access. Access limitations in any one of these modes of transportation to and from the installation can severely impede its ability to carry out its mission. Therefore, the long-term sustainability of the mission relies upon maintaining safe and efficient access to the local transportation network. The most critical of these routes are highlighted on the map in Figure 2.3.

A third primary factor in sustaining MOTSU's mission is ensuring that environmental constraints do not impede its operational capacity. Potential areas of environmental concern include matters such as the need to conserve threatened and endangered species that can migrate between the installation and surrounding areas, making wildlife habitat preservation a critical component of the mission. They also extend to natural hazards such as flooding, wildfires, storm surge, and sea level rise, which can impact critical infrastructure, disrupt operations, and require costly adaptation measures to effectively mitigate. As MOTSU is in a riparian environment, environmental challenges extend also to maintaining water quality and preserving coastal and riverine wetlands to help filter stormwater runoff. Again, simply put, the mission is dependent on maintaining the lowest degree of environmental constraint possible. These, and other environmental issues, are more thoroughly discussed in Section 4 of the study.

The final, and perhaps most important, component of mission compatibility is not physical in nature. It does, however, wield the power to influence the other three compatibility components in either a positive or negative manner. This final primary factor is the relationship that is maintained between MOTSU, its host communities, other regional partners, and the public at large. Strong relationships help to mitigate potential threats to the mission by ensuring a collaborative environment in which problems can be identified and solved before they impact the mission. A collaborative approach to military land use compatibility planning is a component of the overall relationship, which has waxed and waned over the years, but is generally seen in a positive light by most participants and observers. Building upon the relationships that have long existed prior to the JLUS, this process has already led to a significant increase in MOTSU's involvement with local partners and a greater community understanding of the installation's somewhat secretive mission. Moving forward, this relationship between civilian and military officials, governments, and agencies will be the critical linchpin in ensuring that the physical threats to mission compatibility do not materialize.

SECTION 3: STUDY AREA CHARACTERISTICS

3.1 POPULATION AND HOUSING TRENDS

The location for Military Ocean Terminal Sunny Point was originally chosen based on its rural character, generally inhospitable natural environment, and most importantly, the lack of a large concentration of residents within the area needed for its explosives safety zones. Since the 1950s, there has been a significant change in the perception of the region. Southeastern coastal areas, particularly marshy inland areas just off the coast, were seen as areas to be avoided by developers. But, as time has passed, so has the perception of areas like Brunswick County, which, for years, has been one of the fastest growing counties in the US. The same is true for what is now known as Pleasure Island - home to the growing beach-front communities of Carolina Beach and Kure Beach. Once primarily occupied by military and industrial facilities, the southern peninsula of the county has become a fashionable tourism draw and destination for retirees. The influx of new homes, residents, and the associated businesses and industries that feed the growing economy of the Cape Fear region present a stark contrast to the nature of the area nearly 70 years ago, when the site for the terminal was selected.

In 1950, when the US Army Corps of Engineers was scouting for a site for an ammunition terminal, Brunswick County's population stood at just over 19,000 residents, and Southport, just down-river from Sunny Point, with around 1,700 residents, was the urban center of the county - serving as the county seat. Across the river in New Hanover County, there were just over 63,000 residents, with the majority of the population centered in and around Wilmington, up-river from Sunny Point. At that time, the apparent population of Pleasure Island was likely under 1,500 residents, with around 1,000 of those living in Carolina Beach, and just over 200 residing in the newly incorporated Town of Kure Beach.

Since the 1950s, population growth has boomed in both counties, with New Hanover now boasting an estimated 227,000 residents, while Brunswick County has grown to nearly seven times its size in 1950, with a population now estimated to exceed 130,000. As both counties have grown, new municipalities such as Boiling Spring Lakes and Leland, have grown along either end of the MOTSU rail corridor, with current estimated populations of 6,000 and nearly 20,000 residents, respectively, while Southport has doubled in size, and the nearby beach communities have grown from virtually uninhabited islands into major tourism and retirement communities. Across the river on Pleasure Island, both Carolina Beach and Kure Beach have seen tremendous growth in their year-round populations, with around 6,000 full-time residents in Carolina Beach and around 2,000 in Kure Beach. This does not account for their capacity to host influxes of thousands of visitors during tourist season to the many hotel accommodations and rental homes that have been constructed on the island.

The most recent (2010) geographic data from the US Census provides some clarity about where all of these new residents have chosen to live. Figure 3.1 on the following page provides insight into the block-level (smallest unit of Census geography) population density in and around the JLUS study area. For the sake of clarity, only two different population densities are depicted on the map - one identifying blocks with at least one resident per acre and one identifying blocks with one resident per 10 acres. Blocks with fewer than one resident per 10 acres are not shown (see Figure 3.1).

Despite the significant population growth in the area, the map demonstrates how the majority of that growth has been concentrated in the Wilmington urban area, the beach communities, and to a lesser extent, in the Boiling Spring Lakes area. The immediate vicinity of the main terminal in Brunswick County remains relatively uninhabited, due in large part to the presence of compatible use easements, Orton Plantation, and the Brunswick Nuclear Station, which both occupy significant amounts of land near Sunny Point. Growth can be seen emerging along the rail corridor, however, with higher populations densities in Boiling Spring Lakes, as well as the Brunswick Forest area of Leland, which was still in its early development stage when this data was captured. The area around the Leland Interchange, particularly the east side of the yard along the Lanvale Road corridor, has seen an increase in the concentration of population as well. As noted previously, population density on Pleasure Island (Carolina Beach and Kure Beach) has swelled to urban levels, including along the perimeter of the MOTSU ESCZ.

As a general trend, we can expect both Brunswick and New Hanover Counties to continue a steady upward growth trajectory into the foreseeable future. The NC Demographer's Office currently estimates that Brunswick County will grow to over 200,000 residents by 2038, while New

	BRUNSWICK COUNTY	NEW HANOVER COUNTY	BOILING SPRING LAKES	CAROLINA BEACH	KURE BEACH	LELAND	SOUTHPORT
TABLE 3.1 POPULATION GROWTH							
2000	73,143	160,307	2,972	4,701	1,507	1,938	2,351
2010	107,431	202,667	5,372	5,706	2,012	13,527	2,833
2017	130,897	227,198	6,028	6,270	2,105	19,976	3,725
CHANGE	57,754	66,891	3,056	1,569	598	18,038	1,374
TABLE 3.2 POPULATION GROWTH RATE							
2000 - 2010	46.9%	26.4%	80.8%	21.4%	33.5%	598.0%	20.5%
2010 - 2017	21.8%	12.1%	12.2%	9.9%	4.6%	47.7%	31.5%
2000 - 2017	79.0%	41.7%	102.8%	33.4%	39.7%	930.8%	58.4%

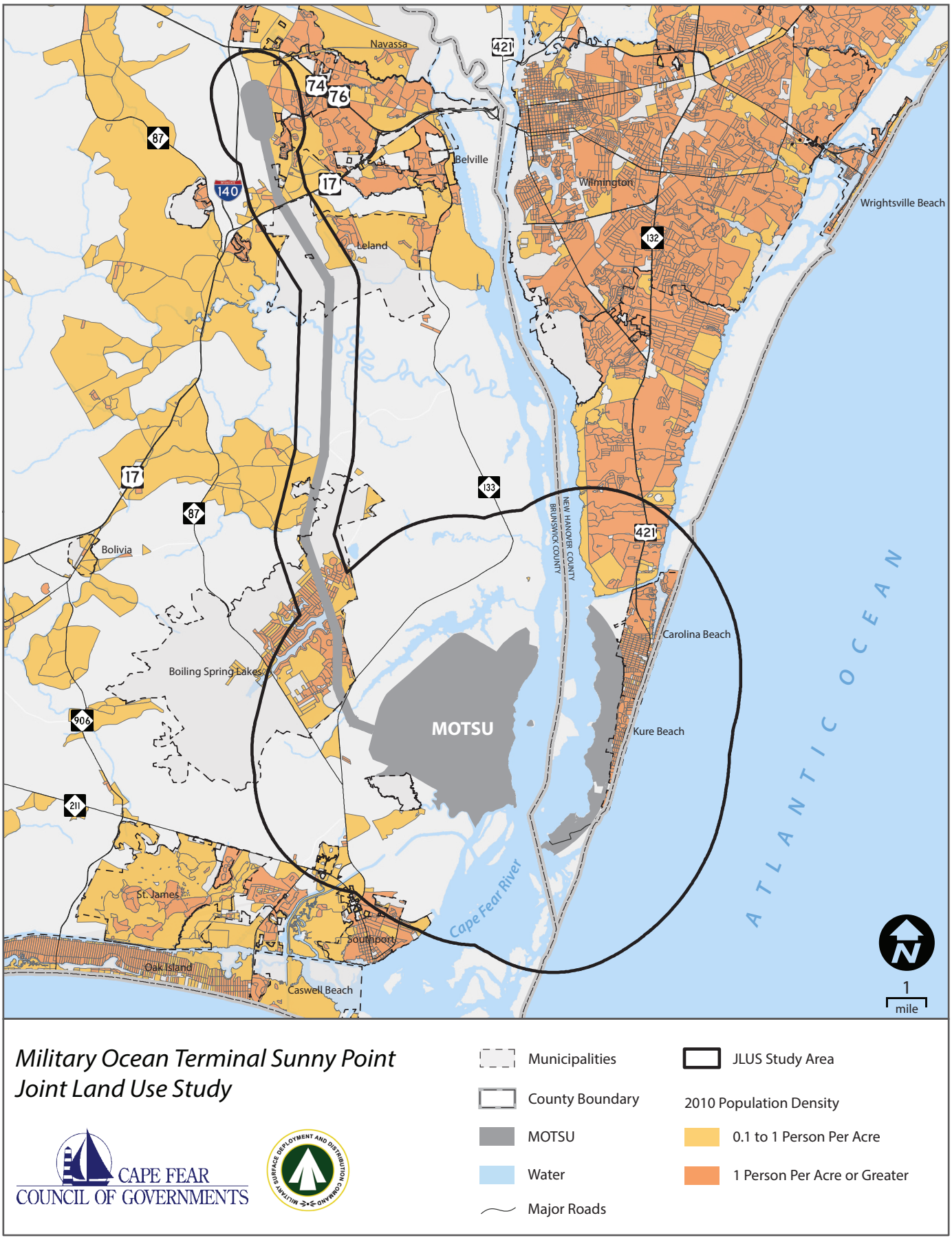


Figure 3.1: Block Level Population Density (2010 US Census)

Hanover County is estimated to reach 315,000 residents by 2038. In the face of such fast growth, it can be expected that development pressure will increase in areas near MOTSU's main terminal, which could present new challenges to maintaining a compatible environment for the installation's operational mission.

Housing growth has ballooned along with the region's growing population, with nearly 60,000 new dwelling units built in New Hanover and Brunswick Counties between 2000 and 2017 to accommodate both new residents and provide seasonal lodging, as well as second homes. Of particular note, just over 20% of all new dwellings in Brunswick County were built in Leland during this period, while, despite their relatively small geographic size in relation to the county as a whole the towns of Carolina Beach and Kure beach accounted for nearly 10% of all new dwelling units in New Hanover County over this period.

The two Pleasure Island communities also had housing growth rates that exceeded their population growth rates fairly significantly. During the period of 2000-17, the number of dwellings in each of those towns grew by around 40%, while the number of residents increased at a slightly slower rate, indicating that more new housing in these communities was likely devoted to tourism or second homes, rather than new permanent residents.

A map depicting the density of dwelling units in and around the study area (at the Census block level) is shown in Figure 3.2. Each dot on the map represents an individual dwelling unit. The patterns on the map reinforce the population density information shown in Figure 3.1 and enhance our understanding of how housing is distributed in and around the study area. Of particular note on this map is, again, the relative lack of housing (and thus population) in the area immediately around the main terminal.

	BRUNSWICK COUNTY	NEW HANOVER COUNTY	BOILING SPRING LAKES	CAROLINA BEACH	KURE BEACH	LELAND	SOUTHPORT
TABLE 3.3 HOUSING GROWTH (TOTAL DWELLING UNITS							
2000	51,431	79,616	1,409	4,086	1,560	919	1,292
2010	77,482	101,436	2,418	5,626	2,213	6,583	1,777
2017	84,702	107,369	2,632	5,744	2,185	8,041	1,907
TOTAL	33,271	27,753	1,223	1,658	625	7,122	615
TABLE 3.4 HOUSING GROWTH RATE							
2000 - 2010	50.7%	27.4%	71.6%	37.7%	41.9%	616.3%	37.5%
2010 - 2017	9.3%	5.8%	8.9%	2.1%	-1.3%	22.1%	7.3%
2000 - 2017	64.7%	34.9%	86.8%	40.6%	40.1%	775.0%	47.6%

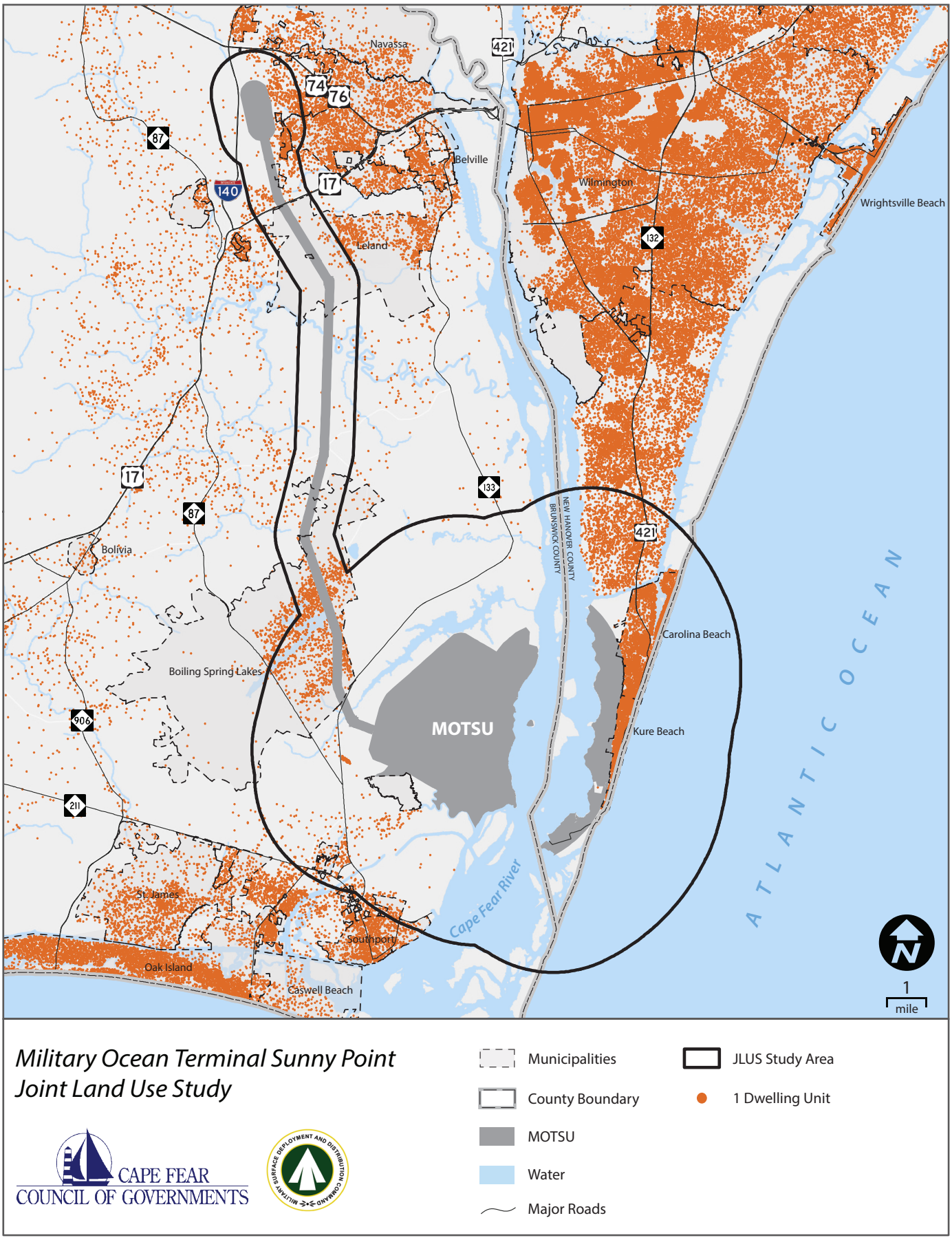
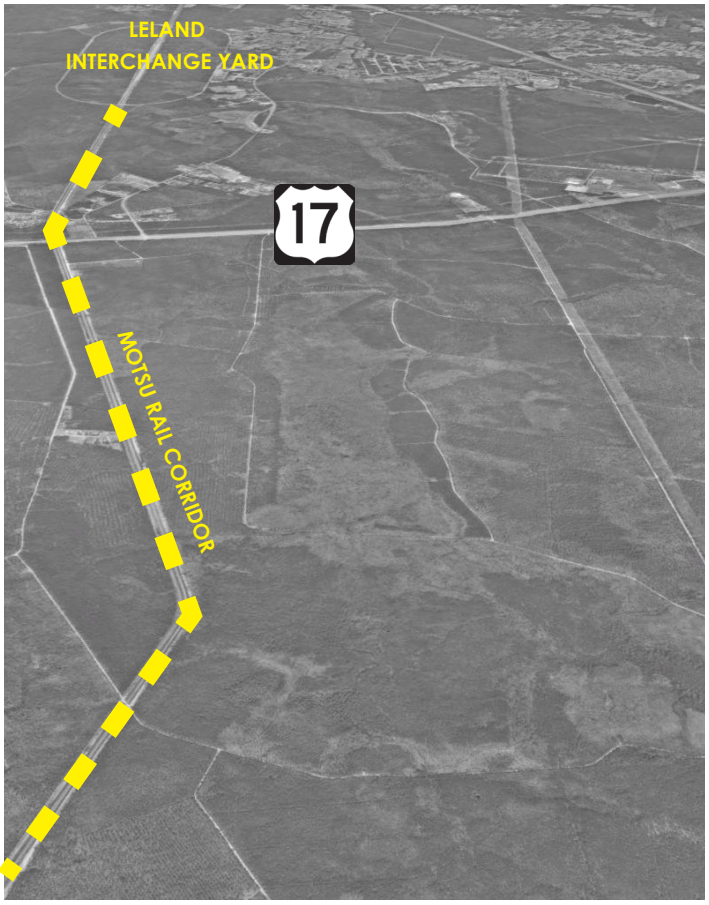


Figure 3.2: Block Level Housing Density (2010 US Census)

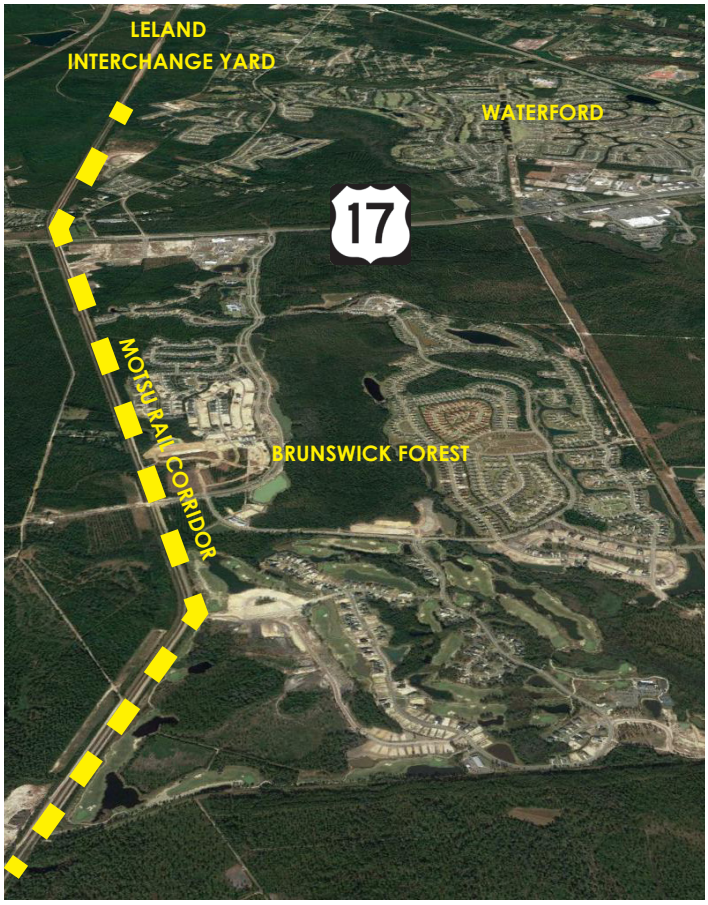
3.2 LAND USE AND DEVELOPMENT TRENDS

In addition to using Census data to retroactively observe longer term trends, changes in land use and development pattens can be observed over much shorter time intervals through the use of geographic datasets such as NRCS satellite collected land cover data. An extract from this dataset, which is published annually, shows changes in developed land cover (i.e. impervious surfaces) in and around the study area based on data collected in 2010 and 2017 (see Figure 3.3). Although annual changes are observable, they tend to be more incremental and less obvious than a five-year or greater comparison.

The map in Figure 3.3 reveals that the most significant areas of concentrated urban growth in the study area have occurred along the northern end of the rail corridor and the Leland Interchange. As mentioned previously Brunswick Forest was in its early stages when the last full Census count was completed in 2010, and this data provides insight into the development activity that has taken place since that last population and housing count. The images shown below further illustrate the degree to which the environment has changed along the northern end of the MOTSU rail corridor. Given the scale of the data, smaller projects and infill / redevelopment are not readily apparent or necessarily observable, making this observation tool more appropriate for monitoring landscape scale changes across a wider area, such as the JLUS study area.



Northern MOTSU Rail Corridor -1983



Northern MOTSU Rail Corridor - 2016

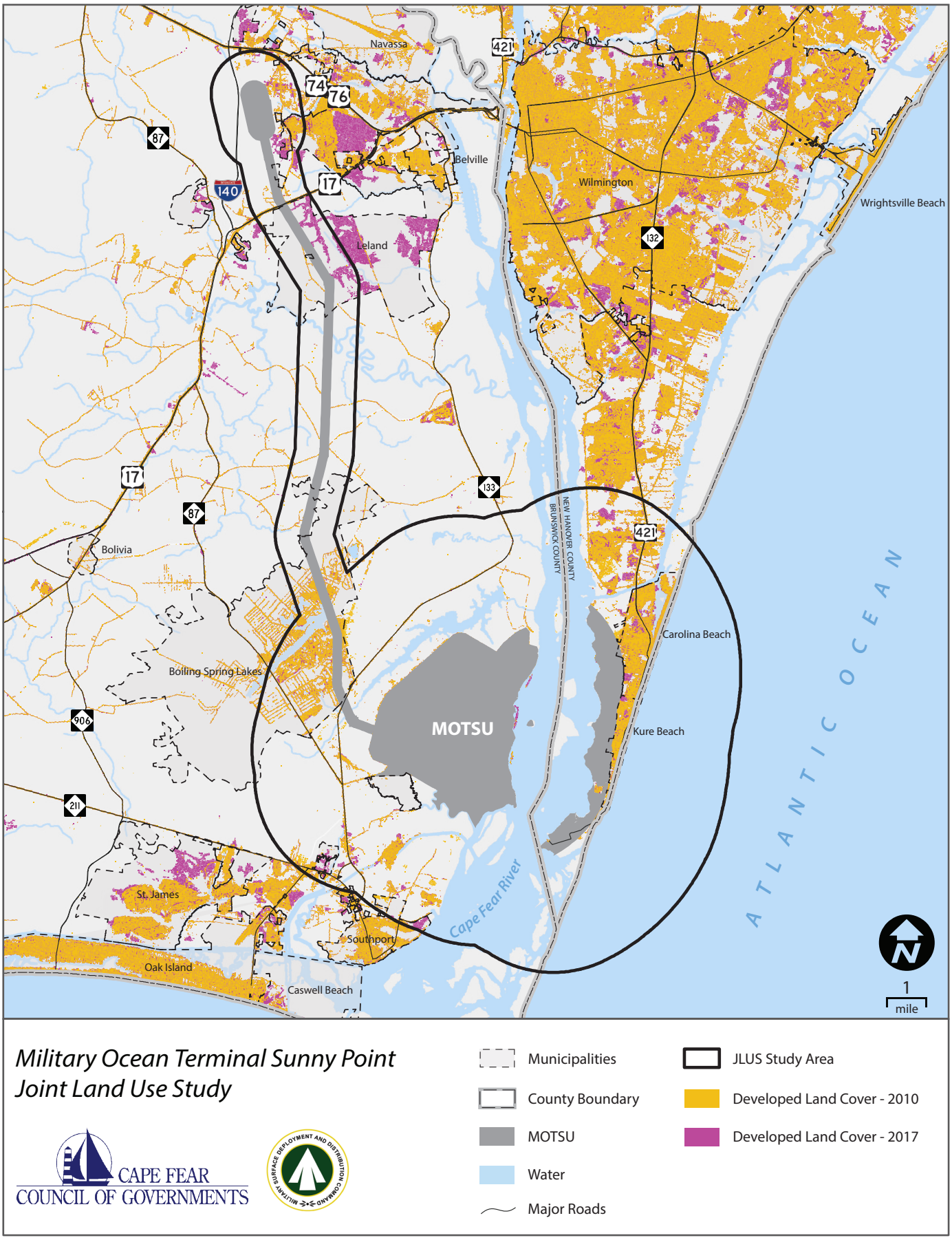


Figure 3.3: Developed Land Cover Change 2010-17

Figure 3.4: Land Subdivision Pattern

Supplementing the landcover data is an analysis of land subdivision patterns (parcel density). This provides further insight into both past and pending development activity since GIS parcel data tends to be updated in near real-time as plats are filed prior to development taking place. The map in Figure 3.4 shows the current land subdivision pattern, which reveals not only developed urban areas (as generally indicated by smaller parcels), but also where there is pending development - when smaller parcels are observed without corresponding developed land cover data. The land subdivision pattern map is also useful for revealing where there are potential land resources to support new greenfield development. Although many factors influence development activity, land availability is perhaps the key constraint.

As Figure 3.4 shows, the land subdivision patterns tend to correspond quite closely with population and housing density, as well as developed land cover, with developed areas tending to have smaller parcels, and less developed areas tending to have larger parcels. The lightest colored tracts of land on the map correspond to parcels containing 100 or more acres of land - which could be considered as prime development targets. Although many of the largest tracts immediately around MOTSU are either subject to compatibility or conservation easements, or are occupied by large industrial uses, there are still significant land resources in and around the study area to facilitate additional residential growth, particularly in areas that have fewer environmental constraints.

3.3 TRANSPORTATION

As previously noted, maintaining safe and efficient transportation access to MOTSU by highway, rail, and the river, is critical to sustaining the installation's military mission (see Figure 2.3). Growth in the region has put strains on a regional transportation network that, in many cases, was not designed to handle large traffic volumes, particularly peak-time commuter traffic between Brunswick and New Hanover counties. While several major transportation projects have been completed in recent years, notably improvements to US 17 in Leland, the widening of the US 74-76 causeway, Interstate 140's Brunswick County segment, the Long Beach Road extension, and the reconfiguration of the NC 133 / NC 87 intersection at MOTSU's entrance, traffic congestion can still pose problems, particularly at peak travel times and during the summer tourist season. With the growth projections for both counties, there is likely to be further strain on the local and regional transportation network that could degrade mission capability if not resolved.

The map in Figure 3.5 shows the NCDOT "functional classifications" assigned to the highway network that serves MOTSU and the study area. The state highways (NC-87, NC-133 and NC-211) that directly serve MOTSU and southeastern Brunswick County are classified as minor arterials, which are intended to provide regional connectivity to the primary arterial highway network that serves the larger region (such as US 74/76 and US 17), while providing relatively high travel speeds and few limits to through movement. Although each of these highways currently have two-lane cross sections, they generally have sufficient capacity to meet MOTSU's truck cargo needs during normal

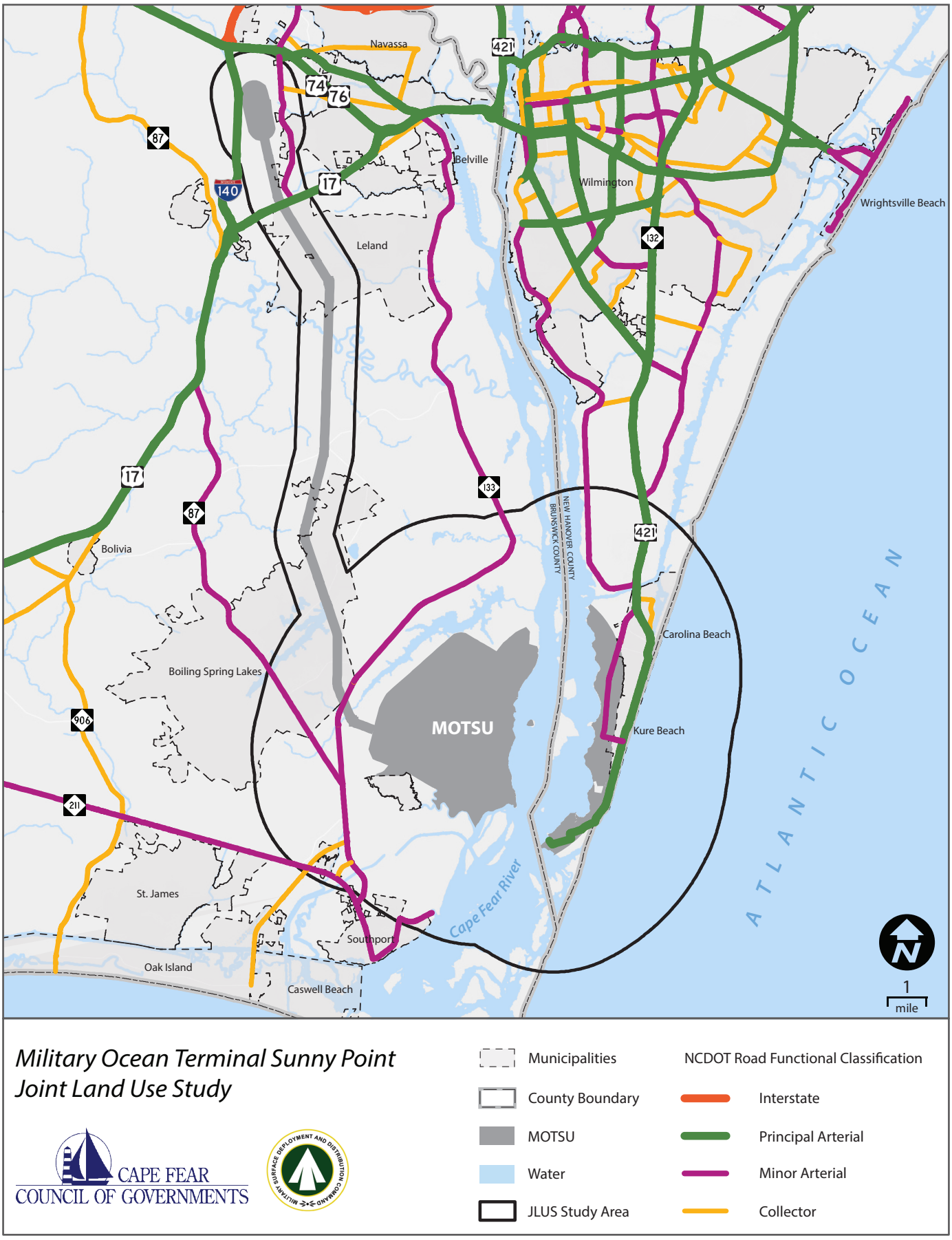


Figure 3.5: Highway Functional Classification

operations. Dow Road, which traverses the Pleasure Island ESCZ, is also a minor arterial, and serves as a reliever route for US 421, which it parallels from Kure Beach to Carolina Beach.

Average annual daily traffic volumes (AADT) collected by NCDOT in 2017 (see Figure 3.6) show that the NC-133 corridor has relatively low traffic volumes compared to the NC-87 corridor, with the central section of the road between Orton and Town Creek measuring fewer than 5,000 vehicles per day, on average. As the primary truck route to MOTSU, the portion of NC-87 south of US-17 should be closely monitored to ensure that congestion and traffic volumes do not interfere with the installation's transshipment operations. As the data indicates, the intersection of NC-87 and NC-133, which was reconfigured in recent years to improve safety and provide better access to MOTSU, is the point at which traffic volumes increase significantly. The operation of this intersection should be monitored to ensure that traffic volumes at this location are not impeding safety or security. The percentage share of the average daily traffic volume that is comprised of truck traffic is shown in Figure 3.7. Despite having a generally lower overall volume, the NC-133 corridor carries a statistically similar share of truck traffic to the NC-87 corridor. The map also indicates that a fairly high percentage of truck traffic is headed to and from MOTSU, with over 10% of the installation's vehicle traffic comprised of trucks.

With regard to the highway network, the most significant project in the works at the current time is an ongoing study to select a preferred route for the planned Cape Fear Crossing - a limited access highway extension from the end of I-140 in Brunswick County with a high-rise toll bridge across the Cape Fear to central New Hanover County. Several of the proposed routes could impact MOTSU (generalized routes are shown in Figure 3.8 - detailed alternative routes from NCDOT are in Appendix F). All but the V-AW corridor would require grade separated crossings over the MOTSU rail line. The potential southern routes would also all provide an interchange at NC-133. While not currently a primary truck route for MOTSU, the addition of a limited access route to NC-133, coupled with additional road improvements could, at a minimum, provide a viable alternate route to MOTSU for truck traffic, or could even supplant existing routes since it would bypass much of the urbanized area in Boiling Spring Lakes and potentially enhance the safety of the cargo shipments. The southern route choices also bring the possibility of additional pass-by traffic and congestion at MOTSU's front entrance, if the road induces faster travel times and spurs more commuter traffic between southeastern Brunswick County and Wilmington.

Growth along the rail line between MOTSU and Leland will eventually begin to strain the functionality of the road network that serves the rural area along the rail corridor. There are currently a number of grade crossings along the line (see Figure 3.9) which present safety and corridor access concerns, particularly given their rural location and potential for heavy use during major contingency operations. Other rail related trends in the region are focused on the increase in traffic to and

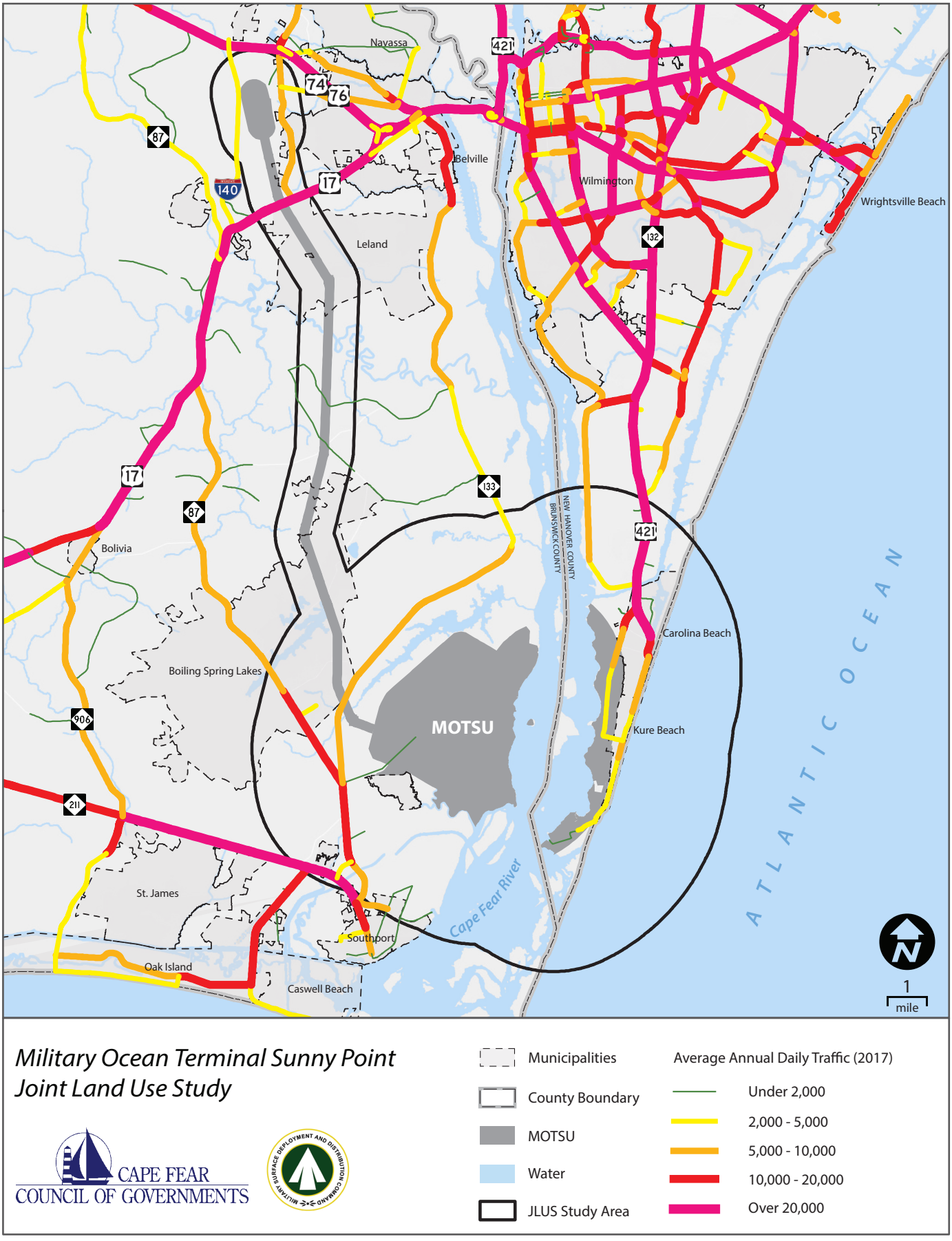


Figure 3.6: Average Annual Daily Traffic Count (2017)

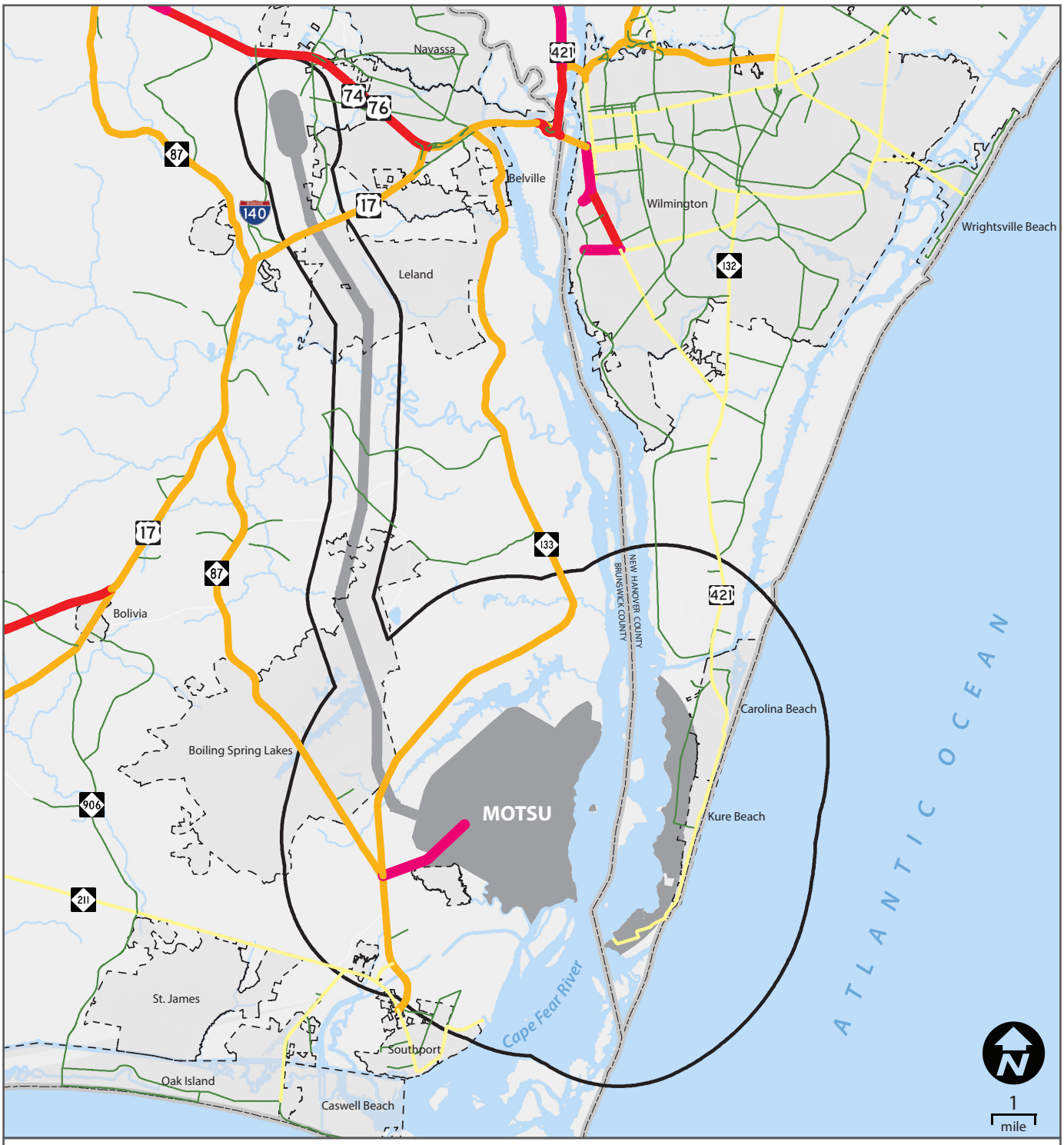


Figure 3.7: Average Daily Truck Traffic Share (2017)

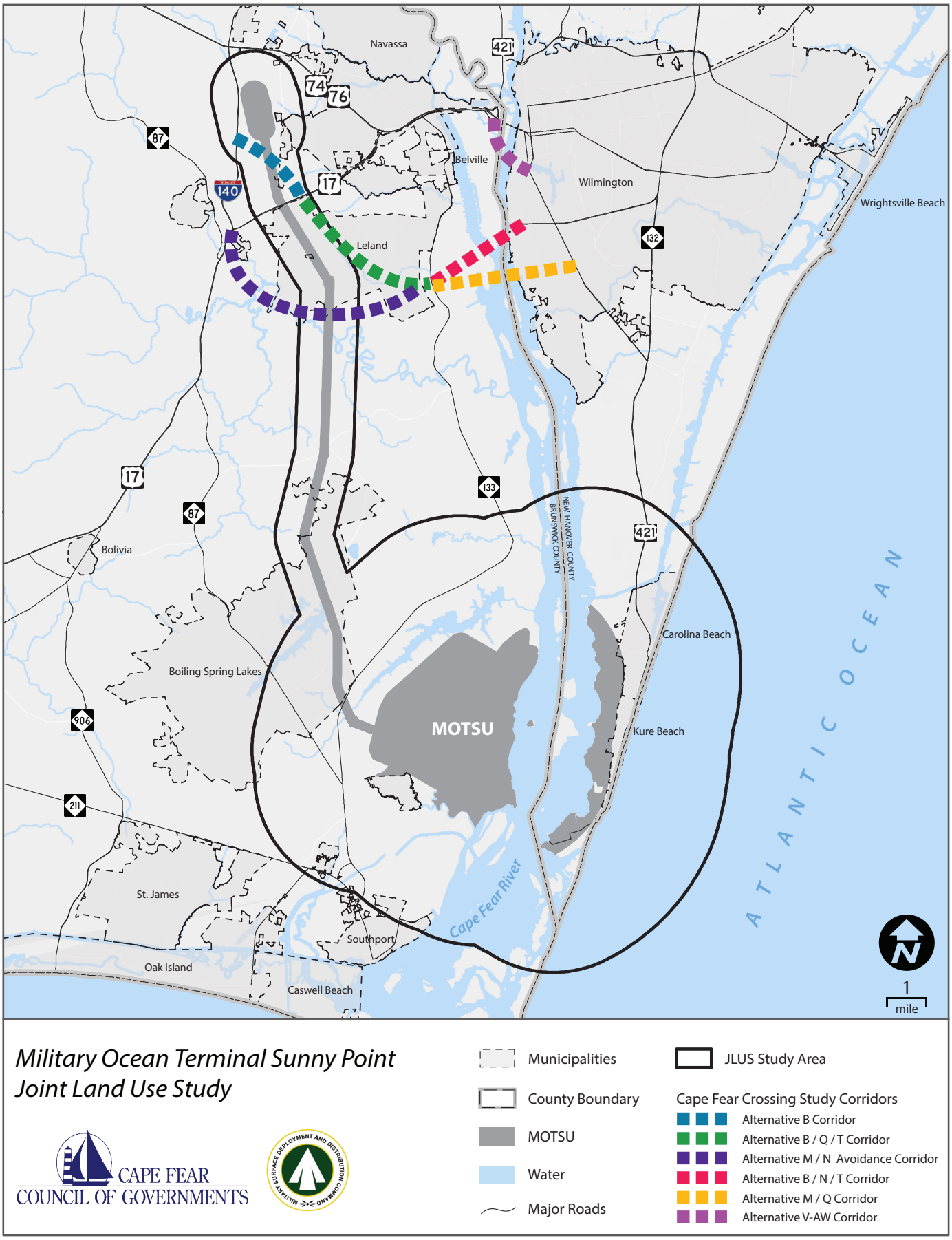


Figure 3.8: Generalized Cape Fear Crossing Study Corridors

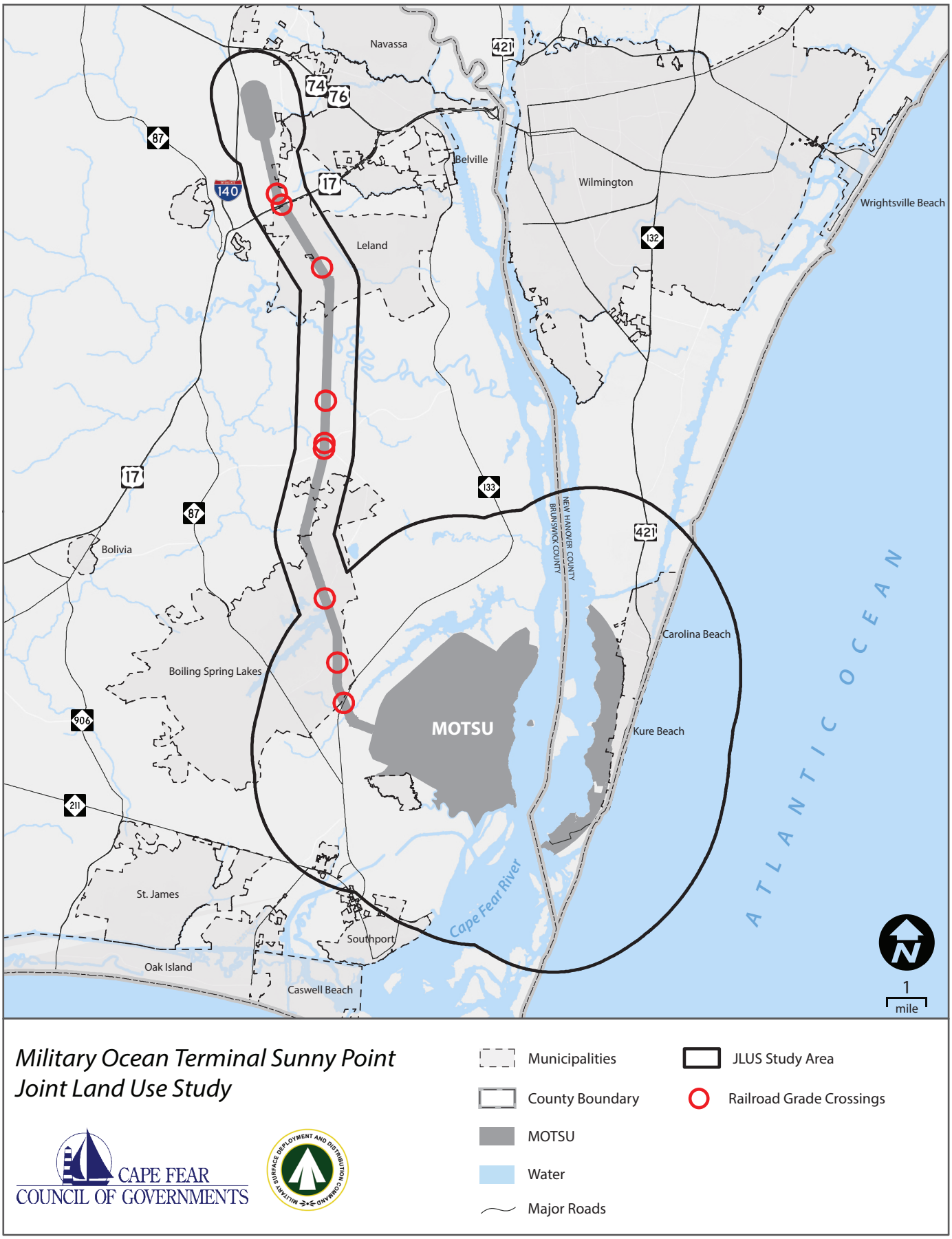


Figure 3.9: MOTSU Rail Corridor Grade Crossings

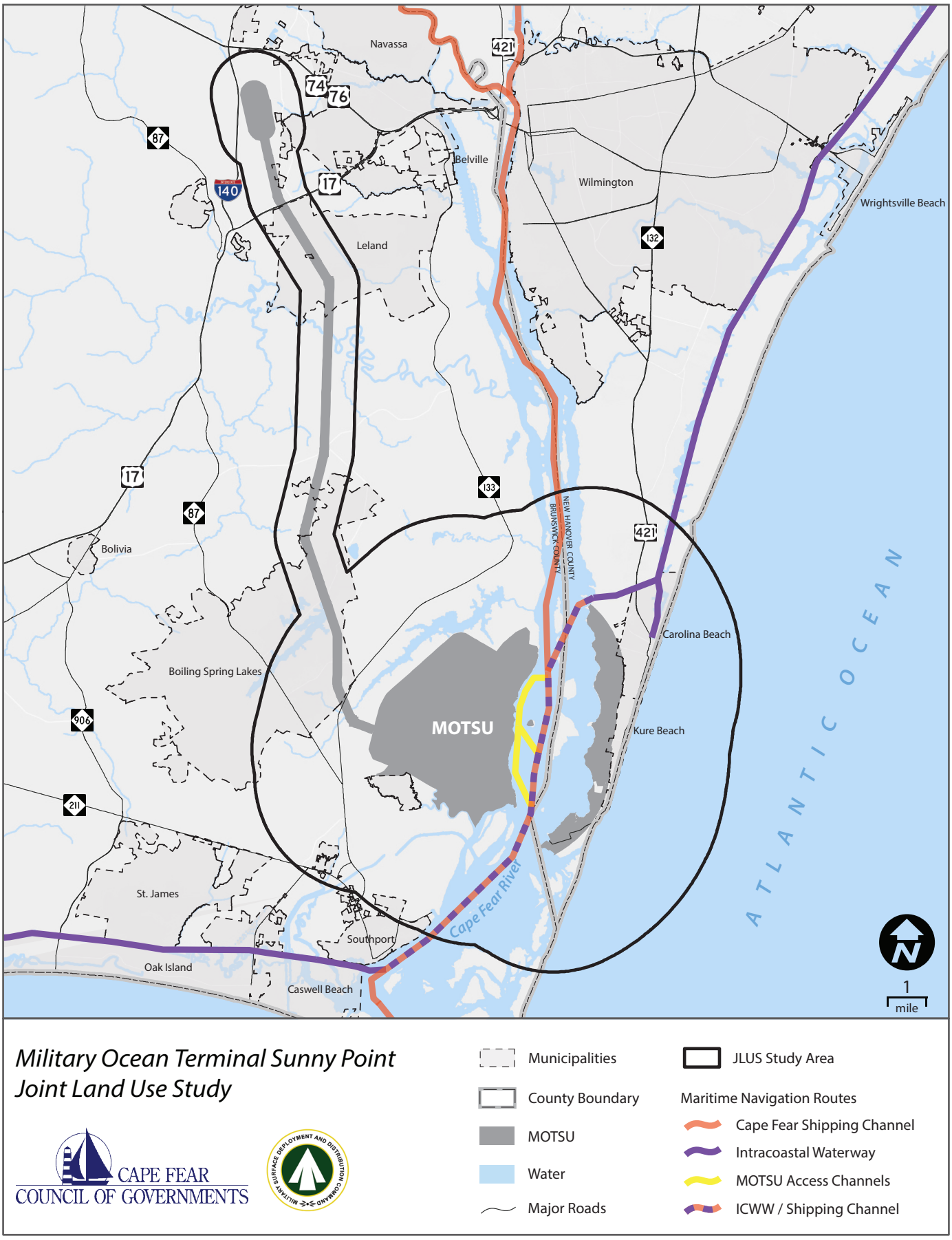


Figure 3.10: Cape Fear River Navigation Channels

from the Port of Wilmington. In recent years, CSX has increased traffic from Charlotte to the port, and this is expected to continue to grow into the future. Davis Yard in Navassa could become impacted by heavy freight traffic growth, particularly if an alternate route to the port (currently being studied) is not found to be feasible or is not implemented to allow faster clearance of trains from the yard, which MOTSU bound trains must navigate on their way to the Leland Interchange. A high level study was recently completed to assess the feasibility of reopening an abandoned rail corridor from Whiteville to Malmo, just west of the current end of a spur used for backing up trains at the Leland Interchange. If reopened, this line could provide alternate access since it would avoid traveling through Davis Yard. There have also been several studies in the past about reopening the abandoned rail corridor between Castle Hayne and Wallace, which would provide another alternate route to the region, but would still require passage through Davis Yard to reach MOTSU.

With regard to maritime access to MOTSU's wharves, the map in Figure 3.10 details the various navigation channels that serve the Cape Fear River. The main shipping channel, shown in orange, runs from the mouth of the Cape Fear River to Sunny Point and continues northward to the State Port and beyond. This channel is the only method of accessing the upper portions of the Cape Fear, and so is used by all commercial and recreational boat traffic on the river in the vicinity of MOTSU. To provide access to MOTSU, there is a series of access channels that extend from the main shipping channel to the wharves on the installation. The portion of the main channel that passes by MOTSU is also coterminous with the Intracoastal Waterway (ICWW), connecting Snows Cut to the continuation of the channel on the west side of the river as it turns west to go between Oak Island and the mainland. The presence of the ICWW as part of the shipping channel along MOTSU creates additional potential for safety and security concerns as peak summer boating season and shoulder season transits of the ICWW to and from Florida by pleasure boaters brings significant traffic in close proximity to the installation, which can mix in with military shipping traffic in the channel that is transiting to and from the wharves at MOTSU.

NCDOT also operates a car/passenger ferry service between Fort Fisher and Southport, with the Fort Fisher ferry landing actually located on MOTSU property. During peak season, NCDOT currently operates 32 total departures per day utilizing two 300-passenger ferries, giving the route a theoretical maximum capacity of around 9,600 passengers per day. It was recently announced that a third ferry is programmed to be added to the fleet, potentially increasing peak departures to up to 48 one-way crossings each day during peak season and increasing passenger loads to over 14,000 per day. The ferry service also operates primarily in the main shipping channel as it transits between Southport and Fort Fisher.

3.4 TOURISM, RECREATION AND CULTURAL RESOURCES

Southeastern North Carolina as a whole plays a significant role in the state's tourism economy, drawing visitors from across the world who visit the region's beaches, use the extensive recreational

MAJOR CULTURAL AND RECREATIONAL RESOURCES MAP KEY	
#	**Description**
1	Orton Plantation
2	Brunswick Town / Fort Anderson State Historic Site
3	Carolina Beach State Park
4	Freeman Park
5	Mike Chappell Park
6	Pleasure Island Beaches
7	US Air Force Recreation Area
8	Joe Eakes Park
9	Fort Fisher State Historic Site
10	North Carolina Aquarium - Fort Fisher
11	Fort Fisher State Recreation Area
12	Smithville Township District Park
13	Lakes Country Club Golf Course
14	Cape Fear National Golf Course
15	Northwest District Park
16	Brunswick Nature Park
17	Snows Cut Park

amenities, and learn about the history of the region from the significant cultural resources that have been preserved and maintained. MOTSU is situated at the heart of many of the region's most valuable assets, and even serves as the host to several, including portions of Carolina Beach State Park and the Fort Fisher State Historic Site. The map shown in Figure 3.11 details the location of the major cultural and recreational assets in the study area.

Since its establishment, MOTSU has had an ongoing relationship with the NC Department of Natural and Cultural Resources (and its predecessor agencies). As both a neighbor and host to some of the region's, as well as the state's, greatest cultural assets, this ongoing partnership is critical to ensuring the sustainability of the state's long-term investments in resources that provide educational opportunities for the public and draw large numbers of tourists to the area. With regard to the historic assets on MOTSU property (such as the Fort Fisher State Historic Site) the partnership is very valuable to MOTSU as well since the state serves as the caretaker of these sites and their archaeological assets that MOTSU would otherwise be required to steward.

MOTSU is also a neighbor to other culturally significant sites, including the site of Brunswick Town and Fort Anderson, which is located just north of MOTSU off of Plantation Road. In the case of this site, as well as the antebellum Orton Plantation (which is now in private ownership and closed to the public),

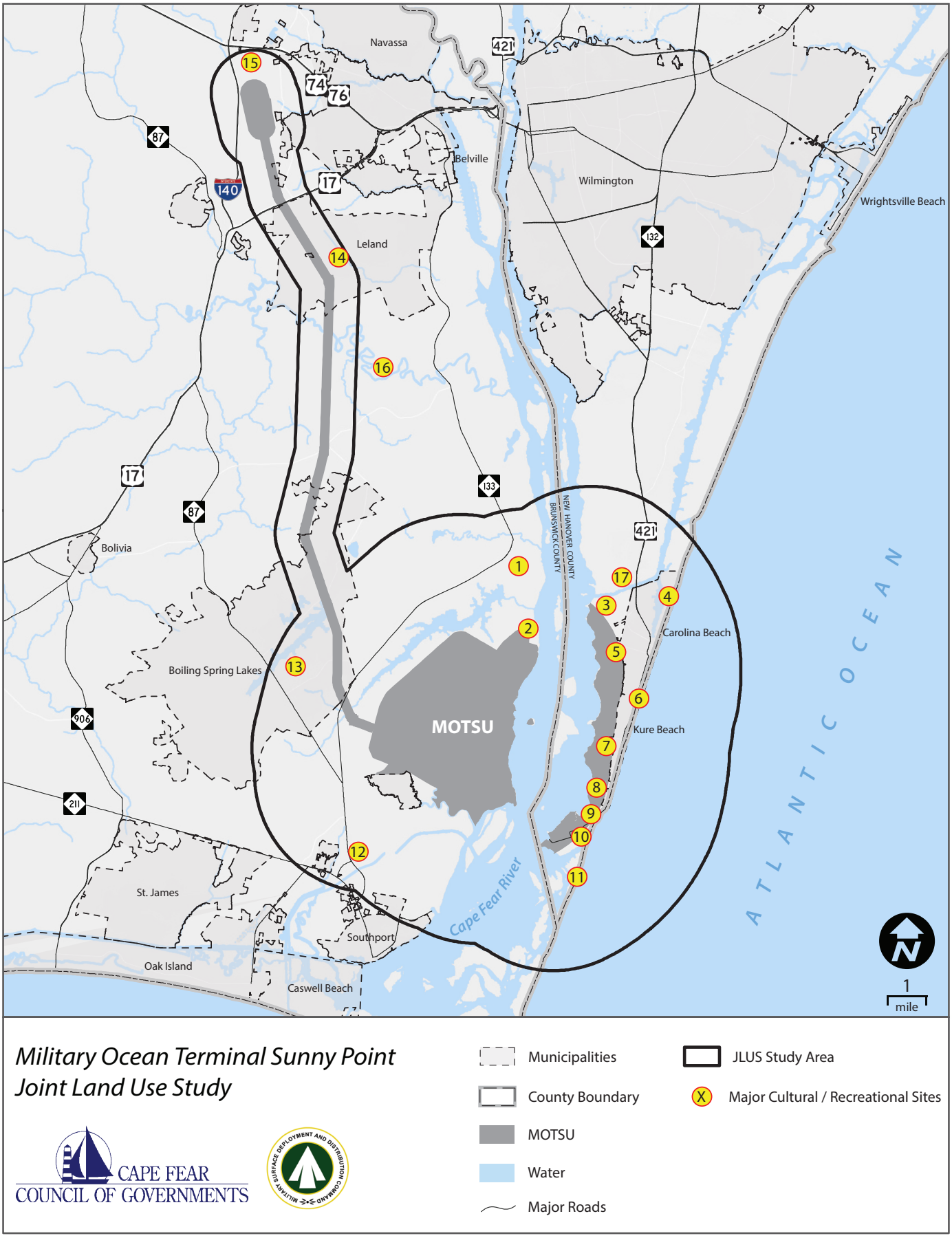


Figure 3.11: Major Cultural and Recreation Assets

MOTSU's operations can directly affect them since the Army owns compatible use easements that extend onto their property. Although stakeholder interviews with these neighbors indicated a strong collaborative relationship exists today, it will be important to foster these relationships to ensure the long term sustainability of the mission.

Recreational activity, whether boating or fishing in the Cape Fear River, visiting the miles of beaches on Pleasure Island, bird watching in the marshes and long leaf pine forests, or engaging in organized sports, draws a significant number of people to the area around MOTSU. In the case of Joe Eakes Park in Kure Beach, Mike Chappell Park and the new multi-use trail in Carolina Beach, and a significant portion of Carolina Beach State Park, residents and visitors are actually recreating on the installation / US Army property.

The US Air Force also operates a recreation area (including accommodations) on land that is surrounded by MOTSU. The Air Force maintains a relationship with the installation to ensure that its operations and development plans are consistent with MOTSU's mission. As one of the largest venues on Pleasure Island, the Air Force Recreation Area also plays host to community events, including the long running Pleasure Island Seafood, Blues and Jazz Festival. Other recreational assets in the study area include two Brunswick County parks, golf courses in Boiling Spring Lakes and

Carolina Beach on Pleasure Island

SECTION 4: ENVIRONMENTAL RESOURCES

4.1 OVERVIEW

Since its opening in 1955, MOTSU has garnered a reputation of being an excellent neighbor and land steward. In cooperation with the local, state and federal agencies, in addition to numerous stakeholders, MOTSU is committed to aiding in the improvement, maintenance, and conservation of the natural resources in and around the installation while simultaneously promoting operational safety and efficiency.

MOTSU occupies an area of approximately 11,450 acres on the west (main terminal and interchange yard) and east (Pleasure Island ESCZ) banks of the Cape Fear River in the counties of Brunswick and New Hanover, North Carolina. These areas are comprised of a variety of terrestrial and aquatic habitats and ecologically important regions made up of wetlands, estuaries, floodplains, and forested lands. These areas are home to a variety of plant and animal species, some of which are listed as threatened or endangered by USFWS and protected under the Endangered Species Act (ESA).

The Department of Defense and the U.S. Army have made conscious decisions to promote conservation efforts in order to maintain the natural habitat around and within the installation. One such effort is through work with partners of America's Longleaf Restoration Initiative (ALRI) to promote protection and restoration of longleaf pine forest. The ALRI is made up of a coalition of federal and state agencies, non-profit organizations, forest industry, private landowners, and other interests whose primary goal is the restoration of longleaf pine habitat, which has decreased significantly over the years through conversion to other uses or forest types. Specific benefits of this restoration effort have occurred at MOTSU and led to the restoration of longleaf pine habitat off-post and within the installation, which vastly improved the habitat for threatened and endangered species associated with this habitat.

One of the goals of the JLUS is to build MOTSU's capacity to work with the local communities to achieve compatible growth and long-term sustainability of both the installation itself and the natural environment around it. This will be achieved by identifying and mitigating the barriers to the long-term sustainability of the natural resources within the JLUS study area and promoting compatible development projects that take into account the safety and operational requirements of the installation and needs of the local environment.

4.2 BIOLOGICAL RESOURCES

MOTSU is committed to the restoration of natural communities as the primary means of conserving biodiversity, recovering endangered species, improving wildlife habitat, and increasing the

efficiency of military shipping while prioritizing the safety requirements of the installation. This is achieved through the Sikes Act, which provides for cooperation by the Department of the Interior and the Department of Defense with state agencies in planning, maintenance, and development of natural resources on U.S. military installations while allowing for these lands to meet the needs of the installation.

One of the major natural resource management obligations for the area is the management and monitoring of federally protected species occurring on the installation. This has been achieved by utilizing ecosystem management practices to monitor, maintain, and restore natural communities and improve habitat conditions for rare, threatened, and endangered species. In accordance with the ESA and Sikes Act, the Army is required to assist in the recovery efforts of all listed federally protected species and their habitats that are currently under the Army's land management authority. The Sikes Act and ESA require all federal agencies to conserve protected species through the use of all methods and procedures necessary to restore any listed species to a level where protections pursuant to the ESA are no longer necessary. This section describes the current status of federal protected species on MOTSU property and those that may occur in the broader study area (Figure 4.1).

The most important federally listed species occurring on and managed at MOTSU include the red-cockaded woodpecker (RCW) and rough-leaved loosestrife (RLL). Red-cockaded woodpeckers (*Dryobates borealis*) are an endangered, non-migratory bird species that is currently located in the remaining fragments of suitable pine forests in the southeastern U.S. The population of RCW was studied extensively in the 1980s and monitored from 1980 through 1988. The results of continuous monitoring indicate that the population of RCW within MOTSU has responded positively to the existing natural resource management practices. The most recent distribution data shows 32 distinct locations of RCW occurrence within the JLUS area, nine of which occur within the MOTSU main terminal. As of 2016, there were 20 active RCW clusters identified within the installation. There are less than 30 estimated potential breeding groups (PBG) on MOTSU. The majority of RCW clusters are found primarily on sand ridges and the associated longleaf pine savannas and pine flatwoods located between the extensive pocosins in the northwest section of MOTSU. Approximately 6,383 acres of potentially suitable habitat remain at the MOTSU main terminal. The conservation and protection of this species and its associated habitat on and off the installation should be prioritized in order to assist with species recovery. Should proposed actions involve the loss or alteration of foraging habitat, additional coordination will be required to ascertain the overall effect on available and suitable foraging habitat.

Rough-leaved loosestrife (*Lysimachia asperulaefolia*) is a plant endemic to North Carolina. This species currently has 55 known locations, nine of which are located within the JLUS area (eight within the main terminal and one adjacent to the southern end of the rail corridor). This species is generally found in transitional zones between longleaf pine uplands and lower-lying pond pine

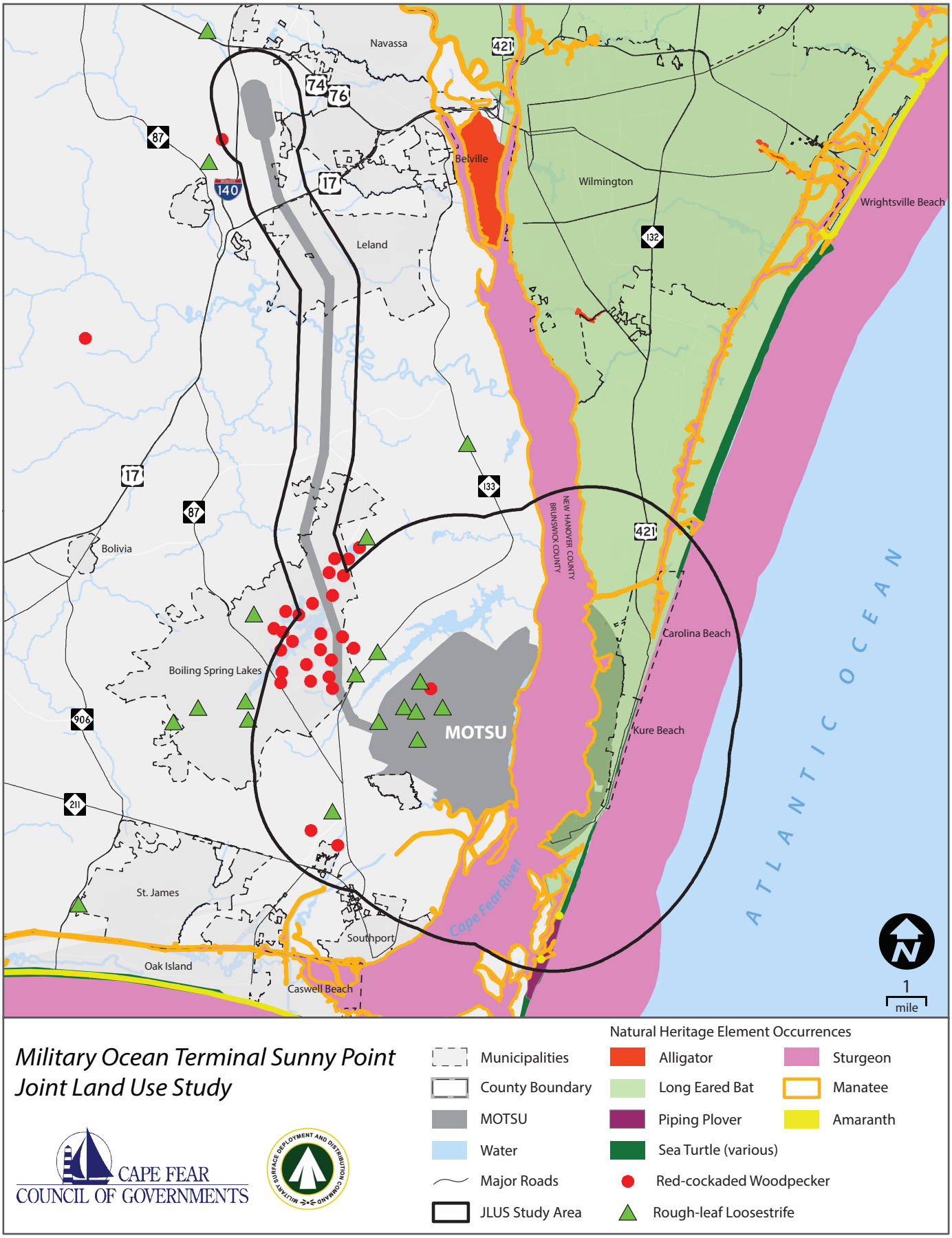


Figure 4.1: Documented Occurrences of Threatened and Endangered Species

thickets (i.e. pocosins). Brunswick County currently supports three populations of RLL. Intensive surveys for RLL have been conducted at MOTSU between 1988 and 1997, which identified locations within the installation. Loss of wetlands through drainage or conversion is one of the primary threats to this species. Activities involving use of heavy equipment, vehicular traffic, and mechanical timber harvest have the potential to cause devastating impacts on this species. The establishment of dense pine plantations can also eliminate RLL and its potential habitat through shading, suppression, and elimination of the herbaceous stratum. Controlled burns are a significant benefit as they reduce competition with other plant species (USFWS 1995). However, the proximity of RLL habitat with respect to urban development can limit the use of controlled burns.

Other terrestrial species which may occur within the study area include the piping plover, seabeach amaranth, and northern long-eared bat. Marine protected species which may occur within the Cape Fear River include the West Indian manatee, American alligator, Atlantic and shortnose sturgeon, and four species of marine turtles (green, loggerhead, leatherback, and Kemp's Ridley). MOTSU and the surrounding area is also home to a diverse community of non-threatened mammals, birds, reptiles, fish, and amphibians.

Piping plovers (*Charadrius melodus*) are migratory birds that are known to nest on the coastlines of North Carolina and are currently listed as threatened. Observations of this species have been made in the southern extent of JLUS area, but not within the MOTSU installation itself. The potential nesting habitat of this species should be considered when assessing potential compatible developments.

Seabeach amaranth (*Amaranthus pumilus*) is a threatened species that occurs primarily on sandy beaches in New Hanover County. There are two recorded occurrences within the JLUS area south of the Pleasure Island ESCZ. Best management practices for this species include the avoidance of permanent or temporary modification of habitat through development and minimizing or eliminating introduction of competing plant species.

Northern long-eared bats (NLEB) (*Myotis septentrionalis*) are a threatened species that have a large distribution across eastern North America; from Manitoba, across southern Canada to Newfoundland, south to northern Florida, west through the south central states, and northwest to the Dakotas. Occurrences of this species have been made throughout much of New Hanover County, including within and adjacent to the Pleasure Island ESCZ. Populations of NLEB have been severely impacted by white nose syndrome, resulting in losses up to 98% of populations in some parts of their distribution. Northern long-eared bats tend to roost in a variety of forested habitats and man-made structures so any potential development in these areas should take the potential presence of this species into account.

West Indian manatees (*Trichechus manatus*) are a threatened species that have been observed in both fresh and saltwater habitats along the Cape Fear River inlet, although rarely. While it is not

anticipated that any present activities would pose a significant threat to this species, manatees are prone to vessel strikes.

American alligators (*Alligator mississippiens*) are a threatened species that are found primarily in the southeastern region of the United States. Available ecological data indicates that occurrences of this species have been observed in the Cape Fear River and its tributaries. Anecdotal evidence shows that although observation of their occurrence in this data source is not specifically noted at MOTSU, that the species is abundant in the creeks and other bodies of water both bordering and within the installation boundary. Conservation and preservation of existing wetlands should be prioritized in the event that the distribution of this species expands within the study area.

Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrom*) are endangered species that inhabit major estuaries and rivers from Canada to Florida. These species have been sited throughout the Cape Fear River. Most of the river is considered critical habitat for Atlantic sturgeon (NOAA 2017). Primary threats currently facing these species include habitat impediments due to development (i.e. dams, man-made barriers, and industrial uses), water quality degradation, entanglement in fish gear, and boat strikes. Negative impacts include changes in sturgeon migration patterns and loss of coastal wetland marsh which serves as habitat for prey species.

Four species of sea turtles (green (*Chelonia mydas*), loggerhead (*Caretta caretta*), leatherback (Dermochelys coriacea), and Kemp's Ridley (*Lepidochelys kempii*)) occur offshore. Of these species, only loggerhead, green, and leatherback sea turtles utilize North Carolina beaches for nesting habitat. Green, loggerhead, and Kemp's Ridley sea turtles may move up river (DCA 2016). However, it is unlikely that any of these species would actively rest or forage near the installation due to strong currents in the channel and the lack of food source. Management and conservation methods include minimizing development and lighting on beaches where nesting activity has been observed.

Harvest management of wildlife is facilitated through the use of waterfowl impoundments (attract bird populations), wood duck boxes (enhance nesting), dredged material disposal islands (provide additional habitat), and rookeries (provide roosting/nesting opportunities). These serve as important tools to attracting and retaining wildlife for conservation wildlife recreational purposes.

4.3 WATER RESOURCES

The U.S. Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA) jointly define wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Federal Register 1980 and 1982).

Figure 4.2: Wetlands

Wetlands typically include swamps, marshes, bogs, and other similar habitats. Figure 4.2 depicts the approximate distribution of various wetland types throughout the installation and adjacent areas.

MOTSU's procedures to protect and improve the water quality in existing surface waters and wetlands extends to the streams, creeks, estuaries, and navigable waterways located on and adjacent to the installation, which feed into the Cape Fear Basin. The water that drains from the installation has the potential to affect water resources. It is important to maintain high quality water standards in order to preserve the ecological integrity of the water resources in and around the MOTSU installation. Poor water quality can lead to issues with supporting a diverse and healthy population of aquatic life and would have an adverse effect on biodiversity.

There are a variety of major potential sources of water quality degradation that include soil erosion, sedimentation, pollution, and excessive storm water runoff. These sources can degrade water quality, stream habitats, wetlands, and floodplains. Runoff, flooding, and erosion can be mitigated through sound vegetative and land management practices, and by reducing the addition of impervious surfaces.

MOTSU uses a watershed management approach to protect water quality and conserve aquatic resources. Regular monitoring programs are used to identify potential erosion problems and any associated sedimentation impacts to wetlands and streams. Erosion control and habitat restoration projects should be supported to help stabilize identified eroded areas and restore degraded wetlands and streams.

Reducing impacts to wetlands and maintaining healthy water resources at MOTSU supports ecological and human health and is reinforced by federal and state laws and regulations. During timber harvesting, a 50 to 100-foot buffer zone is maintained around wetlands to minimization impacts via siltation and physical disturbance. Grassed waterways filter runoff from drainage areas, and filter cloth is placed across all ditches in the vicinity of construction sites to minimize siltation. Land management activities in areas which contain wetlands are coordinated with the USFWS and the USACE to ensure compliance with all federal wetland regulations.

MOTSU has multiple areas within the lower elevations of surface water drainage, which makes it subject to seasonal and tidal flooding (Ecology and Environment, Inc. 1996). The overall terrain is forested and swampy, which also contributes to poor drainage. There are several areas that raise potential concerns based on the current flood hazard map. These areas include the southern end of the main terminal and ESCZ, as well as several areas along the rail line connecting the main terminal to the Leland interchange yard (Figure 4.3). MOTSU's best management practices utilize bioretention in the form of cells, swales, and tree boxes for stormwater management (USACE 2013).

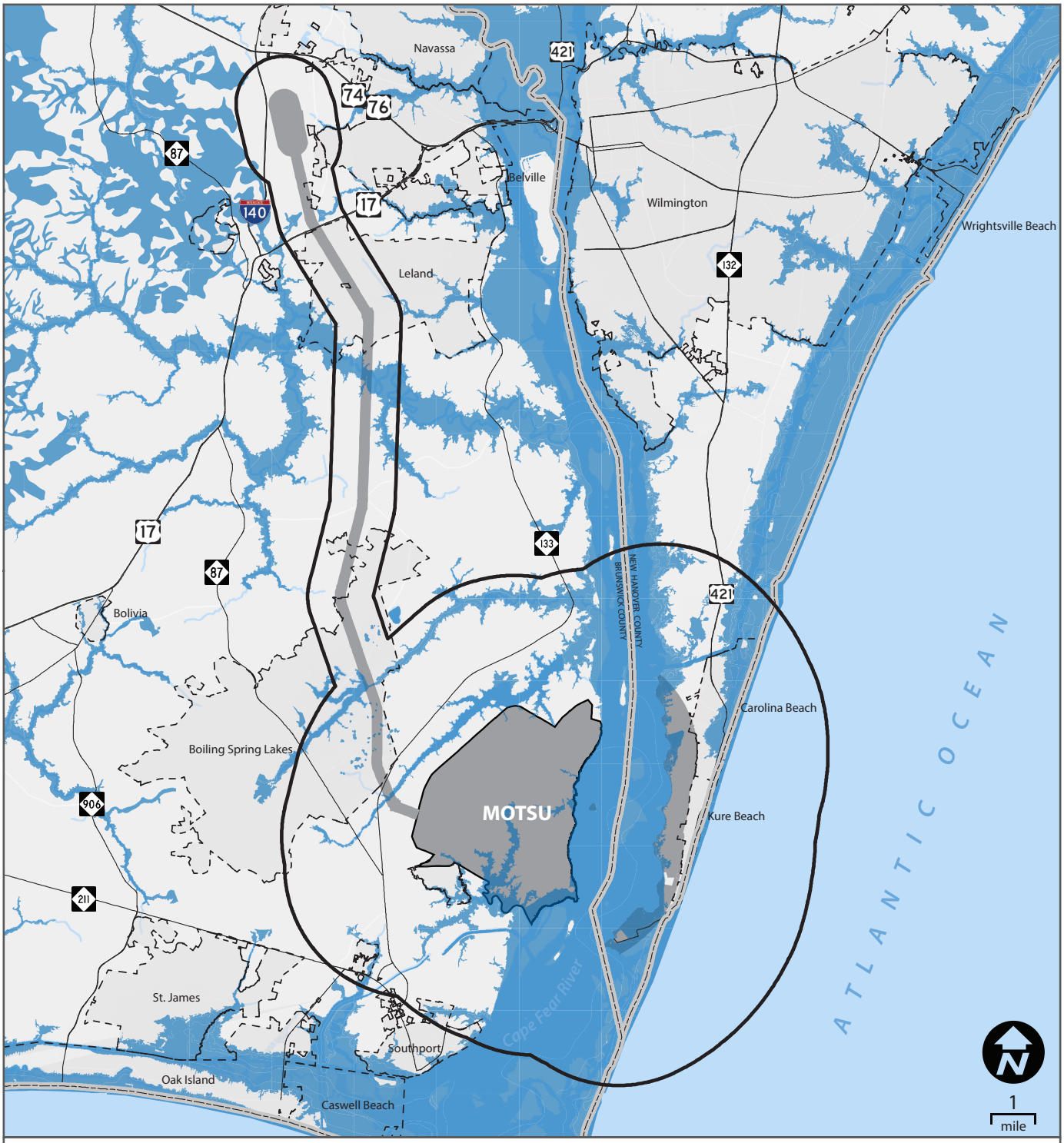


Figure 4.3: Flood Hazard Areas

4.4 CONSERVATION AND MANAGED LANDS

MOTSU has a number of conservation and managed lands on and adjacent to its property that consist of a number of properties and easements (Figure 4.4). The primary goal of the land management programs that oversee these areas is the conservation of biodiversity and ecosystem function. Improvement of terrestrial habitat is largely facilitated through the use of controlled burns, which are the most efficient and beneficial improvement method. These burns improve wildlife habitat by creating increased diversity of habitat types, increased space, and increased abundance of small plant species with high growth rates. The utilization of controlled burns is vital to achieving the objectives of endangered species management and forestry practices at MOTSU. The necessity and frequency of these controlled burns as an important management practice should be taken into account when considering compatible development within the JLUS area. MOTSU's controlled burn plan calls for all managed areas to be burned every three to five years. The burning schedule is subject to weather and the number of suitable days throughout the year in which a controlled burn can be conducted. Due to the hazardous nature of the shipments handled by this installation, burn restriction can be more stringent.

Twenty distinct forest types (according to the combination of species) exist in the forested lands of MOTSU. A controlled burning of the main terminal and Leland interchange yard occurred in 1980 and all of the wooded acreage in these two areas has been burned at least once since then. Wild fires have been reduced to a minimal occurrence, with only 361 acres being burned unintentionally since 1954. Thirty miles of access roads and firebreaks, and 70 miles of plowed fire lines have been constructed and maintained throughout the forested areas of MOTSU's main terminal, the Pleasure Island ESCZ, and the Leland interchange yard.

Since MOTSU's acquisition in 1954, nearly 1,100 acres have been planted or reforested with loblolly pine (*Pinus taeda*), longleaf pine (*P. palustris*), slash pine (*P. elliottii*), and bald cypress (*Taxodium distichum*) seedlings. These species of forest tree are ideal candidates for regeneration and management on the MOTSU installation on sites to which they are adapted. Within the MOTSU woodlands, pine trees are managed for maximum sustainable timber production while maintaining consistency with the requirements for threatened and endangered species present in the area, specifically RCW and RLL. Located just north of the MOTSU installation is the Orton Plantation, which donated more than 6,400 acres to the North Carolina Land Trust through a perpetual conservation easement in 2013. This area includes a variety of woodlands, agricultural fields, and additional habitat that is conducive to the restoration of long leaf pine habitat and the species that inhabit it.

Primary Nursery Areas (PNAs) and Special Secondary Nursery Areas (SSNA) exist within and immediately adjacent to the MOTSU installation (Figure 4.5). Primary Nursery Areas are defined by the North Carolina Marine Fisheries Commission as those areas in the estuarine system where initial

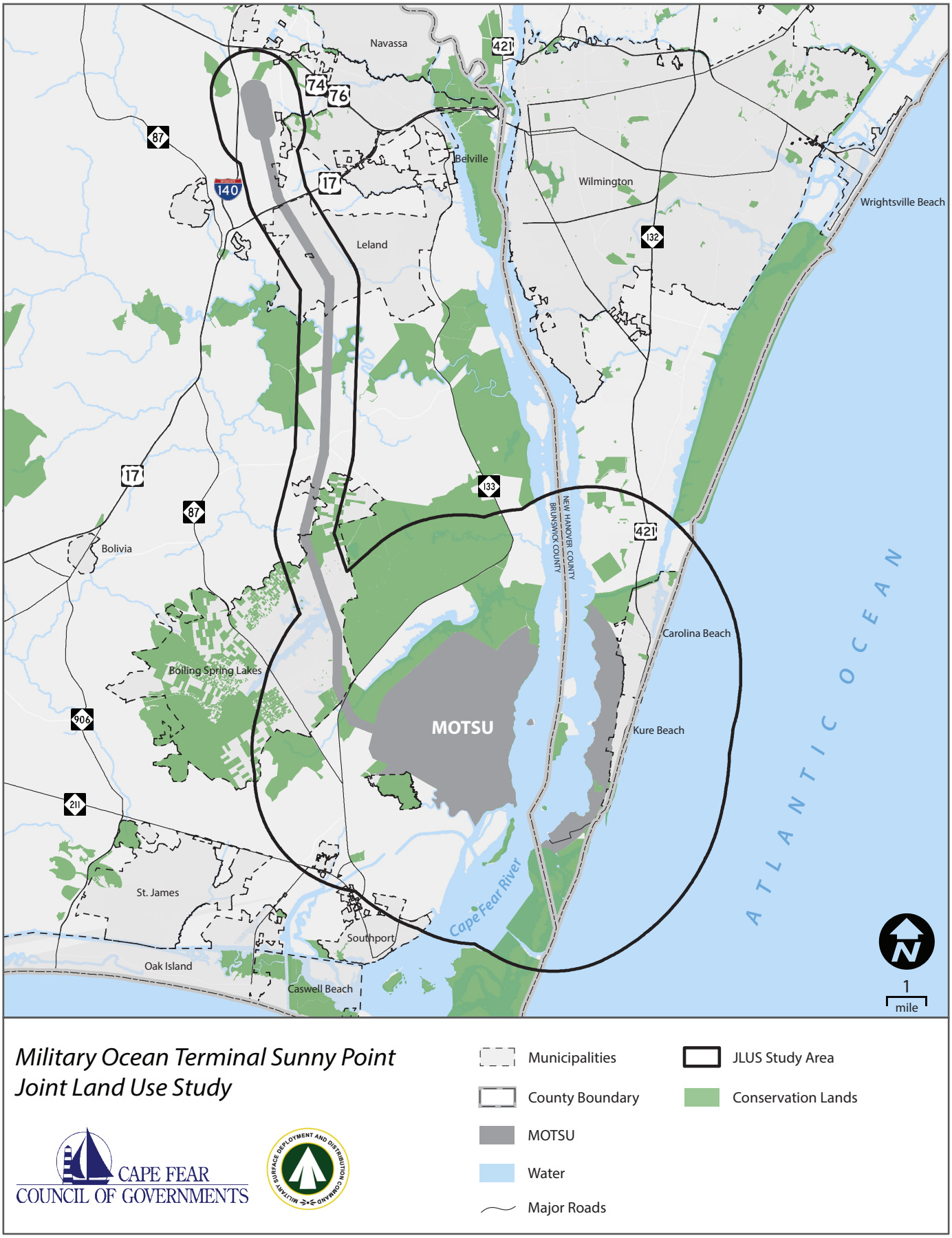


Figure 4.4: Managed Lands

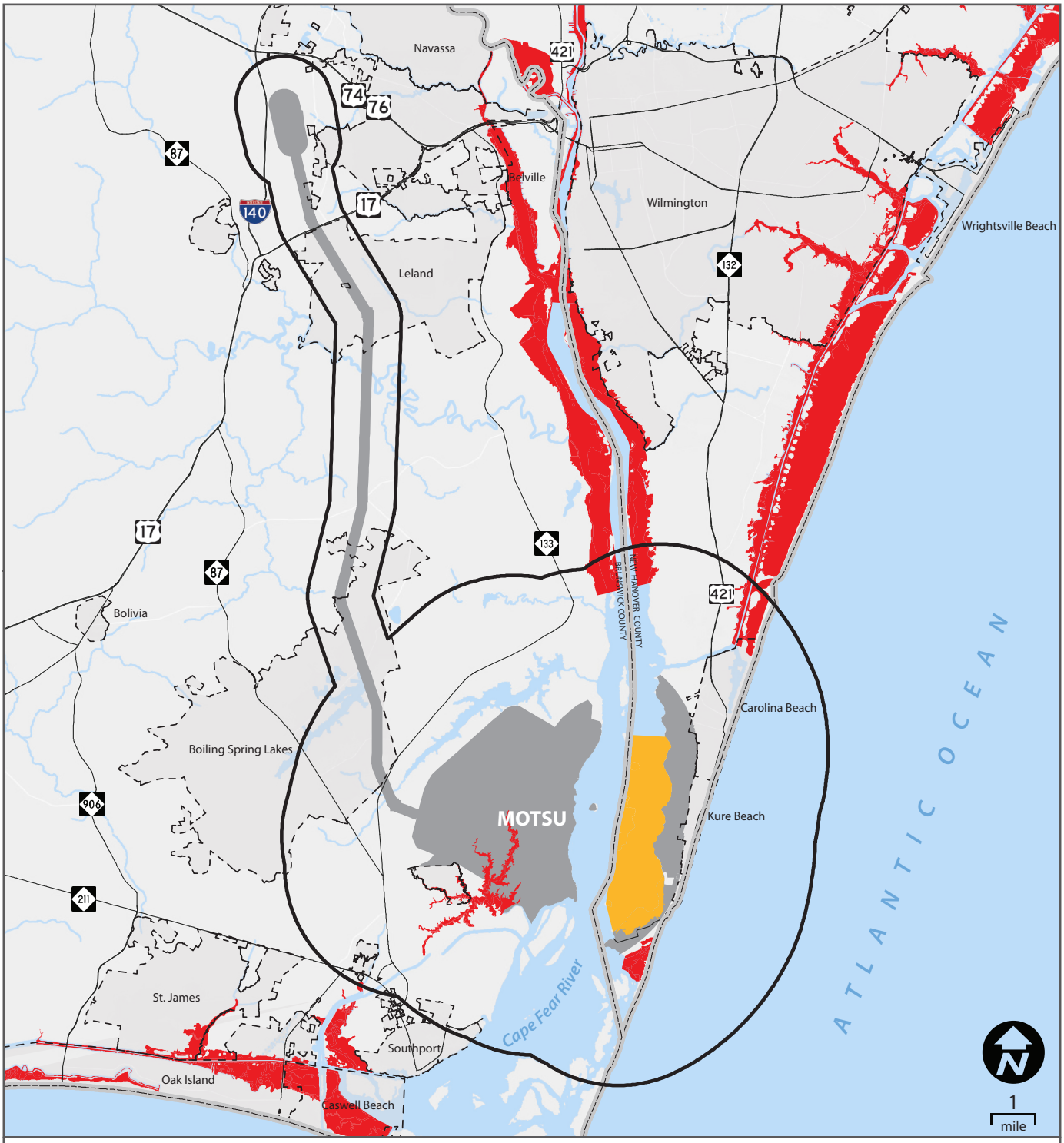


Figure 4.5: Protected Aquatic Habitat (Fish Nursery Areas)

post-larval development takes place. These areas are typically located in the uppermost sections of a system where populations are uniformly early juveniles. Special Secondary Nursery Areas are defined as those areas in the estuarine system where later juvenile development takes place. The waters and marshes associated with the upper reaches of Governors Creek are designated as a PNA. The majority of the Cape Fear River east of the navigation channel and adjacent to the Pleasure Island ESCZ is designated as a secondary nursery area. In addition to providing valuable habitat for juveniles, the estuarine tidal creeks and waters of the Cape Fear River provide excellent sport-fishing for numerous popular saltwater game species. Consideration should be given to these areas when considering the compatibility of land use alternatives.

4.5 COASTAL RESILIENCY AND ADAPTATION

MOTSU's proximity to the coast makes it susceptible to future impacts of sea level rise (SLR). The 2017 Report to Congress on Sustainable Ranges lists changes in natural factors and climate effects on Army facilities and its mission as a critical sustainability issue. Specific effects which Department of Defense components are requested to consider include severe weather events, temperature variation, SLR, changes to land cover, vegetation, and precipitation, in addition to detrimental effects on threatened and endangered species.

The impacts of SLR and increased storm activity are especially relevant to MOTSU given its proximity to the coast. The most likely scenarios project a range of SLR from 5.8 to 6.8 inches over 30 years depending on varying levels of emissions output (NCCRCSP 2015). This data should be considered in future planning and development of the installation and JLUS-related infrastructure improvements (Figure 4.6). In addition, with the predicted increase in frequency and intensity of named storms, future planning and development should also be made in accordance with the predicted levels of storm surge (Figure 4.7).

Consensus prediction modeling of climate future scenarios for MOTSU through 2100 predicts an increase of approximately three degrees Celsius. Precipitation is also expected to increase and extend into what is now considered the dry winter period. Future increases in temperature will increase the risk of fire hazards and drought, while increased precipitation rates and fluctuating precipitation patterns will increase risks for flooding and storm events. Increased frequency of stronger storms raises the risk of natural disasters, damage to infrastructure, and damage to threatened and endangered species populations.

The effects of climate change will pose challenges that could affect military and community stakeholders in a variety of ways. Risks to people, infrastructure, and natural resources may increase due to increased frequency of strong storm events. Increased precipitation and frequency of storm events may also result in challenges and restrictions on transport routes and shipping activity.

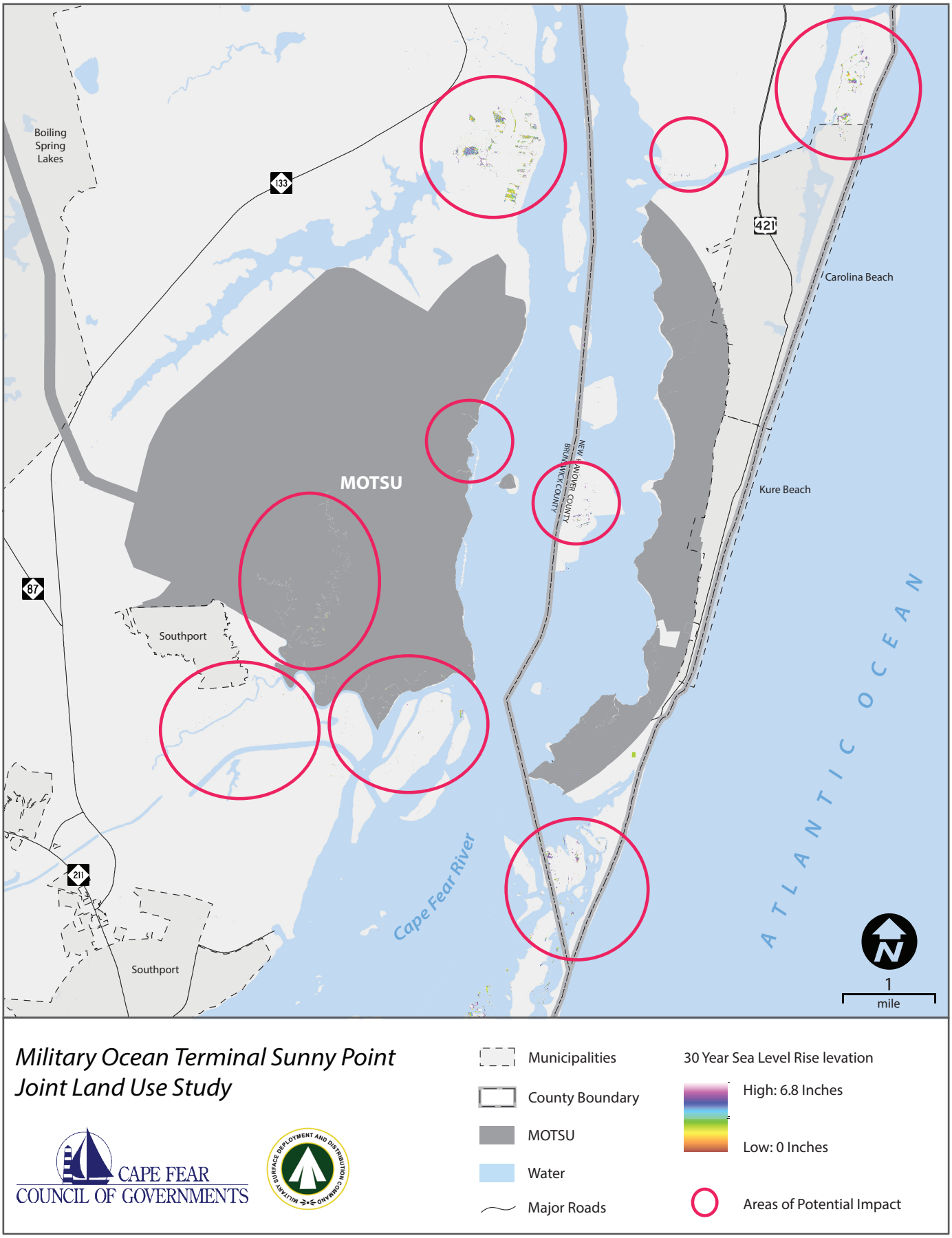


Figure 4.6: Predicted 30-Year Sea Level Rise

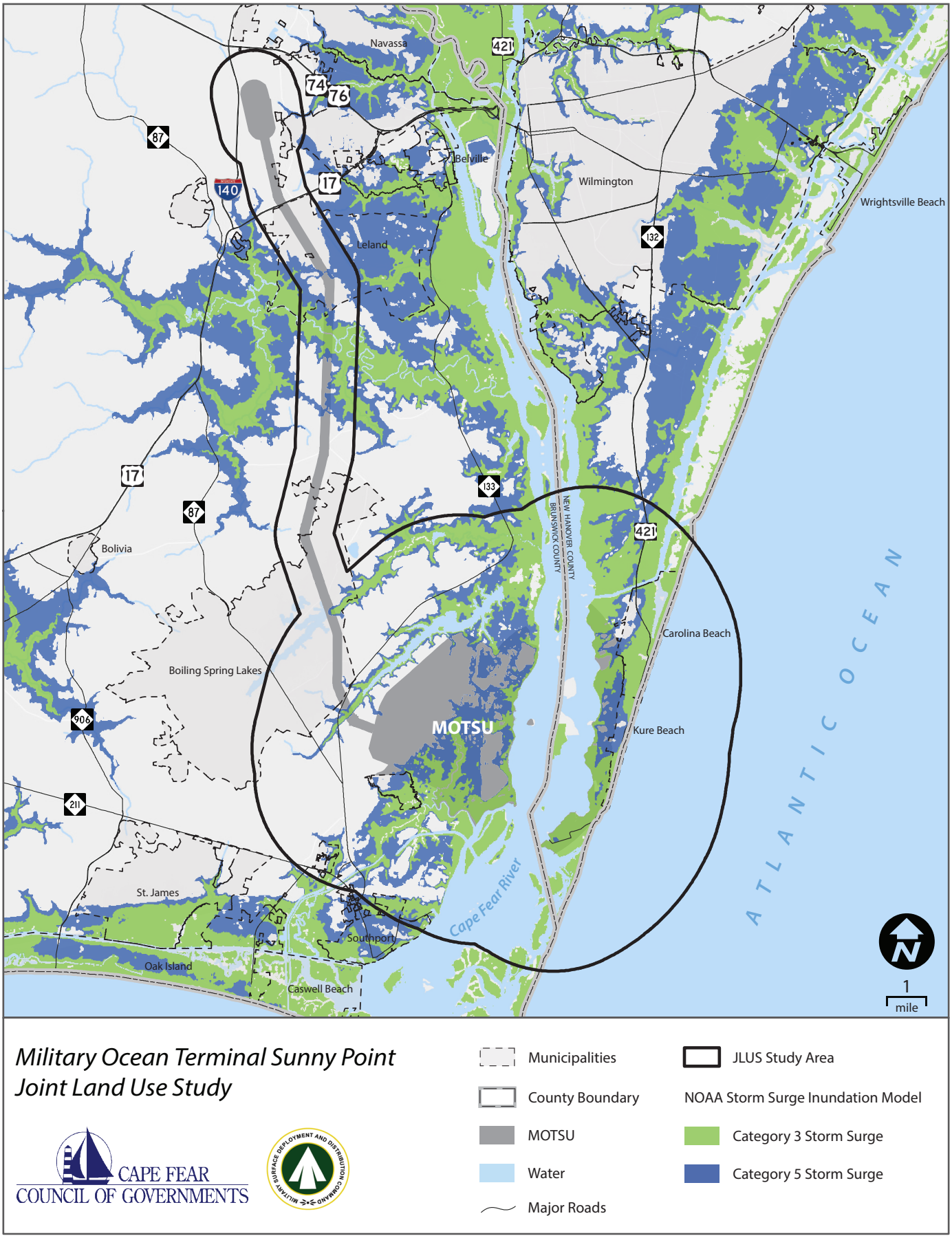


Figure 4.7: NOAA Storm Surge Inundation Model (Category 3 and 5 Hurricanes)

There may also be a need for increased management requirements for natural resources, including the need for more controlled burns, more attention and funding for threatened and endangered species challenges, and more resources needed to prevent negative impacts from invasive species propagation.

Current climate conditions pose a moderately low threat for MOTSU due to negligible impacts on its current operational functionality. However, future impacts provide a high threat based on climate projections that may cause critical impacts such as increased storm frequency and sea level rise, which have the potential to hinder the installation's ability to complete its objectives and may require the implementation of countermeasures to reduce these impacts. Understanding the long-term impacts of changing natural factors and climate effects on habitats can help the military plan most effectively to sustain mission operations.

4.6 CAPE FEAR RIVER - NAVIGATION

The MOTSU installation is located approximately ten miles upstream of the mouth of the Cape Fear River. The terminal and associated wharfs west of the main ship channel are a restricted area; landing or docking by unauthorized vessels is prohibited. Public and commercial boat traffic is permitted in the federal channel of the Cape Fear River that runs adjacent to the installation, but this traffic is restricted to transit only (i.e. anchoring is not permitted). MOTSU is capable of handling six container vessels simultaneously. Cargo is staged temporarily at the facility while it is waiting to be shipped. The operational depth of the federal access channel is -42+2 feet mean lower low water (MLLW) and is maintained by the USACE when maintenance dredging is required.

One of the chief compatibility concerns is maintaining safe and efficient marine vessel access while also minimizing negative effects on the natural resources within the federal channel and adjacent habitats. MOTSU's location on the west bank of the Cape Fear River estuary is problematic as it is the site of a naturally occurring shoal that accumulates up to 2 million cubic yards of sediment per year (MTMC 1984, MTMC 1986). Shoaling issues have been a constant problem in maintaining the navigational requirements of the MOTSU installation since its opening in 1955. Mitigating these shoaling issues is important in order to maintain or enhance environmental quality, maintain operational readiness, and reduce dredging-related costs. MOTSU must be able to keep up with the increasing size and draft of modern vessels or risk jeopardizing the support capabilities required to sustain the nation's overseas military operations. As vessel size increases, it will be necessary to deepen the channel beyond its current depth to accommodate vessels with deeper drafts. Disposing of dredged material is problematic in this area due to the need to comply with environmental regulations, which has led to a reduction in the number of disposal sites that are economically feasible to use. When dredging is required for navigational improvements, effects

on water quality, fish and fisheries habitat, and marine protected species must be considered and assessed.

Submerged cultural resources are present within the Cape Fear River. Cultural resources, such as historical shipwrecks and culturally-significant artifacts, can impede construction improvements of navigational waterways, when present. Cultural resource surveys have been conducted as recently as April 2017 but no significant cultural resources were identified within or immediately adjacent to the federal channel within the JLUS area (PanAm 2017). The majority of known significant cultural resources is located several miles upriver from the JLUS area and should not cause any issues with potential development projects.

SECTION 5: COMPATIBILITY ANALYSIS

The preservation of a compatible operational environment for MOTSU is dependent on three primary factors. First, and foremost, it must maintain compliance with its explosives safety license - ensuring that it does not present an undue hazard to its host communities. Second, it must ensure that transportation routes provide the capacity, efficiency, and safety necessary to complete its ammunition transshipment mission. Finally, it must ensure that the natural environment within which it operates is preserved and protected in accordance with federal and state laws.

The first of these factors, maintaining a safe operating environment through compliance with its explosives safety license, is also the most important and impactful to its host communities. It is also the expectation of the host communities, their residents, visitors, and leaders, that MOTSU will take the lead in ensuring the safety of its neighbors. While each entity involved with the study bears some responsibility to help in this regard, the greatest burden and responsibility lies with the Army to maintain compliance given the heavy price and significant consequence of not doing so. This analysis identifies current and potential compatibility concerns for the region to address as a whole, with the understanding that MOTSU will continue to lead in efforts that help sustain its mission.

5.1 EXPLOSIVES SAFETY

Maintaining compatibility with MOTSU's explosive safety needs, as required by its operating license from the Department of Defense Explosives Safety Board (DDESB) is the most critical component of ensuring the long term sustainability of its operational mission. The installation's operating license is conditioned on preventing incompatible land use encroachment, as well as other activities, within its defined explosives safety quantity distance (ESQD) arcs. These arcs (commonly referred to as "blast zones") are established based on the net explosive weight (NEW) of the munitions that are permitted to be located at any given point. These locations are referred to as potential explosion sites (PES). These sites on MOTSU range from the wharves, to storage yards, to holding pads used for staging cargo containers. Each of these is licensed for a maximum NEW based on its spatial relationship to other PES, different types of buildings or uses, and the types of shielding (such as berms) that could deflect the direct fragmentation hazards (but not overpressure effects) of an explosion.

Based on the NEW of each of the PES on the installation, ESQD arcs are developed for each site at different distances that represent different levels of risk. There are distances required between one PES and another PES, between PES and public transportation routes, and between PES and inhabited buildings, as examples. These each correspond to what is known as a K Factor, which represents risk in the formula used to establish each type of ESQD arc. As an example, a K factor of 50 corresponds to the inhabited building distance (IBD) ESQD arc when dealing with greater than

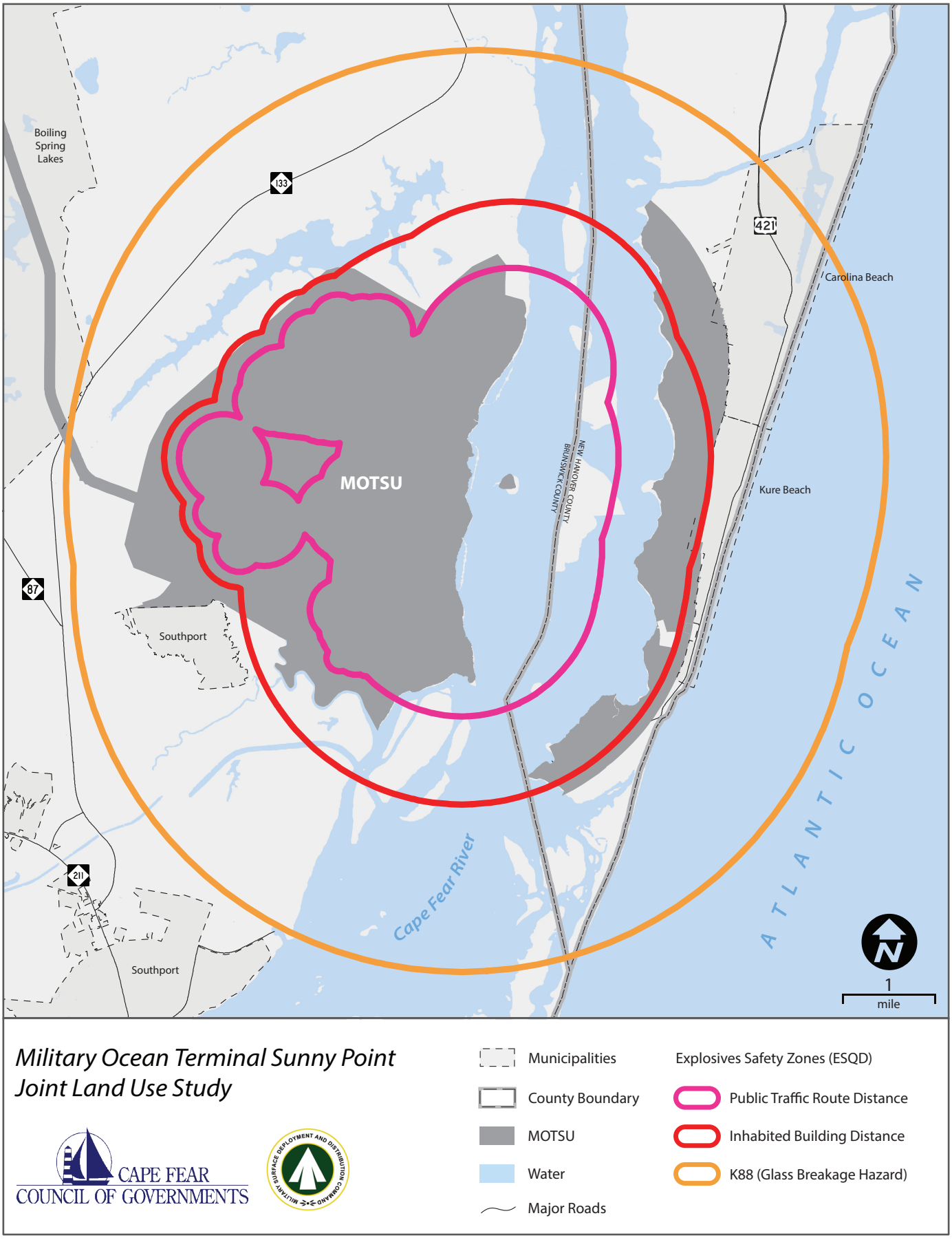


Figure 5.1: MOTSU ESQD Arcs

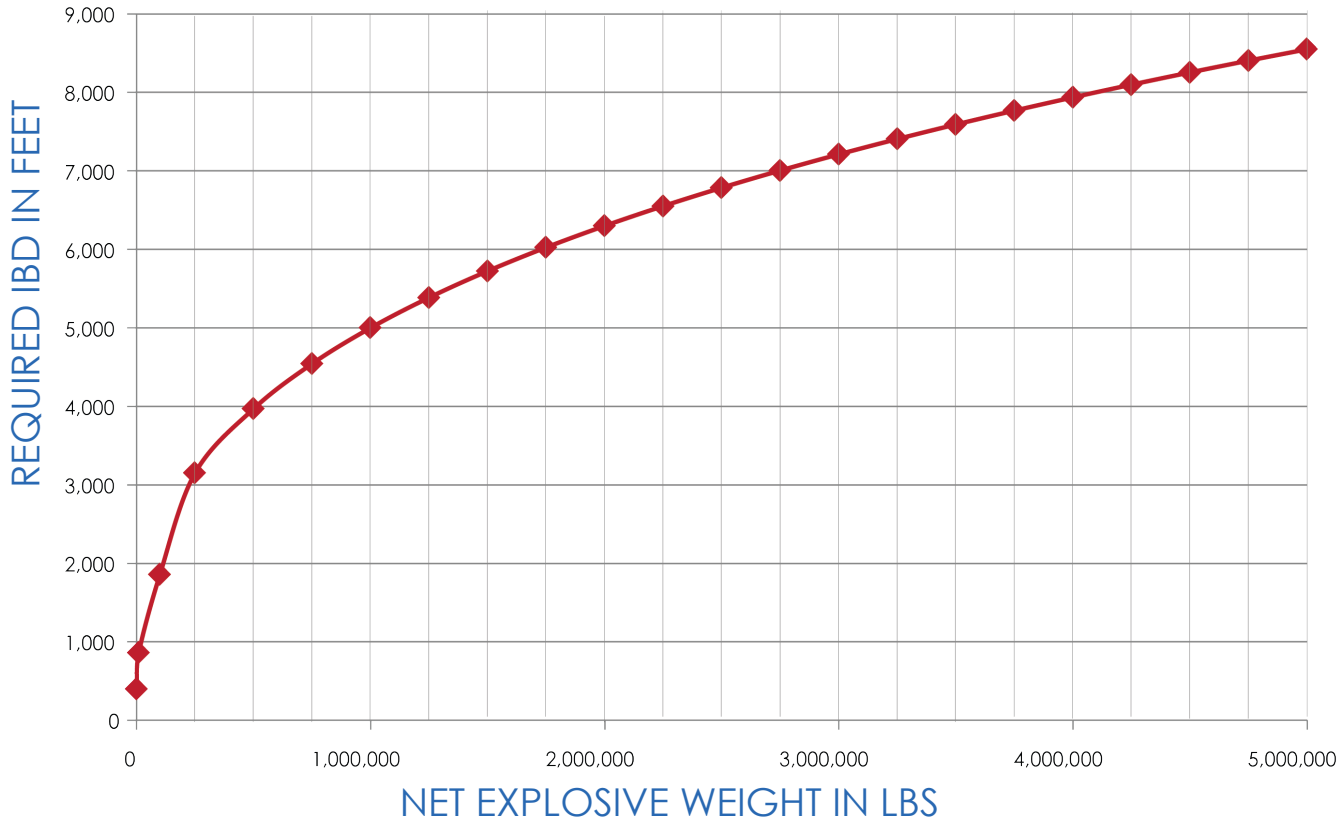
250,000 NEW of munitions. Below is an example of a calculation for the IBD based on 1,000,000 pounds NEW. Note that the cube root of the NEW is used as the second number in the equation to solve for the required IBD distance in feet:

K50 x $1{,}000{,}000^{1/3}$ = 5,000 feet required for the IBD

The same basic formula is used to calculate other ESQD arcs for different K factors, based on the degree of assumed risk. Additional information on these arcs and the expected blast effects of each are included in Appendix H.

At MOTSU, there are two primary ESQD arcs - the IBD and public traffic route distance (PTRD) that fall at least partially outside of the installation boundaries. Within each of these ESQDs, there are limitations as to the uses, structures, and activities that can be established or take place in order to maintain compliance with the DDESB operating license. Given the dense nature of development on Pleasure Island, a secondary ESQD, which is not included in the DDESB license, is included as part of this study. The K88 ESQD represents an area where there are enhanced glass breakage concerns, which would be particularly applicable in an urban area with tall structures that may be more susceptible to unimpeded blast waves due to the lack of intervening obstruction. All three of these ESQD arcs are shown in detail in Figure 5.1.

Figure 5.2: IBD Requirements Example



The full range of explosives safety guidelines promulgated by the Department of Defense are found in DESR 6055.09, while the Army's service-specific explosives safety guidelines are found in Department of the Army Pamphlet (DA PAM) 385-64.

One notable aspect of ESQDs is that while they have a static extent due to licensing requirements, the degree of hazard within them fluctuates as NEW is added or removed from a licensed PES. The map in Figure 5.1 shows the extent of the combined ESQDs (PTR, IBD, K88) for each licensed PES on MOTSU, which, for practical purposes represents the maximum potential degree of risk, but not the actual degree of risk at any specific point in time.

The chart shown in Figure 5.2 below demonstrates the increase in required IBD distance for a PES as NEW is added. The increase in required distance is most pronounced at lower NEW quantities due to the function of the use of the cube root in the ESQD formula. For example, while 1,000,000 pounds NEW requires a 5,000 foot IBD, the IBD does not even reach the point of doubling in distance even when 5 times as much NEW is added to a PES.

5.1.1 INHABITED BUILDING DISTANCE (IBD) COMPATIBILITY

As shown in Figure 5.3, the MOTSU Inhabited Building Distance extends across nearly the entire installation, crossing the Cape Fear River into the majority of the Pleasure Island ESCZ, as well as into areas north and south of the main terminal onto private property. In those areas where it does fall outside of the installation, the map shows it falling completely within compatible use easements that the Army has acquired from property owners that limits use of the property (shown in green hatch shading). It is worth noting that there is no portion of the IBD that falls outside of the ESCZ on Pleasure Island into Carolina Beach or Kure Beach, and maintains some separation from the boundary of the buffer along most of its length. One technical exception to this is a portion of the US Air Force Fort Fisher Recreation Area, which, although owned by the United States, is not part of MOTSU, but rather under Air Force control.

The map also identifies the location of all observed non-MOTSU uses in the IBD, marked by yellow dots that represent both individual uses and the location of uses spanning multiple buildings. The uses that have received approval to be located within the IBD on MOTSU property on Pleasure Island include:

- Joe Eakes Park (Kure Beach)
- Carolina Beach Wastewater Treatment Plant
- Carolina Beach State Park (portion)
- FAA Joint Surveillance System Radar Facility

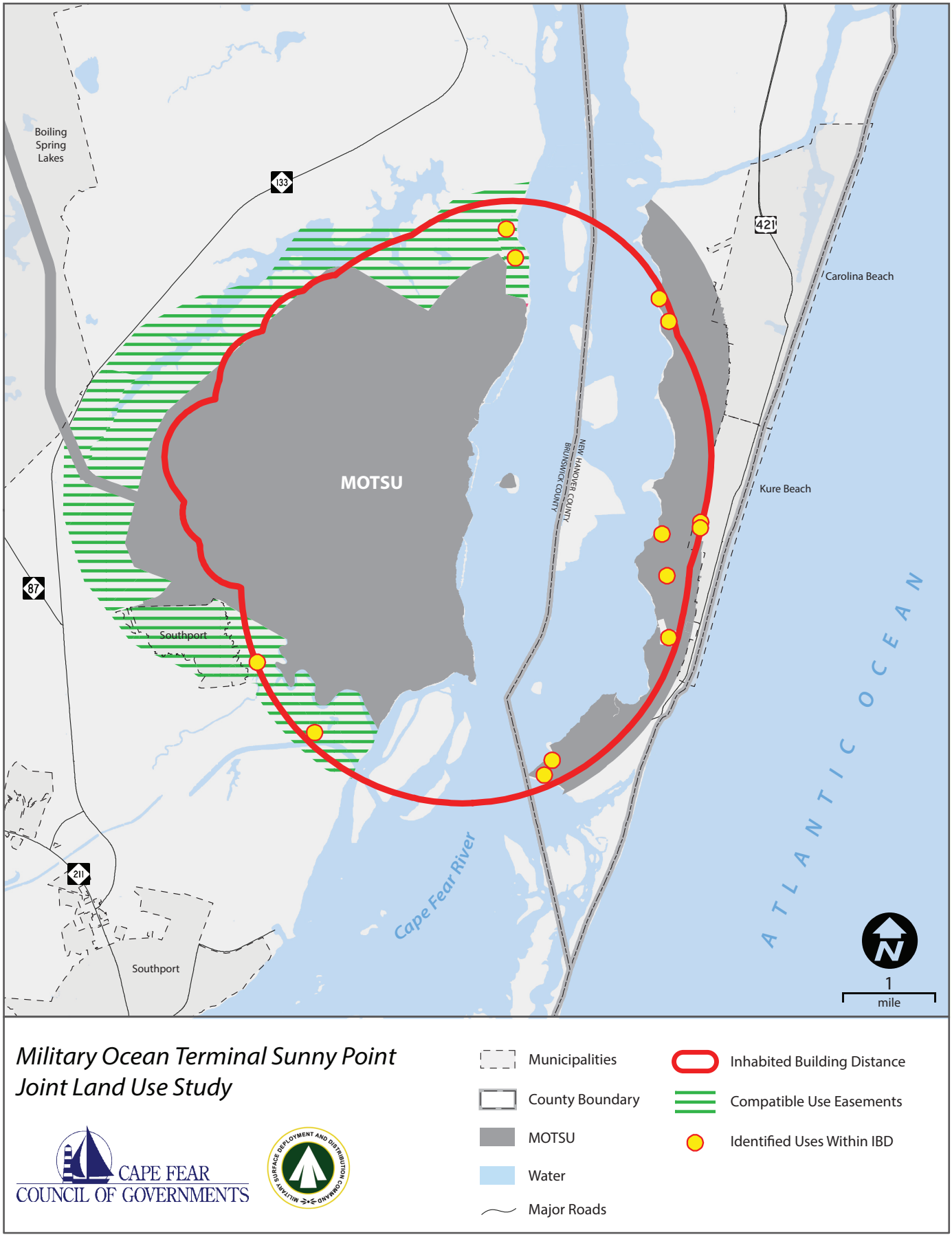


Figure 5.3: Inhabited Building Distance

- NCDOT Fort Fisher Ferry Landing
- NC Wildlife Resources Commission Boat Ramp
- Kure Beach Wastewater Treatment Facility
- Kure Beach Water System Well

As noted previously, the USAF Fort Fisher Recreation Area falls mostly within the IBD, but is located on USAF property. Despite this, MOTSU and the USAF have an agreement regarding operations during periods of time that the IBD extends onto the recreation area. On the Brunswick County side of the river, Brunswick Town and Fort Anderson are located within a compatible use easement on the north side of the main terminal off of Plantation Road. On the south side of the terminal, Duke Energy has constructed a firing range for the Brunswick Nuclear Station security force and there are several agricultural outbuildings on a farm property adjacent to the installation.

The uses included in the list above generally fall within the compatibility guidance that is found in Table 8-5 in DA PAM 385-64 or are subject to additional operational restrictions as part of an agreement to ensure compatibility and public safety in those circumstances when the IBD extends to these sites during transshipment operations. Examples of this include requirements to suspend ferry operations when the IBD falls on to the Fort Fisher Ferry landing. The establishment of uses, structures, or activities within the IBD on MOTSU land or within a compatible use easement is at the sole discretion of the Army, subject to its DDESB operating license, security requirements, and operational needs. While not an exhaustive list of potentially allowable uses, the table in DA PAM 385-64, referenced above, provides good guidance as to the type and nature of uses that might be considered in the IBD. In general these trend toward unmanned infrastructure and public works facilities, uses that do not attract large concentrations of people, and in general, uses that, due to operational or functional requirements, are not possible to locate elsewhere.

5.1.2 K88 GLASS BREAKAGE HAZARD COMPATIBILITY

Although the K88 distance is not a major compatibility concern, in general, the hazard from glass breakage as a result of an explosive event at MOTSU extends well across the urbanized portion of Pleasure Island, as well as rapidly growing portions of southern New Hanover County. Studies cited in Defense Explosives Safety Regulation (DESR) 6055.09 indicate that there is a near 100% probability of glass breakage in standard (non-safety glass) windows out to the K80 distance for 2' x 2' windows, while larger 10.5 square foot windows of the same material have a near 100% probability of fragmenting out to the K100 distance. It should be noted that this is for windows facing a PES. Although standard glass is not in high usage, particularly in coastal areas where modern safety glass is more common due to its impact resistance, the risk of significant glass breakage, of any type, in mid and high-rise buildings is a matter of concern in urban areas. The map in Figure 5.4 identifies the location of structures that were identified as having a height greater than 50 feet or 5 stories.

Figure 5.4: K88 Glass Breakage Hazard ESQD

These tall structures, due to rising above most of the intervening forest cover and other buildings, would likely face a full force blast pressure wave due to the lack of rough surfaces (such as forested areas of the ESCZ) that might better shield lower structures. The height (elevation) of potential glass breakage sources in these buildings is also a factor that needs to be taken into consideration when permitting the development or renovation of such buildings to ensure that they are designed and constructed in as safe a manner as possible.

5.1.3: EXPLOSIVE INCIDENT EMERGENCY EVACUATION CONSIDERATIONS

A unique aspect of explosives safety is that when explosive cargoes are "in transport" there are not any applicable ESQD arcs, but rather the cargo falls under separate USDOT safety guidelines. An incident along the MOTSU rail corridor involving a train carrying an explosive cargo, however, could be reasonably presumed to create a hazard similar to if the explosive cargo was being temporarily staged on the terminal and no longer "in transit." Among the guidance that does exist for such events are identical requirements for initial emergency withdrawal (evacuation) distances for non-essential personnel, which is found in both DESR 6055.09 and DA PAM 385-64.

The map shown in Figure 5.5 demonstrates the combined potential emergency withdrawal areas along the MOTSU rail corridor (typically a 5,000 foot initial evacuation area). Of course, an incident occurring in a single, discreet location would not require evacuation along the entire corridor, but rather just in the area around the incident location. An example of a discrete, localized evacuation area for an incident on the rail corridor is shown shaded in red on the map. Similar evacuation distances apply for incidents involving explosive cargo being shipped by truck as well. Once explosive cargo is no longer in transit, then a larger "facility" emergency evacuation distance would apply. The map in Figure 5.5 also provides examples of the recommended evacuation distances for incidents involving the maximum licensed NEW at each of the three wharves at MOTSU.

Using 2010 block level Census data, it is estimated that the population that falls within the potential emergency incident evacuation area along the rail corridor was just over 11,000 residents inhabiting just over 5,000 dwelling units at the time the data was collected. The combined population of each of the three "facility" emergency evacuation areas shown in Figure 5.5 was just over 14,000 residents (excluding seasonal tourist / second home population) and almost 11,000 dwelling units in 2010.

Whether dealing with a rail, truck, or facility emergency that requires an emergency evacuation, the logistics of moving large numbers of people away from a hazard area is a complex undertaking. Of particular concern are uses along the rail corridor, such as the South Brunswick school campus, the Northwest District Park, the commercial area along US 17, and the industrial area along US 74/76. Looking at the potential for a facility event that necessitates a large evacuation zone that would encompass all or a portion of the urbanized area on Pleasure Island, a potential evacuation

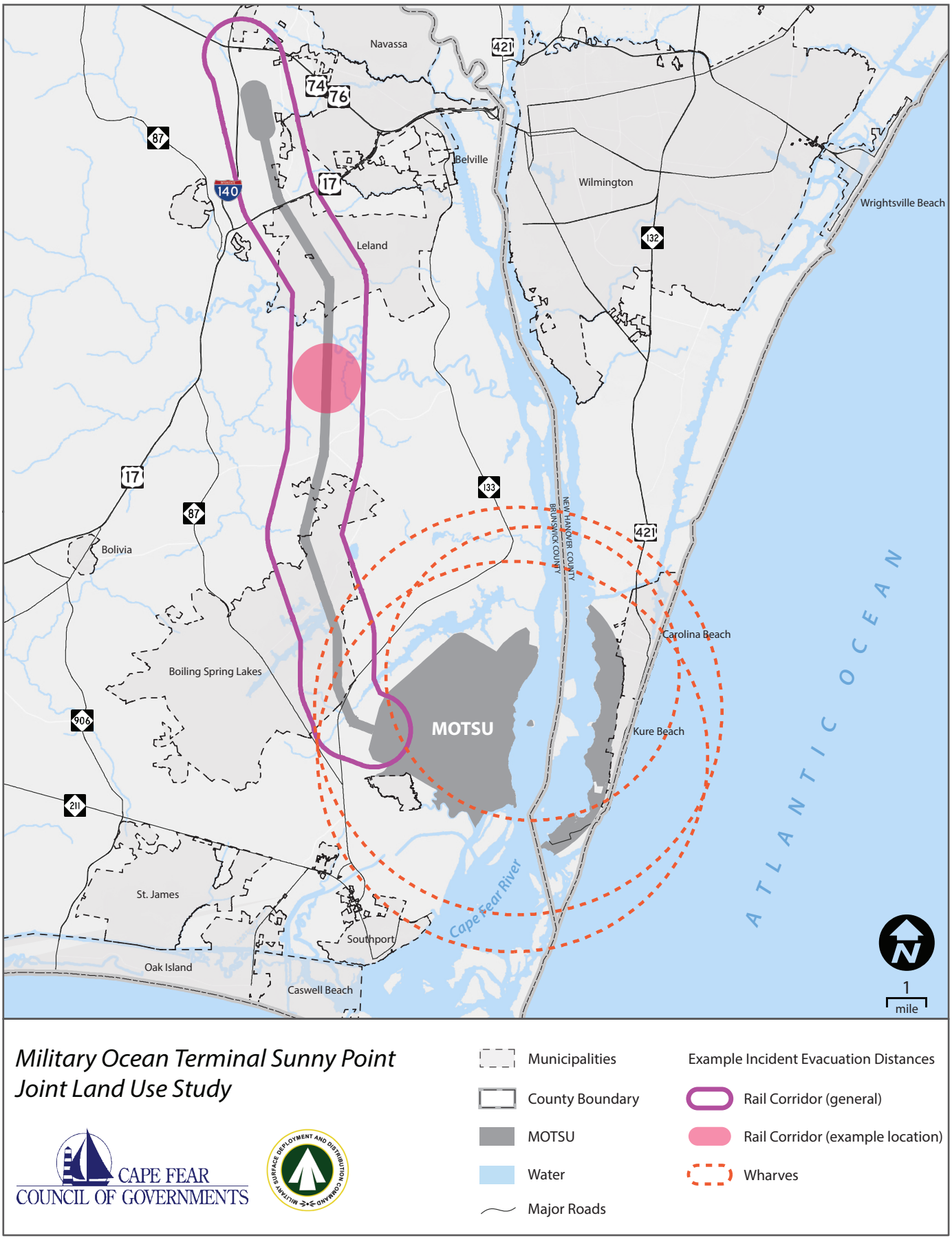


Figure 5.5: Example Emergency Evacuation Areas

scenario becomes much more complex. This is due in large part to the potential for a much greater seasonal population to be on the island during summer months, as well as the single point of evacuation across Snow's Cut. An event at MOTSU is not the only scenario that could require a hasty evacuation scenario from the area, given the presence of the Brunswick Nuclear Station just south of MOTSU. Their emergency evacuation zone encompasses a radius of 10 miles from the plant, and includes the entirety of southeastern Brunswick County, as well as all of Pleasure Island.

Although the Army and DoD do not provide any direct guidance as to the compatibility of specific land uses within an area that falls within a potential evacuation zone, it is recommended that the following be used to guide and evaluate decisions in those areas that have greater exposure to potential hazards associated with fixed transportation routes, such as the MOTSU rail corridor.

As an initial point of evaluation, the distance between the location of a potential explosive incident and the proposed use or development should be conducted. Given the variability of munitions loads between any particular train or even train car, there is no ready rule of thumb as to what might constitute a "safe" distance for any particular use, although greater distances are always preferable. The second point of review should be related to the degree to which the proposed use or development concentrates population and the duration of that concentration. In every case, those uses that have low population density (e.g. a large lot single family subdivision or a warehouse that employs very few workers) are preferable to those uses that have higher population densities (e.g. a large scale multi-family housing development or regional shopping center).

Another point of evaluation that should be considered is whether there is a necessity for a particular use to be located within a potential hazard area. In general, most uses have a range of siting options, and those that are less compatible should be directed toward alternative locations. Additional criteria for evaluation include the capacity of transportation infrastructure to accommodate the evacuation of the occupants of a particular use or development, as well as the ability of the occupants to evacuate themselves or whether they will require assistance (e.g. elementary schools, nursing homes, hospitals). Finally, any hazard mitigation measures proposed for the site should be considered, including the use of berms to lessen the impact of fragmentation hazards, siting and orientation of structures to reduce exposure to hazards, and the use of design and construction techniques that reduce the impact of blast overpressure, fragmentation / debris and fire dangers.

In summary, the most compatible use of land within a potential hazard area such as this would be conservation land, forests, and low intensity agricultural operations. Although ideal, it is unlikely that restricting uses to these would be feasible throughout the remaining undeveloped portions of this particular potential hazard area. Therefore, the criteria discussed above, along with input from MOTSU, should be used to guide land use decisions in these areas.

5.2 TRANSPORTATION

The Public Traffic Route Distance (PTR) ESQD arc, which assumes a higher degree of risk than the Inhabited Building Distance, is required to avoid impacts to roads, rail lines, and maritime navigation routes outside of the installation's boundaries. At MOTSU, the current PTR arc does not impact any roads or other public transportation facilities on land, but as Figure 5.6 shows, the maximum extent of the combined PTR arc does extend across the river, covering approximately 4.8 miles of the main Cape Fear River shipping channel, as well as around 0.75 miles of the ICWW channel from Snow's Cut to its confluence with the main shipping channel. As noted previously, the degree of risk increases and decreases with the presence and absence of munitions at a PES, and so the potential hazard within these areas only exists during the discrete periods of time during which sufficient NEW is present.

A significant portion of the area that falls within the maximum PTR arc is within an area that is restricted for civilian navigation (shown hatched in red in Figure 5.6). This area, which extends from the installation's waterfront to the western edge of the main ship channel between buoys 27 and 35, is established by federal regulation, and the commander of MOTSU is responsible for maintaining the integrity of the restricted area and excluding unauthorized maritime traffic. Issues related to this include anecdotal evidence that the proximity of the restricted area and confluence of the ICWW with the main shipping channel and the MOTSU access channels in such close proximity (along with the transition from ICWW navigation signage when entering the main ship channel), can cause confusion for less experienced boaters or passing traffic on the ICWW that may not be familiar with the area. Additional anecdotal evidence gathered during stakeholder interviews suggests that the lack of restrictions to prohibit recreational boaters from occupying the area east of the restricted area, but within the PTR arc, is an ongoing compatibility concern.

Although mentioned previously with regard to the portion of the ferry system infrastructure located within the IBD in the MOTSU ESCZ, there is a secondary issue related to the ferry route itself. DA PAM 385-64 establishes a threshold of 2,000 ship passengers per day for a navigation route to be considered a "high traffic density route" for explosives safety purposes. This, in turn, requires the application of the IBD arc to the route. Also noted previously, the capacity of the ferry route during peak season is currently around 9,600 passengers, and so operating at around 25% - 30% of peak capacity would theoretically require that the route be characterized as a high density route. As Figure 5.7 shows, the portion of the ferry route that would fall within the IBD. Note that these figures do not include the expansion of service to a third ferry, which is programmed by NCDOT and partially funded at this time.

There are similar provisions in DA PAM 385-64 to require the use of the IBD when a road exceeds the high traffic density route threshold by reaching an average of 10,000 motor vehicle passenger per day along a road segment. Recent traffic count data from the Wilmington MPO shows that the

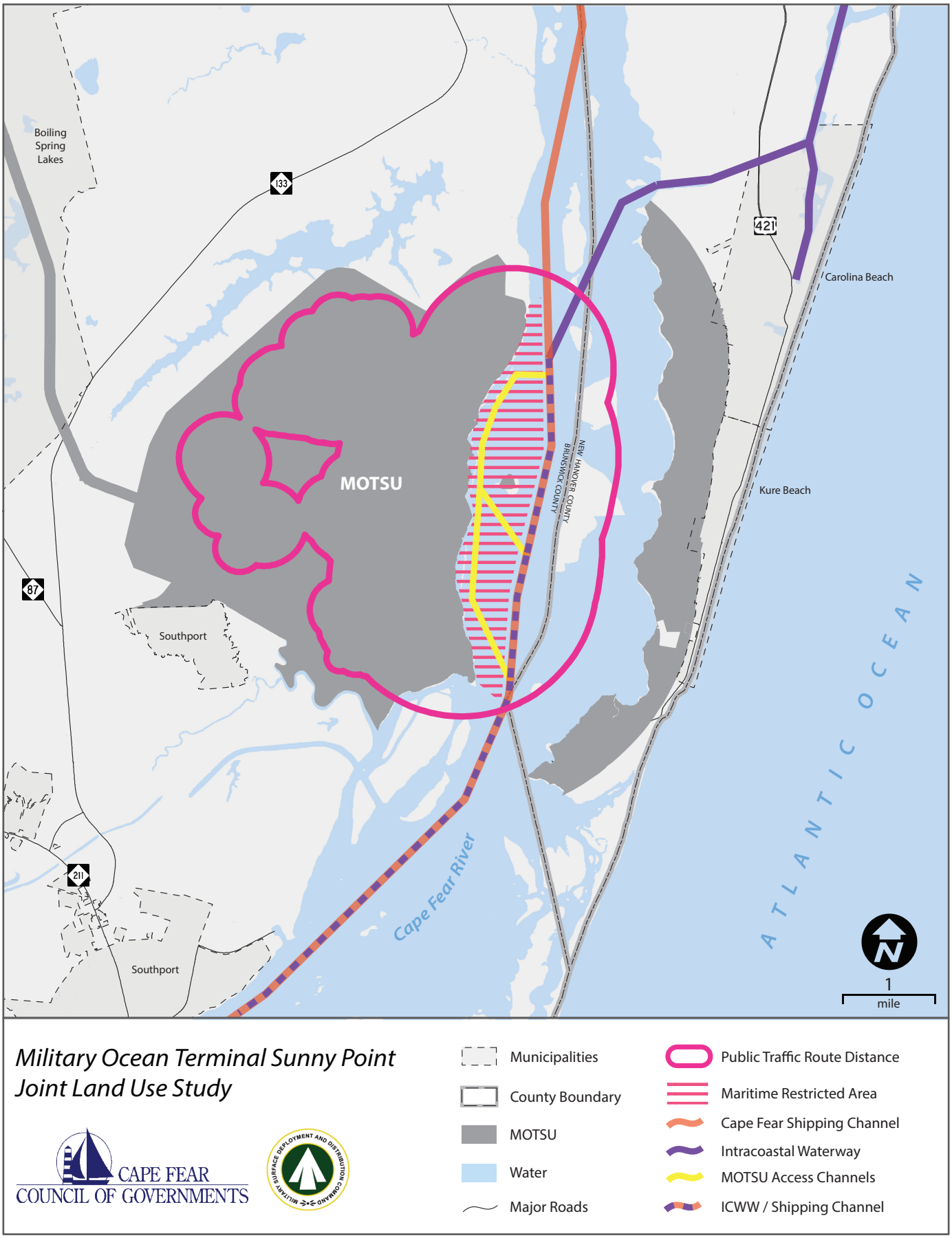


Figure 5.6: Public Traffic Route Distance and Navigation Channels

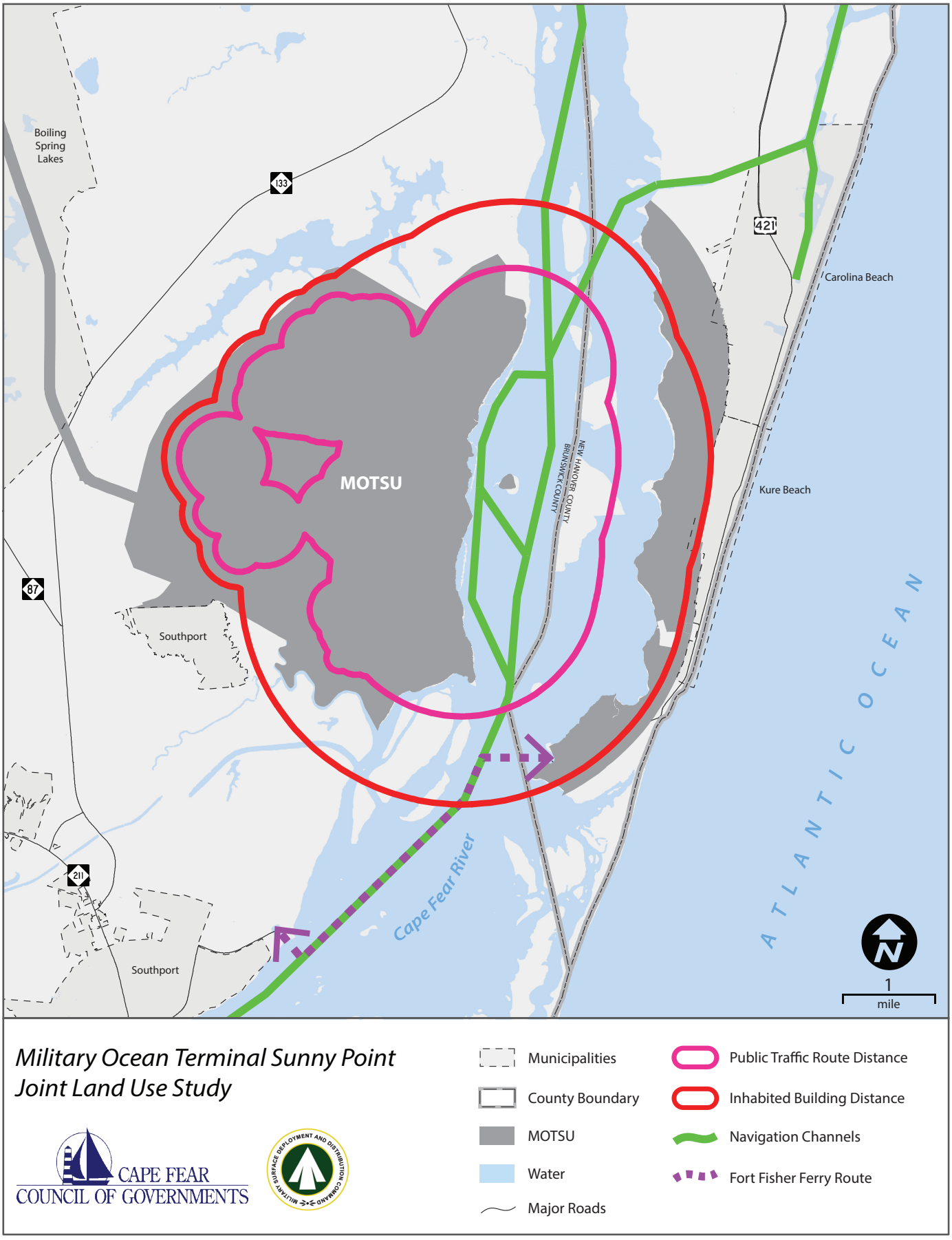


Figure 5.7: Fort Fisher - Southport Ferry Route with IBD Arc

average annual daily traffic volume on Dow Road on Pleasure Island is just under 5,000 vehicles per day, and therefore likely close to the high density route threshold if 2 passengers were assumed to occupy each vehicle. The portion of Dow Road that would potentially be impacted by this includes the segment of the road south of Ocean Boulevard to its terminus in Kure Beach.

Additional transportation related mission compatibility concerns have been discussed in previous sections of the study, including the following:

- Maintaining safe and efficient access to MOTSU for truck traffic on the local highway network.
- The potential crossing of the MOTSU rail corridor by a Cape Fear Crossing route.
- The lack of alternative or redundant rail access to the region.
- Potential future rail congestion at Davis Yard.
- Flooding issues on highway routes to MOTSU.
- Lack of fee simple ownership of the rail corridor to Leland.
- At-grade road crossings along the rail corridor to Leland.

5.3 SECURITY

Ensuring the safety of MOTSU and its host communities depends on maintaining a secure operational environment. The JLUS process revealed, primarily through stakeholder interviews, that while MOTSU is able to maintain a highly secure operating environment, there are several outstanding issues that need to be addressed, particularly in the face of ongoing growth in the region. First among these, which has been mentioned previously in different contexts, is the need to eventually secure full ownership of the rail corridor between MOTSU and Leland. Among other things, this would provide MOTSU security forces with enhanced legal authority on the property, as well as provide the opportunity to explore options for sealing the corridor, to the extent practical, to limit trespassing and other unauthorized entry.

Another security related issue is the need to better control unauthorized access to the Pleasure Island ESCZ, which, due to the large seasonal tourist population, can appear to be an outdoor recreation amenity (especially given the presence of other state parks on the island) and invite unintentional trespassing in areas where signage may be missing. Access to the road leading to MOTSU's northern gate on Plantation Road also poses some security issues given the remoteness of the area and lack of other activity along the road when the Brunswick Town / Fort Anderson historic site is not open for visitors. Although monitored by MOTSU security forces, the NCDOT maintained road leading to the gate is public and can be approached by anyone, who, innocently or not, continues past the turn-off to Brunswick Town.

5.4 ENVIRONMENTAL COMPATIBILITY

As discussed in Section 4, MOTSU was found to have a superb record when it comes to maintaining compatibility and compliance with environmental regulations. The significant amount of managed wildlife habitat around MOTSU contribute greatly to its strong environmental record, and provide that these expansive natural areas are maintained, and ongoing compliance, particularly with the Endangered Species Act, should not pose any issues. Other environmental compatibility issues, particularly with regard to natural hazards, present a somewhat greater concern. Although the current sea level rise estimates do not appear to pose any significant threat to the installation or its infrastructure, other hazards posed by flooding - particularly when impacting highway and rail routes to MOTSU, can have significant impacts on the mission if MOTSU is inaccessible for any extended period of time. This also speaks to the apparently increasing frequency of tropical storms impacting the region. In addition to flooding impacts, these can bring additional impacts in the form of storm surge, which can cause flooding impacts similar, and in some cases exceeding, the 100 year flood elevations.

5.5 LOCAL GOVERNMENT INFRASTRUCTURE

As noted in Section 3, MOTSU, although established in a rural environment, now finds itself firmly within a growing urban region. When the terminal was built, anticipating the needs of local governments that were either very small coastal hamlets, like the Pleasure Island towns, or did not yet exist, like Leland and Boiling Spring Lakes, would have been a difficult exercise at best. Over the years, MOTSU has attempted to accommodate the needs of the local governments in the region by granting approval to utilize Army property, cross easements with public utilities, and other actions that have helped to facilitate development in the communities that host it.

With a rapidly diminishing land supply, the towns on Pleasure Island, in particular, will likely continue to look to MOTSU to assist with meeting needs for space to carry out their obligations to the public to provide services and infrastructure. Many of the public uses on MOTSU property were discussed in the section detailing compatibility with the IBD. In addition to those uses, there are additional community uses that have been established outside of the IBD, such as water towers, wells, Carolina Beach's Mike Chappell Park, among other beneficial and necessary public uses. Just as land resources are diminishing in the communities, the amount of land that might potentially be available on MOTSU for compatible public use is also diminishing. This calls for collaboration and cooperation between Carolina Beach and Kure Beach to ensure that future requests for the licensing of land for community use is done in consideration of both communities.

One of the promising findings of the JLUS was the existence of a larger area of potential opportunity for locating uses on MOTSU ESCZ land outside of the IBD. While perhaps larger than thought, this remains a finite resource, and ultimately the use of the property by outside entities is subject to the Army's approval based on its military operational needs and requirements. During the JLUS, the

towns of Carolina Beach and Kure Beach were asked to provide lists of anticipated community needs that the towns felt may be fulfilled by the use of MOTSU's ESCZ property. The responses are included below:

CAROLINA BEACH

OPERATIONS

- Stormwater easements
- 3 million gallon water storage tank
- Additional water supply wells
- Consolidated wastewater treatment and potential water treatment facility near the entryway to the existing wastewater treatment plant
- Treated wastewater effluent spray field
- Expansion of the current wastewater treatment plant
- Storage of spoils from dredging Carolina Beach Lake
- Storage of construction materials for/from infrastructure projects
- Underground utility easements
- Temporary emergency debris management site

PARKS AND RECREATION

- Additional baseball/softball fields and soccer fields
- Sand volleyball courts
- Multiuse paved path, primitive trails, and mountain bike trails
- Community garden
- Disc golf course
- Dog park
- Pickleball specific courts
- Bathroom building and park maintenance building
- Swimming pool and splash pad
- Paved parking lot

PUBLIC SAFETY

- 2 acre training facility (firing range, NIMS training)

KURE BEACH:

- Land for training maneuvers for the Kure Fire Department (no permanent building installations)
- Possible storage of town lifeguard stands or other related equipment
- Bike and pedestrian paths – either in the fire lane or on the Dow Road right of way
- Land to park garbage trucks when not in use
- Temporary emergency debris management site

The uses, facilities and infrastructure that were identified by each community were given a preliminary evaluation to identify the general degree of potential compatibility that they might have with MOTSU's explosives safety license, mission and operational requirements. This evaluation is not the opinion of the US Army or MOTSU, and is based only on a general understanding of the nature of the particular uses without specific locations, sizes, or other necessary characteristics that would be required for the Army to fully evaluate their compatibility and potentially allow the use of military property.

Those items that were found to likely be compatible on MOTSU property without regard to their location, either within or outside of the IBD, include easements for stormwater and underground utilities, as well as effluent spray fields, water supply wells, storage of dredging spoils, temporary debris storage sites, and the storage of other equipment or materials that are used on an occasional basis.

A second category of uses are those that may be permissible in the IBD if no reasonable alternative location can be found on land outside of the IBD, and the uses / activities are sited in a manner that locates them as close to the outer edge of the IBD as possible. These include water storage tanks, water and wastewater treatment facilities (preferably unoccupied portions of the plants), pedestrian and bicycle facilities, recreational uses (other than spectator sports facilities) that do not require buildings and do not concentrate large numbers of people, and public safety training activities / facilities (subject to restrictions on activities that may interfere with the mission, security, or environment).

Even though it may be permissible to establish the uses, activities, and facilities discussed in the first two categories based on additional individualized restrictions and conditions imposed by a real estate agreement, the establishment of any use that exposes people or property to the potential hazards of the IBD is not ideal for the long-term sustainability of MOTSU's mission or public safety. In each case when something is proposed for land within the IBD, a thorough evaluation of alternative sites should be conducted before making such a request.

The third category of uses includes those that would, in the overwhelming majority of cases, likely be determined to be incompatible with the IBD due to the potential degree of hazard, and which should only be considered for land outside of the IBD if no alternatives other than Army property exist in the community. These uses include high-value structures, critical infrastructure (which if destroyed or heavily damaged would cause an immediate threat to public safety), structures and uses that concentrate large numbers of people (such as offices, workshops, spectator sports fields, swimming pools, public parking lots etc.), and uses that are required to be occupied full-time (such as fire stations).

A final category of uses includes any use that would likely be inappropriate or incompatible to locate on Army property. Uses of this nature would include any use that would cause environmental damage, interfere with the mission, pose a threat to public safety, or pose a high security risk that could not be mitigated.

It should be noted that as of the drafting of the JLUS, the process for requesting and granting approval (or denial) for the use of Army property on MOTSU was in transition. Once the new procedure has been finalized, it will be communicated to the local governments. Also, all future uses of any portion of MOTSU's land will now require amendment to and inclusion in the installation master plan.

While this study cannot provide absolute certainty as to what may or may not be approved by the Army for use of MOTSU property, this is an opportunity to begin an ongoing dialogue between MOTSU and its host communities about their mutual needs and the opportunities that exist to find solutions to these complex issues. This, in turn, will help to strengthen and support the critical relationships that are growing between MOTSU and the communities that host it.

SECTION 6: COMPATIBLE GROWTH FRAMEWORK

6.1 FEDERAL PROGRAMS

The following federal programs augment efforts to maintain land use compatibility around Military Ocean Terminal Sunny Point and other Army installations around the country. These programs are currently available to or already are being put into action by the region.

6.1.1 ARMY COMPATIBLE USE BUFFER (ACUB) PROGRAM

U.S. Code Title 10 § 2684a. authorizes the DoD to enter into agreements with local governments and private organizations to limit incompatible development or use of land near a military installation, or to preserve natural habitat in order to minimize or prevent environmental restrictions that could affect military training, testing, or operations. The Army implements this authority through the Army Compatible Use Buffer (ACUB) program. Lands protected through the ACUB program are not acquired by the Army; instead, a partnering organization acquires interest in or fee simple title to the land.

The ACUB program grew out of efforts at Fort Bragg in the mid-1990s to protect habitat for the endangered red-cockaded woodpecker (RCW), while maintaining military training capability. With the largest contiguous area of RCW habitat in the region, Fort Bragg was subject to training restrictions aimed at reducing impacts on the RCW population. The Army partnered with the Nature Conservancy to work with landowners willing to encumber their property in perpetuity with conservation easements, protecting critical RCW habitat and reducing training restrictions on lands at Fort Bragg. The success of this effort led to the creation of the statute noted above, and ultimately the Army's ACUB program.

6.1.2 READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION (REPI) PROGRAM

Established in 2003, the DoD's Readiness and Environmental Protection Integration (REPI) Program helps maintain military readiness by addressing incompatible urban development near military installations, primarily through buffer partnerships. Partnerships are established through voluntary agreements between the military, state and local governments, and environmental conservation organizations. The REPI Program offers funding to acquire easements from willing landowners in order to preserve existing compatible land uses and wildlife habitat on lands around military installations. The REPI Program has "protected over 464,000 acres of land in 89 locations in 30 states," including projects at MOTSU. (Source: http://www.repi.mil/Portals/44/Documents/Resources/REPI_FactSheet_EncroachmentPartnerships_032917.pdf?ver=2017-03-31-111658-547)

In 2017, the Eastern North Carolina Sentinel Landscapes Partnership, which includes MOTSU, was awarded a 2017 REPI Challenge grant of $9.2 million to support conservation efforts around military training areas and airspace. Leveraging the award with over $10 million in partner contributions,

the Partnership will use the funds "to protect more than 17,000 acres of farms and forests that are integral to mitigating DoD's installation encroachment and airspace concerns in the area" through conservation easements and other management programs. (Source: https://repi.dod.afpims.mil/Portals/44/Documents/REPI_Challenge/2017REPIChallenge.pdf)

In the fall of 2017, the Town of Emerald Isle, North Carolina, received $1.5 million in REPI funding to purchase a nearly 30-acre tract of land located in the flight path of Marine Corps Auxiliary Landing Field Bogue. The Town worked with Marine Corps Air Station Cherry Point and The Conservation Fund of North Carolina to secure the funding and acquire the property.

6.1.3 UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) PARTNERSHIPS

AGRICULTURAL CONSERVATION EASEMENT PROGRAM (ACEP)

The Natural Resources Conservation Service (NRCS), a division of the United States Department of Agriculture (USDA), administers the Agricultural Conservation Easement Program (ACEP). Authorized by the 2014 Farm Bill, this program replaced the Farm and Ranch Lands Protection Program and the Grassland Reserve Program. The ACEP helps protect agricultural lands, wetlands, and forestlands by providing financial and technical assistance to landowners, state and local governments, American Indian tribes, and non-governmental organizations. In FY2018, NRCS plans to invest $250 million in the ACEP. (Source: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=nrcseprd1365223)

The ACEP has three components:

- Agricultural Land Easements;
- Healthy Forests Reserve Program; and
- Wetlands Reserve Enhancement Partnership.

AGRICULTURAL LAND EASEMENTS (ALE)

The NRCS provides up to 50% of the market value of Agricultural Land Easements (ALE) that protect working agricultural lands and other lands with conservation value. Where grasslands with special environmental significance are protected, up to 75% of the easement's market value may be provided.

HEALTHY FORESTS RESERVE PROGRAM (HFRP)

The Healthy Forests Reserve Program (HFRP) protects private forestlands through easements, 30-year contracts, and 10-year cost-share agreements. The three main objectives of the HFRP are to promote the recovery of endangered and threatened species, improve biodiversity, and enhance carbon sequestration. Twelve states currently offer funding through the HFRP; however, North Carolina does not.

WETLANDS RESERVE ENHANCEMENT PARTNERSHIP (WREP)

The Wetlands Reserve Enhancement Partnership (WREP) assists in the protection, enhancement, and/or restoration of high priority wetlands. High priority wetlands are those offering critical habitat for migratory birds and other wildlife.

SENTINEL LANDSCAPES PARTNERSHIP

The Sentinel Landscapes Partnership, established in 2013, is a collaborative effort between the USDA, DoD, and United States Department of the Interior (DOI). The partnership is intended to leverage resources in locations where the priorities of these three agencies overlap. The Partnership defines Sentinel Landscapes as "working or natural lands important to the Nation's defense mission – places where preserving the working and rural character of key landscapes strengthens the economies of farms, ranches, and forests; conserves habitat and natural resources; and protects vital test and training missions conducted on those military installations that anchor such landscapes." (Source: http://sentinellandscapes.org/about/)

While the Sentinel Landscapes Partnership is not a grant program per se, designation of a Sentinel Landscape may increase the likelihood of success in obtaining funding from a partner agency (i.e., USDA, DoD, DOI) or other program. Of the seven designated Sentinel Landscapes, all include well over a dozen local, state, and federal partners working to advance shared goals of resource conservation and maintenance of military readiness.

In North Carolina, the primary sentinel landscape effort is the Eastern North Carolina Sentinel Landscapes Partnership, which is a joint effort between the Army, Marine Corps, Air Force, other federal agencies, state agencies, local governments, and nonprofit organizations who are working to protect natural, rural, and agricultural lands important to the nation's defense mission in 33 North Carolina counties. The Partnership recognizes the importance of collaboration and coordination between the State's two largest industries, agriculture and defense. As noted in the REPI section above, the Partnership was awarded a $9.2 million REPI Challenge grant in 2017.

The focus of the partnership is the purchase of conservation easements throughout the NC Agriculture Development and Farmland Preservation (ADFP) Trust Fund. The primary goals of the ADFP Trust Fund and its many partners are to:

- Establish the transferable structure and processes necessary to link working lands, natural resource management, and national defense
- Sustain the military's testing and training mission footprint including installation buffers as well as associated ranges and transit routes
- Engage private landowners to determine preferences, coupled with appropriate partners, enable delivery of programs and technical assistance to keep farms in farming and forests in forestry

- Work with federal, state, local, nonprofit, and other private entities to promote initiatives that keep the region economically vibrant while protecting the rural character and natural/open spaces
- Promote off-base habitat conservation in order to ease military land training restrictions and promote species recovery

6.1.4 NATIONAL FISH & WILDLIFE FOUNDATION LONGLEAF STEWARDSHIP FUND

The Longleaf Stewardship Fund is a public-private partnership involving several federal, nonprofit, and private agencies, including the Department of Defense and the Orton Foundation. The partners provide financial and technical assistance to restore and enhance the longleaf pine ecosystem in the southeastern United States. "The fund's investments target 'Significant Geographic Areas' anchored by military bases and installations, national forests, national wildlife refuges, as well as state and other protected lands" (National Fish & Wildlife Foundation, https://www.nfwf.org/longleaf/Documents/fact-sheet.pdf).

6.1.5 UNITED STATES FOREST SERVICE FOREST LEGACY PROGRAM (FLP)

The United States Forest Service (USFS) forest Legacy Program (FLP) encourages voluntary protection of privately owned forestlands. The FLP provides grants to State agencies, and this funding is utilized to acquire conservation easements on or provide for the fee simple purchase of environmentally important forests under threat of development or conversion to non-forest uses.

6.1.6 ARMY-COMMUNITY PARTNERSHIP PROGRAM (ACPP)

The Army Community Partnership Program (ACPP) brings together civic and Army leaders to identify potential areas of mutual benefit and value, and develop initiatives to achieve such benefits. The program is intended to foster new partnerships at the local level, tailored to the unique needs of the community and characteristics of the local military installation. Through the Office of the Assistant Chief of Staff for Installation Management, the ACPP can include the emerging tool of "Intergovernmental Support Agreements," which rely on public-private partnerships to maintain mission readiness in a time of significant budget constraint.

The ACPP promotes coordination at the local level through implementation of initiatives such as:

- Cooperative EMS training;
- Shared disaster recovery resources;
- Water and wastewater treatment; and
- Workforce training and certification.

The cooperative initiatives developed through the ACPP provide mutual financial benefits and, perhaps more importantly, strengthen relationships between a military installation and the surrounding community.

6.1.7 INTEGRATED NATURAL RESOURCE MANAGEMENT PLANS

Department of Defense installations use 5-year Integrated Natural Resource Management Plans (INRMPs) to manage natural resources present on the installation, based on legal and stewardship requirements. MOTSU completed the most recent update to its INRMP in October 2017. A primary component of the plan is the continued protection of endangered species found on the installation, including the red-cockaded woodpecker and the rough-leaved loosestrife.

6.1.8 INTEGRATED CULTURAL RESOURCE MANAGEMENT PLANS

An Integrated Cultural Resource Management Plan (ICRMP) is a 5-year plan that identifies potential conflicts between the military mission and cultural resources and necessary compliance actions to ensure mission-essential properties remain ready for use. MOTSU completed its most recent ICRMP in August 2017.

6.1.9 MILITARY AVIATION AND INSTALLATION ASSURANCE CLEARINGHOUSE

Development of energy infrastructure has the potential to create hazards to military operations, including Homeland Security radar interference. Tall structures also create potential hazards to aircraft flying at lower altitudes. Although aircraft obstructions are less of an issue at Sunny Point, renewable energy's impacts on military operations in eastern North Carolina have been a topic of discussion in the two or three years preceding the Joint Land Use Study. Therefore, the role of the federal government and Department of Defense in renewable energy siting decisions is discussed here briefly for context.

Recognizing the need for a coordinated evaluation process, Congress directed, in 2011, the establishment of the DoD Siting Clearinghouse to assess proposed energy projects, including wind turbines, solar power towers, and electrical transmission lines, and to analyze their potential impact on the military mission. This review process provides the DoD an opportunity to identify ways to prevent, minimize, or mitigate potential adverse impacts before the Secretary of Transportation takes final action on an energy developer's application.

Signed into law in December 2017, the National Defense Authorization Act for Fiscal Year 2018 included significant amendments to the Clearinghouse process, including a requirement to provide notice to the governor of the state in which a proposed energy project is located. The Clearinghouse is now known as the "Military Aviation and Installation Assurance Clearinghouse." At the time the JLUS was finalized, the changes to the Clearinghouse review process had not been fully implemented.

The FAA maintains an obstruction evaluation website, which includes a DoD Preliminary Screening Tool. This mapping system provides preliminary feedback on potential impacts to long-range

radar and military operations (see: https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showLongRangeRadarToolForm).

6.1.10 FEDERAL AVIATION ADMINISTRATION RULES FOR UNMANNED AIRCRAFT SYSTEMS

In 2017, the Federal Aviation Administration (FAA) began using its existing authority under 14 CFR § 99.7 to address national security concerns with the use of unmanned aircraft systems (UAS, or "drones") over 133 military facilities, including MOTSU. This marked the first time the FAA had implemented airspace restrictions specifically for UAS. Effective April 14, 2017, the rules restrict (24 hours per day / 7 days per week) UAS flights up to 400 feet within the lateral boundaries of the 133 installations. There are only a few exceptions to the flight restrictions, and all must be coordinated with the installation.

The FAA provides an online interactive map of the specific location of the restricted UAS flight areas and contact information for the installation (see: https://uas-faa.opendata.arcgis.com). The restricted area associated with MOTSU includes not only the installation itself, but also the rail line, Leland Exchange terminal, and the ESCZ on Pleasure Island.

The NCDOT Division of Aviation maintains an Unmanned Aircraft Systems Program Office, which oversees the State's UAS operator permitting program. In addition to FAA certification requirements, a state permit is required for all commercial and government drone operators.

"In May 2018, the Federal Aviation Administration selected the N.C. Department of Transportation as one of 10 participants in its Unmanned Aircraft Systems Integration Pilot Program, which involves implementing drone programs to integrate emerging technology into current state and federal regulations" (NCDOT, https://www.ncdot.gov/divisions/aviation/uas-integration-pilot/Pages/default.aspx). This pilot program is expected to last three years and, in North Carolina, will test the delivery of medical supplies as well as food delivery in urban, suburban, and rural environments.

6.1.11 DOD OFFICE OF ECONOMIC ADJUSTMENT GRANT PROGRAMS

The DoD Office of Economic Adjustment (OEA) offers several financial assistance programs to assist state and local governments in responding to Defense industry actions, such as Base Realignment and Closure (BRAC)or changes in DoD contracting, or to assist with compatible land use planning in the vicinity of a military installation. Joint Land Use Studies and certain subsequent implementation efforts are often funded, in part, with OEA grants.

The OEA recently awarded a $2 million grant to N.C. State University's Industry Expansion Solutions and the Department of Military and Veterans Affairs for a pilot project to assist businesses impacted

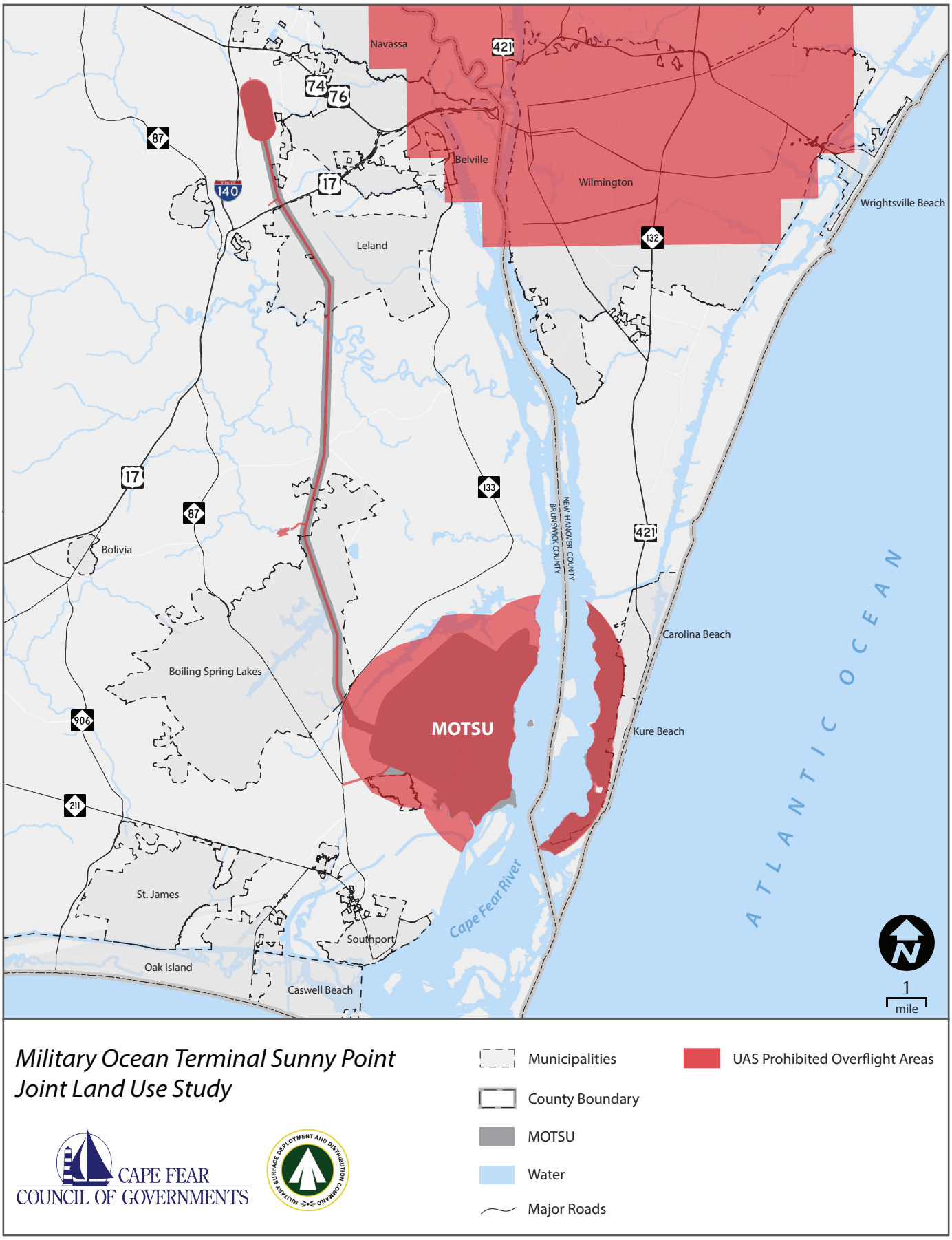


Figure 6.1: Current FAA Restricted Airspace for Unmanned Aerial System Flight

by cuts in Defense spending. The project will help the businesses diversify and move into new markets. One of the deliverables is a supply chain mapping program, with a goal to identify imported products that could instead be locally produced.

6.1.12 UNITED STATES DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE FOR REBUILDING AMERICA GRANT

The United States Department of Transportation (USDOT) Infrastructure for Rebuilding America Grant funds projects that address critical transportation infrastructure needs. The USDOT granted $147 million to the NCDOT for major improvements to Interstate 95 and US 70 in the eastern part of the state. The improvements are expected to create interstate links between military bases, enhance freight movement, and improve travel safety and reliability in the two corridors. The project also includes 300 miles of fiber optic cable to expand broadband access.

6.2 STATE PROGRAMS

The State of North Carolina has been proactive in establishing statutory and programmatic support for the sustainability of its military installations. The statutes are described in detail in the previous section. The following section, on the other hand, describes the extent to which these state programs currently are in place around MOTSU or which the JLUS Policy Committee determined would be appropriate for support of military functions locally in the future.

6.2.1 AGRICULTURAL DEVELOPMENT AND FARMLAND PRESERVATION TRUST FUND GRANTS

Established by the General Assembly in 2005, the Agricultural Development and Farmland Preservation (ADFP) Trust Fund works to support the farming, forestry, and horticulture industries in North Carolina. The Trust Fund recognizes the compatibility between agricultural and military land uses and supports the purchase of agricultural conservation easements in the vicinity of military installations. ADFP Trust Fund grants are awarded on an annual basis and have matching requirements based on the type of project and participating organizations. For military-related conservation easements, the ADFP Trust Fund gives preference to requests providing at least a 1:1 match. As discussed previously, the award of the 2017 REPI challenge has provided additional funding and focus for conservation efforts throughout the 33 counties that are part of the Eastern North Carolina Sentinel Landscapes.

6.2.2 CLEAN WATER MANAGEMENT TRUST FUND GRANTS

Established by the General Assembly in 1996, the Clean Water Management Trust Fund (CWMTF) focuses on protection and restoration of the State's land and water resources. Pursuant to N.C.G.S. § 143B-135.234, CWMTF funds may be used to provide buffers around military installations and as matching funds for REPI grants (refer to the Federal Compatibility Programs and Tools section).

In 2018, the CWMTF awarded over $21 million in grant funding, including just over $3.2 million for acquisition projects related to military buffers. In 2017, the same fund awarded nearly $23 million in grant funding, including just over $3 million for acquisition projects related to military buffers.

6.2.3 NORTH CAROLINA MILITARY AFFAIRS COMMISSION

The North Carolina Military Affairs Commission was established within the NC Department of Military and Veterans Affairs by N.C.G.S. §§ 143B-1310 through 143B-1314. The Commission provides recommendations to the Governor, General Assembly, and other State agencies on ways to maintain and increase the role of North Carolina military installations in national defense and the State's economy. The Commission is expressly authorized to assist military installations in a variety of ways, including supporting the Army's Compatible Use Buffer Program, described in detail in the Federal Compatibility Programs and Tools section. The Commission provides an annual report to the General Assembly and updates its Strategic Plan every four years, with the next update due in 2020.

In addition, N.C.G.S. § 143B-1217 establishes the Military Presence Stabilization Fund as a special fund in the Department of Military and Veterans Affairs. The statute authorizes the North Carolina Military Affairs Commission to approve use of the Fund for actions designed to make the State less vulnerable to BRAC and related initiatives.

The State's Appropriations Act of 2018 states that the Fund can be used for eight purposes or actions, including grants to local communities or military installations, public-public/public-private initiatives, and identification and implementation of innovative measures to increase the military value of installations.

6.2.4 NORTH CAROLINA STATE UNIVERSITY GRADUATE CERTIFICATE IN MILITARY LAND SUSTAINABILITY

North Carolina State University offers a Graduate Certificate in Military Land Sustainability through its College of Natural Resources and Department of Forestry and Environmental Resources. This distance education program is intended "to develop professionals who can wisely manage natural resources on and around military bases to preserve natural resources and to maintain military readiness" (https://online-distance.ncsu.edu/program/graduate-certificate-in-military-land-sustainability/).

6.2.5 SOUTHEAST REGIONAL PARTNERSHIP FOR PLANNING AND SUSTAINABILITY (SERPPAS)

The Southeast Regional Partnership for Planning and Sustainability (SERPPAS) is a unique partnership of six states (North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi) and several federal agencies, including the DoD, working to conserve natural resources and agricultural lands and protect military installations from encroachment of incompatible land uses. SERPPAS focuses on

the relationship between conservation, communities, and military readiness. The partnership works to prevent encroachment around military lands, encourage compatible resource use decisions, and improve coordination among regions, states, communities, and military services.

6.3 NORTH CAROLINA LAND USE STATUTES

The following is an overview of the statutory authority available to the JLUS jurisdictions under the North Carolina General Statutes. The research focused on those authorities most relevant to the powers cities and counties would likely exercise related to military planning and implementation of the eventual JLUS recommendations.

6.31 OVERVIEW OF MUNICIPAL LAND USE AUTHORITIES

MUNICIPAL ZONING

Corporate powers of municipalities (cities, towns, and villages, all collectively referred to as "cities") in North Carolina are set forth in Chapter 160-A, Article 2, of the North Carolina General Statutes (N.C.G.S.). Article 2 vests cities with all those rights of a corporation and authorizes the powers and functions of city government to be exercised by a city council. Article 4 requires the city clerk to maintain, at all times, an official copy of a map and/or written description of the city's boundaries. This Article also sets forth certain requirements for those cities divided into electoral districts for purposes of electing city council members. Article 4A addresses annexation and provides methods for both voluntary and involuntary annexation. Additionally, the General Assembly is vested, by the State constitution, with the power to expand a city's corporate limits (North Carolina Constitution, Article VII, Section 1).

N.C.G.S. CHAPTER 160A, ARTICLE 19, PART 1

Chapter 160A, Article 19, of the General Statutes authorizes municipalities in North Carolina to regulate planning and development activities within their corporate limits. Part 1 of the statute authorizes a municipality to exercise the powers specified in Chapter 160A within an extraterritorial jurisdiction area (ETJ) extending not more than one mile beyond the municipality's corporate limits. Depending on the population of the municipality, its ETJ may be extended up to three miles beyond its corporate limits. Establishment of an ETJ requires approval of the board of commissioners of the county in which the ETJ is located. Municipalities may not exercise powers in an ETJ that are not also exercised elsewhere in the municipality. Section 160A-362 requires proportional representation of ETJ residents on a city's planning board and board of adjustment.

Section 160A-364 sets forth requirements for adopting, amending, or repealing ordinances, including a requirement to notify military installation commanders when any of the following changes are proposed within five (5) miles of the installation (see Figure 6.2 for the statutory notification area):

1. Changes to the zoning map;

2. Changes affecting permitted uses of land;
3. Changes related to telecommunication towers or windmills;
4. Changes to proposed new major subdivision preliminary plats; and
5. Increases by more than 50% in the total land area of an approved subdivision.

N.C.G.S. CHAPTER 160A, ARTICLE 19, PART 2

Part 2, Subdivision Regulation, provides a city the authority to regulate subdivision of land within its jurisdiction but does not require cities to adopt such regulations.

N.C.G.S. CHAPTER 160A, ARTICLE 19, PART 3

Part 3 authorizes cities to adopt zoning for the purpose of promoting the public health, safety, morals, or general welfare of the community. The statute authorizes use of a unified development ordinance (UDO) or separate ordinances. Areas of zoning powers include:

1. height, number of stories, and size of buildings and other structures;
2. the percentage of a lot that may be occupied;
3. the size of yards, courts, and other open spaces;
4. population density; and
5. the location and use of buildings, structures, and land.

Section § 160A-381(c) authorizes cities to establish boards of adjustment, but prohibits the board from allowing changes to permitted uses through the variance process, although special use permits or conditional use permits are authorized, in accordance with standards specified in a city's zoning ordinance.

Section 160A-381(e) authorizes cities to institute temporary moratoria on any development approval, only for the purpose of "developing and adopting new or amended plans or ordinances as to residential uses."

Section 160A-381 (h) prohibits cities from regulating building design elements as they relate to one- and two-family dwellings. The statute includes certain exemptions, such as design regulations related to flood protection requirements.

The statute sets forth provisions regarding zoning districts in § 160A-382. Cities are provided broad latitude to divide their jurisdictions into districts of varying purposes.

Section 160A-383 establishes the scope of city zoning authority. Cities do not have to adopt zoning regulations, but those choosing to zone must do so in accordance with an adopted comprehensive plan. This section also sets forth the public purposes for which zoning regulations may be enacted. The General Assembly recognizes the ability of manufactured housing to meet affordable housing

Figure 6.2: Statutory Land Use Notification Boundary

needs. As such, a city may not adopt regulations prohibiting manufactured homes from its entire zoning jurisdiction. N.C.G.S. § 160A-383.1. Cities are, however, authorized to regulate appearance and dimensional standards.

Agricultural uses are generally compatible with military operations, and North Carolina cities are authorized to encourage the continuation of such uses through special zoning regulations.

Section 160A-383.2 authorizes cities to adopt zoning regulations providing "flexibility to farming operations" located in a voluntary agricultural district. The statute identifies specific provisions cities may address, including on-farm sales, pick-your-own operations, road signs, agritourism, and other activities incidental to farming. Pursuant to § 106-738 (b), the purpose of voluntary agricultural districts is to "increase identity and pride in the agricultural community and its way of life and to increase protection from nuisance suits and other negative impacts on properly managed farms."

Sections 160A-384 and 160A-385 address procedural requirements concerning public notice and public comment. These requirements are in addition to those set forth in § 160A-364.

In § 160A-385.1, the General Assembly provides for the establishment of vested rights following approval by a city of a site-specific development plan. The statute recognizes that legally vested rights ensure reasonable certainty in the land use planning process and serve the public interest, and so establishes rights of a landowner for up to five years following certain development approvals.

Cities are required by § 160A-387 to create planning boards to serve in an advisory capacity to the city council. Planning boards are authorized to hold public hearings on zoning amendments, and subsequently provide non-binding recommendations to the city council.

N.C.G.S. CHAPTER 160A, ARTICLE 19, PART 3D

Part 3D, Development Agreements, authorizes city governments to enter into development agreements with developers, with limitations and provisions similar to those authorized for North Carolina counties, which are discussed above.

N.C.G.S. CHAPTER 160A, ARTICLE 19, PART 8

Part 8 establishes additional powers of cities in North Carolina. Section 160A-456 authorizes cities to participate in community development activities and programs, just as with N.C. counties.

Cities are authorized by §§ 160A-458 and 160A-459 to implement regulations concerning erosion, sedimentation, and stormwater control in accordance with N.C.G.S. 113A, Article 4, Sedimentation Pollution Control Act of 1973. This Article defines "land-disturbing activities" as any use of land resulting in a change to "the natural or topography and that may cause or contribute to sedimentation." N.C.G.S. § 113A-52(6).

N.C.G.S. CHAPTER 160A, ARTICLE 20

Article 20 addresses Interlocal Cooperation amongst units of local government. Part 1, Joint Exercise of Powers, authorizes cities, counties, and other units or agencies of local government to enter into agreements with each other and create joint agencies. The statute requires certain provisions to be contained within an agreement, but allows such agreement to involve any power or function of local governments authorized by North Carolina law.

Part 2 of Article 20 authorizes any two or more local governments to establish a regional council of governments. Procedures and requirements are the same as those for counties, enumerated in N.C.G.S. Chapter 160A, Article 20, Part 2. Regional councils of governments are similar in nature to regional planning commissions in that they provide recommendations to participating local governments and other stakeholders concerning issues of regional concern. Local governments establish a regional council of government by adopting concurrent resolutions; taken together, the resolutions are considered the operating charter of the regional council of government.

6.3.2 OVERVIEW OF COUNTY LAND USE AUTHORITIES

Corporate powers of counties in North Carolina are set forth in Chapter 153-A, Article 2, of the North Carolina General Statutes (N.C.G.S.). In addition, Article 6, Section 153A-121(a) authorizes a county, by ordinance, to "define, regulate, prohibit, or abate acts, omissions, or conditions detrimental to the health, safety, or welfare of its citizens and the peace and dignity of the county; and may define and abate nuisances."

N.C.G.S. CHAPTER 153A, ARTICLE 18, PART 1

North Carolina counties are authorized by Chapter 153-A, Article 18, of the N.C.G.S. to conduct land use planning and regulate development. Part 1, General Provisions, addresses several aspects of planning relevant to the JLUS, including:

1. Territorial jurisdiction (the ability to exercise powers throughout the county);
2. Permit choice;
3. Establishment of planning boards;
4. Supplemental powers related to contracts, funds, grants, and services related to financial or other planning assistance;
5. Procedures for adopting, amending, or repealing ordinances;
6. Ordinance enforcement; and
7. Authority to regulate building setbacks (also addressed in § 153A-340).

§ 153A-323 sets forth requirements for adopting, amending, or repealing ordinances, including a requirement to notify military installation commanders when any of the following changes are proposed within five (5) miles of the installation (see Figure 6.2 for the statutory notification area):

1. Changes to the zoning map;

2. Changes affecting permitted uses of land;
3. Changes related to telecommunication towers or windmills;
4. Changes to proposed new major subdivision preliminary plats; and
5. Increases by more than 50% in the total land area of an approved subdivision.

N.C.G.S. CHAPTER 153A, ARTICLE 18, PART 2

Part 2, Subdivision Regulation, provides a county the authority to regulate subdivision of land within its jurisdiction. This part does not require counties to regulate subdivisions, but sets forth certain requirements for those choosing to regulate.

N.C.G.S. CHAPTER 153A, ARTICLE 18, PART 3

Part 3, Zoning, authorizes a county to adopt zoning and development regulation ordinances for the purpose of "promoting health, safety, morals, or the general welfare." N.C.G.S. § 153A-340. The statute authorizes use of a unified development ordinance (UDO) or separate ordinances. Areas of zoning powers include:

1. height, number of stories, and size of buildings and other structures;
2. the percentage of a lot that may be occupied;
3. the size of yards, courts, and other open spaces;
4. population density; and
5. the location and use of buildings, structures, and land for trade, industry, residence, or other purposes.

The use of bona fide farms may be regulated only as provided in § 153A-340(b). This section allows a county to adopt zoning regulations governing swine farms over a certain size, but expressly provides such farms cannot be prohibited throughout the entire zoning jurisdiction. Counties are not, however, preempted from regulating use of farm property for non-farm use.

Section 153A-340(c) authorizes counties to establish boards of adjustment, but prohibits the board from allowing changes to permitted uses through the variance process. This section does, however, authorize use of special use permits or conditional use permits in accordance with standards specified in the zoning ordinance of a particular jurisdiction.

Section 153A-340(h) authorizes counties to institute temporary moratoria on any development approval, only for the purpose of "developing and adopting new or amended plans or ordinances as to residential uses."
Section 153A-340(j) preempts counties from prohibiting detached single-family residential uses on

lots greater than ten (10) acres in size located in a zoning district where more than 50% of the land is in agricultural or silvicultural use. This does not apply in commercial or industrial zoning districts allowing a wide variety of commercial or industrial uses. This section expressly prohibits counties from requiring lots greater than ten (10) acres in size to have frontage on a street or to be served by public utilities in order to be used for detached single-family residential purposes.

Section 153A-340(l) exempts one- and two-family dwellings from zoning requirements related to building design elements with exceptions provided in certain circumstances, such as when the dwelling is located in a designated historic district. "Building design elements" are defined as exterior building color; type or style of exterior cladding material; style or materials of roof structure or porches; exterior nonstructural ornamentation; location or architectural styling of windows and doors, including garage doors; the number and type of rooms; and the interior layout of rooms.

Section 153A-341 establishes the scope of county zoning authority. While the state statute does not require counties to enact zoning regulations, it does require any zoning regulation enacted to be in accordance with a comprehensive plan. Therefore, in any recommended zoning amendment, the planning board must consider the consistency of the proposed change with the comprehensive plan and any other relevant, adopted plan. This section also sets forth the public purposes for which zoning regulations may be enacted, including "to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to lessen congestion in the streets; to secure safety from fire, panic, and dangers; and to facilitate the efficient and adequate provision of transportation, water, sewerage, schools, parks, and other public requirements." N.C.G.S. § 153A-341.

Section 153A-341.1 adopts, by reference, the provisions of § 160A-383.1, which addresses manufactured housing. A county shall not prohibit manufactured housing throughout its zoning jurisdiction, but may adopt standards regulating appearance and dimensional standards. Any applicable regulations must be designed to protect property values; neighborhood character; and public health, safety, and welfare.

Section 153A-344 authorizes a county to establish a planning board, whose role is to prepare or review zoning ordinances and amendments thereto, including zoning map amendments. A recommendation from the planning board is required prior to final action on a zoning ordinance by the governing authority; however, the governing body is not bound by the recommendation of the planning board.

Section 153A-344.1 establishes regulations concerning vested rights. The statute recognizes

legally vested rights ensure reasonable certainty in the land use planning process and serve the public interest, and so establishes provisions for the rights of a landowner following certain county development approvals.

N.C.G.S. CHAPTER 153A, ARTICLE 18, PART 3A

Part 3A, Development Agreements, authorizes county governments to enter into development agreements with property owners. These agreements are useful planning and zoning tools, as they provide predictability to local residents, elected officials, and landowners/developers.

N.C.G.S. CHAPTER 153A, ARTICLE 18, PART 5

Part 5, Community Development, authorizes counties to "engage in, to accept federal and State grants and loans for, and to appropriate and expend funds for community development programs and activities." N.C.G.S. § 153A-376(a).

N.C.G.S. CHAPTER 153A, ARTICLE 19

Article 19 authorizes creation of regional planning commissions and regional planning and economic development commissions. These "joint commissions" can include two or more cities, counties, or a combination of city(ies) and county(ies).

N.C.G.S. CHAPTER 153A, ARTICLE 23

N.C.G.S. § 153A-445 provides that counties may take certain actions authorized under N.C.G.S. Chapter 160A, which provides statutory authority for planning and zoning to cities. This section expressly authorizes counties to take action under Chapter 160A, Article 20, Part 1. – Joint Exercise of Powers, and Chapter 160A, Article 20, Part 2. – Regional Councils of Governments.

Chapter 160A, Article 20, Part 1 authorizes units of local government to enter into contracts or agreements with each other and establish joint agencies. The statute requires certain provisions to be contained within a contract or agreement, and allows such agreements to involve any power or function of local government authorized by North Carolina law.

Chapter 160A, Article 20, Part 2 authorizes any two or more local governments to establish a regional council of governments. The concurrent resolutions adopted by the local governments are considered the "charter" of the regional council of government, and the statute specifies the required content of such charter. Regional councils of government are similar in purpose and function to regional planning commissions.

6.3.3 MILITARY-RELATED STATUTES

Indicating the widespread support for the military in the state, the North Carolina General Statutes include a number of statutes related to the military. This section includes a discussion of those statutes relevant to the JLUS and its subsequent implementation.

MILITARY LANDS PROTECTION ACT OF 2013

The North Carolina General Statutes establish the Military Lands Protection Act of 2013 in §§ 143-151.70 through 143-151.77. Under these provisions, no county or city may authorize construction of a "tall building or structure" (those 200 feet or more in height) within the five (5) mile area surrounding a major military installation without approval from the State Construction Office. The statute includes Military Ocean Terminal at Sunny Point in its definition of major military installations. Also, cities and counties may not authorize provision of utility services for a building or structure constructed in violation of the Act.

The statute expressly exempts certain structures, including wind energy facilities (due to the extensive siting requirements contained in § 143-215.115 et seq.), temporary telecommunications towers erected after declared disaster, and structures listed either individually or as contributing resources within a National Register of Historic Places historic district.

PERMITTING OF WIND ENERGY FACILITIES

N.C.G.S. §§ 143-215.115 through 143-215.126 sets forth extensive requirements concerning permitting of wind energy facilities. The Department of Environmental Quality (DEQ) is charged with administering these requirements. This statute requires analysis of the potential impact on military and natural resources (including endangered and threatened species) very early in the application process and annual coordination between the DEQ and major military installations in the state.

In 2017, the North Carolina General Assembly passed Session Law 2017-92 (House Bill 589), which amended a number of statutes related to renewable energy. Of relevance to the JLUS is the law's moratorium on the issuance of permits for new wind energy facilities and expansion of existing facilities from January 1, 2017 through December 31, 2018. The purpose of the moratorium was to provide time to study the impact of such facilities on the military. This study was due by May 31, 2018.

COORDINATION BETWEEN COUNTIES AND MILITARY INSTALLATIONS CONCERNING LAND USE CHANGES

N.C.G.S. § 153A-323(b) requires coordination between counties and the military regarding land use proposals impacting property located within five (5) miles of the perimeter boundary of a military installation. Counties must provide written notice to the base commander (or his/her designee) when any of the following types of changes are proposed:

1. Changes to the zoning map;

2. Changes affecting permitted uses of land;
3. Changes related to telecommunication towers or windmills;
4. Changes to proposed new major subdivision preliminary plats; and
5. Increases by more than 50% in the total land area of an approved subdivision.

COORDINATION BETWEEN CITIES AND MILITARY INSTALLATIONS CONCERNING LAND USE CHANGES

N.C.G.S. § 160A-364(b) includes the same language as § 153A-323(b) regarding coordination with the military. Pursuant to § 160A-364(b), cities are also required to provide written notice to the base commander (or his/her designee) when the specified types of land use changes are proposed within five (5) miles of the installation.

6.3.4 OTHER RELEVANT STATE STATUTES

WIRELESS COMMUNICATIONS INFRASTRUCTURE SITING

N.C.G.S. § 160A-400.54 classifies "small wireless facilities" as permitted uses and preempts cities from regulating them when collocated in a city ROW, or outside a city ROW on any property other than that zoned exclusively for single-family residential use. Counties, however, are not preempted by the statute from regulating small wireless facilities.

Small cell facilities are generally more compatible with military training and operations than typical telecommunication towers, which often exceed 200 feet in height and can present obstructions to aircraft.

COASTAL AREA MANAGEMENT ACT

N.C.G.S. § 113A-100, et seq., establish the State's Coastal Area Management Act of 1974 (as amended), a "cooperative program of coastal area management between local and State governments" (N.C.G.S. § 113A-101). The Legislature determined that North Carolina's coastal lands and waters are among the State's most valuable resources, and found a need to comprehensively plan for and protect these areas.

Pursuant to Coastal Area Management Act (CAMA) requirements, the State identifies areas of environmental concern and local governments plan for these areas. The CAMA mandates that each of the twenty counties within the coastal area develop and adopt a land use plan that is consistent with State guidelines. Local (i.e., county and city) regulations and ordinances then must be consistent with the applicable county land use plan. Further, N.C.G.S. § 113A-111 expressly prohibits the issuance of permits for development in areas of environmental concern that is inconsistent with the adopted CAMA land use plan.

The General Assembly created the North Carolina Coastal Resources Commission (CRC) in

conjunction with the CAMA. The CRC designates areas of environmental concern; establishes policies and rules associated with coastal area management, CAMA, and the North Carolina Dredge and Fill Act; and certifies coastal county land use plans. Once certified, the plans are used by the North Carolina Department of Environmental Quality's Division of Coastal Management in the CAMA permit decision-making process.

The CRC and Division of Coastal Management provide CAMA land use planning guidelines as well as a technical manual for preparing land use plans (see: https://deq.nc.gov/about/divisions/coastal-management/coastal-management-land-use-planning/land-use-plan-policies).

6.4 LOCAL GOVERNMENT PLANS AND ORDINANCES

As part of the study, the Advisory and Policy Committees reviewed existing local government legislation and land use plans in order to fully understand how land use compatibility between civilian land uses and operations at Military Ocean Terminal Sunny Point ("MOTSU") are currently addressed by each local jurisdiction in the JLUS Study Area (the "JLUS Jurisdictions"). This effort has included, for each participating municipality and county, a review of local zoning ordinances, subdivision regulations, and land use plans.

In addition, this section provides an overview of existing easements, leases, licenses, and other agreements between MOTSU and some of the JLUS Jurisdictions. The agreements involve a variety of issues including, for example, use of land in the ESCZ located on Pleasure Island and road crossings over the MOTSU rail line.

6.4.1 OVERVIEW

In an effort to provide a general overview, a table was created to provide an overview of local regulations and land use plans within the region. In Table 6-1 the status of local land use ordinances and plans is identified to the extent to which or whether each local government has addressed military compatibility in their land use plans or regulatory codes. As indicated in Table 6-1, all JLUS Jurisdictions have comprehensive land use plans and zoning and subdivision regulations. Three of the seven JLUS jurisdictions utilize a Unified Development Ordinance (UDO), which consolidates zoning and subdivision regulations. None of the JLUS jurisdictions have a military overlay zoning district.

However, Brunswick County and Carolina Beach have adopted the state requirements for military coordination, under GS 153A-323 and GS 160A-364, respectively. Only one JLUS jurisdiction (Kure Beach) has explicit land use plan policies restricting the use of land in the vicinity of MOTSU. The following sections detail the information summarized in Table 6-1.

Table 6-1

		Brunswick County				New Hanover County		
		County	Boiling Spring Lakes	Leland	Southport	County	Carolina Beach	Kure Beach
Comprehensive Planning	Jurisdictional Land Use Planning	YES	YES	YES	YES	YES	YES	YES
	Military-Related Plan Policies[1]	YES - BACKGROUND	YES - BACKGROUND	NO	YES - BACKGROUND	NO	YES - BACKGROUND	YES - LIMITATIONS
Zoning	Jurisdictional Zoning	YES	YES	YES	YES	YES	YES	YES
	Overlay Zoning Districts	YES	NO[7]	NO	YES	YES	YES	YES
	"Military Zoning Land Use Limitations[2]"	NO	NO	NO	NO	NO	NO	NO
Subdivision	Jurisdictional Subdivision Regulations	YES (UDO)	YES (UDO)	YES	YES (UDO)	YES	YES	YES
	Military-Related Subdivision Regulations[2]	NO	NO	NO	NO	NO	NO	NO
NC Military Statutes	"Formal Land Use Coordination Protocol[3]"	YES	NO	NO	NO	NO	YES	NO
	Tall Structures Coordination Protocol[4]	NO	NO	NO	NO	NO	NO	NO
	Wind Energy Facility Coordination Protocol[5]	NO	NO	NO	NO	NO	NO	NO
Other	Extraterritorial Jurisdiction (per N.C.G.S. 160A-360)	N/A	NO	NO	YES	N/A	YES	YES
	Disclosures Required[6]	"YES - STREETS ONLY"	NO	"YES - STREETS ONLY"	YES - PLAT CERTIFICATES (INCLUDING STREETS)	YES - PLAT CERTIFICATES (INCLUDING STREETS)	YES - PLAT CERTIFICATES (INCLUDING STREETS)	"YES - STREETS ONLY"

1. Describes the extent to which the Plan addresses MOTSU's presence; whether as "Background" data only; "General" land use policies/coordination; or "Limitations" on land use to encourage/require compatibility with MOTSU.
2. Whether regulations have been adopted which prohibit land uses incompatible with military operations at MOTSU.
3. Whether a formal mechanism for coordinating with MOTSU on land use matters has been adopted through zoning, subdivision, intergovernmental/joint powers agreement, or other (pursuant to N.C.G.S. 153A-323 for counties, N.C.G.S. 160A-364 for municipalities).
4. Whether a formal mechanism for coordinating with MOTSU on Tall Structures has been adopted through zoning or subdivision regulations (pursuant to N.C.G.S. 143-151.70 et seq.).
5. Whether a formal mechanism for coordinating with MOTSU on Siting of Wind Energy Facilities has been adopted through zoning or subdivision regulations (pursuant to N.C.G.S. 143-215.115 et seq.).
6. Whether zoning or subdivision regulations require disclosures (e.g., through real estate transactions, notes on plans/plats, etc.) of certain property characteristics or location. N.C.G.S. 136-102.6 requires disclosure of subdivision street maintenance responsibility.
7. UDO authorizes use of and defines Overlay Districts; however, UDO Section 5.4 Overlay Districts is "[r]eserved for future use."

BRUNSWICK COUNTY

Land Use Plan

While the Brunswick County CAMA Core Land Use Plan (2011 update) does not include policies expressly limiting land use in the vicinity of MOTSU, the plan recognizes the proximity of urbanized areas to MOTSU, Progress Energy, and the proposed [as of 2011] International Port as a "significant land use conflict" that should be closely monitored by emergency response personnel (Section 5. Analysis of Existing and Emerging Conditions, III. Analysis of Land Use and Development, p. 95). In addition, the Future Land Use Plan includes a "Military" land use designation, used to recognize military installations in Brunswick County.

Brunswick County's Comprehensive Wastewater Master Plan (Appendix XIII to the Land Use Plan) notes the County purchased an approximately 600-acre site near MOTSU for the purpose of constructing a regional wastewater facility. However, on-site wetlands and the presence of MOTSU's blast zone limit use of the property – most likely to just the water reclamation treatment facilities, with storage and other elements located off-site.

The Land Use Plan identifies man-made hazards and other restrictions that potentially could affect the county, including shipment of explosives along the Cape Fear River to MOTSU and the "'blast zone along the railroad line servicing the terminal" (Section 5. Analysis of Existing and Emerging Conditions, II. Natural Systems Analysis, p. 5-32). The plan also notes a location on MOTSU is listed in the North Carolina Division of Waste Management's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) as a hazardous waste site (Section 5. Analysis of Existing and Emerging Conditions, III. Analysis of Land Use and Development, p. 5-97).

Zoning & Subdivision Regulations

The Brunswick County Unified Development Ordinance (UDO) includes two Special Purpose Base [zoning] Districts with particular relevance to the JLUS – MI, Military Installation; and CP, Conservation and Protection.

The MI District requires formal land use coordination between the County and MOTSU, pursuant to N.C.G.S. § 153A-323, and encourages Brunswick County and the federal government (i.e., DoD) to "establish a coordinated planning process to achieve both federal and local benefits, to minimize development impacts, and to help meet the objectives and policies of the Land Use Plan…" (Brunswick County UDO, Section 4.7.2.C.). MOTSU is zoned MI District.

The CP District is intended to protect environmentally sensitive and historically significant lands. Uses are limited to agriculture, parks and open space, and very limited low density residential uses

(Brunswick County UDO, Section 4.7.1.A.). These types of uses generally are compatible with military installations.

A portion of Orton Plantation bordering the northeastern edge of MOTSU is zoned CP District. Other zoning designations abutting MOTSU include the Rural Low Density Residential (RR) district and the Industrial-General (I-G) district.

The UDO includes protocol for formal coordination between the County and MOTSU on land use matters, as required by N.C.G.S. § 153A-323. These requirements for formal coordination with MOTSU are established in the following sections:

- Special Use Permits (Section 3.5.9.);
- Ordinance Text Amendments (Section 3.7.5.);
- MI District regulations (Section 4.7.2. C.; see above); and
- Public Notice Requirements (Section 9.1. B. 3.).

The UDO expressly permits renewable energy infrastructure (solar and wind) as permitted principal and accessory uses. However, the UDO does not include the statutory requirement for coordination with MOTSU on the siting of wind energy facilities, as required by N.C.G.S. Chapter 143, Article 21C (§§ 143-215.115 through 143-215.126). This statute applies to "major military installations," expressly including MOTSU.

The UDO also does not include the statutory requirement for coordination with MOTSU on tall structures (those structures exceeding 200 feet in height), required by the Military Lands Protection Act of 2013 (N.C.G.S. §§ 143-151.70 through 143-151.77).

Easements, Leases, Licenses, and Other Agreements with MOTSU

The Brunswick County Board of Commissioners has easements with MOTSU for waterlines and associated structures.

BOILING SPRING LAKES

Land Use Plan

The City of Boiling Spring Lakes Comprehensive Land Use Plan recognizes the economic and community impact of MOTSU, noting the installation provides more than 250 jobs to the region and many City residents may be civilian employees of MOTSU (Chapter 2: Community Profile, pp. 2-7 to 2-8). The plan includes a brief description of the rail line running from Leland to MOTSU (Chapter

5: Analysis of Community Facilities, pp. 5-6), but does not include policies related to land use in the vicinity of the installation.

Zoning & Subdivision Regulations

The City's Unified Development Ordinance does not include military-related regulations, or the statutory protocol for formal coordination with MOTSU on matters related to land use, wind energy facilities, or tall structures.

The City does not exercise extraterritorial zoning jurisdiction.

Easements, Leases, Licenses, and Other Agreements with MOTSU

The City of Boiling Spring Lakes has three agreements with MOTSU, all of which involve crossings of the MOTSU railroad line by water lines, sewer lines, and/or roads.

LELAND

Land Use Plan

The Leland 2020 Master Plan (2016 Update) does not address MOTSU. Rail lines located throughout the community are shown on various maps in the plan, though the rail line running to MOTSU is not identified as military-related.

Zoning & Subdivision Regulations

The Town's municipal limits are located several miles from MOTSU, though the rail interchange yard (owned by the Army) is located on an unincorporated parcel in Leland. Much of the rail line between Highway 17 and Town Creek abuts land located within the incorporated Town limits. The Town does not exercise extraterritorial planning jurisdiction.

Neither the Zoning Ordinance nor the Subdivision Regulations include the statutory requirements for formal coordination with MOTSU on matters related to land use, tall structures, or wind energy facilities.

The Town of Leland's Subdivision Regulations require subdivision street disclosures in accordance with N.C.G.S. § 136-102.6.

Easements, Leases, Licenses, and Other Agreements with MOTSU

The Town of Leland Fire Department has a mutual aid agreement with MOTSU. In addition, the Leland Sanitary District has an agreement related to a waterline and associated structure.

SOUTHPORT

Land Use Plan

The City of Southport CAMA Core Land Use Plan (2014) identifies MOTSU and its blast zone as a potential hazard (Section 5. Analysis of Existing and Emerging Conditions, B. Natural Systems Analysis, p. 44). The plan also recognizes the mutual aid agreement between the Southport Fire Department and Rescue Squad and the MOTSU Fire Department and Emergency Medical Services (Section 5. Analysis of Existing and Emerging Conditions, D. Analysis of Existing Community Facilities/Services, p. 81).

Zoning & Subdivision Regulations

Southport's Unified Development Ordinance (UDO) does not include military-related regulations or protocol for coordination with MOTSU.

The City exercises extraterritorial planning jurisdiction.

The UDO requires plat certificates, including a flood hazard area disclosure statement (City of Southport UDO, Section 25.7(C)) and a subdivision street disclosure (City of Southport UDO, Section 25-11(E)), in accordance with state statute.

Easements, Leases, Licenses, and Other Agreements with MOTSU

The City of Southport has a mutual aid agreement with MOTSU for law enforcement, fire services, and canine training.

NEW HANOVER COUNTY

Land Use Plan

Plan NHC, New Hanover County's 2016 Comprehensive Plan, does not address MOTSU. The plan notes that military aircraft use Wilmington International Airport (ILM), specifically mentioning Camp Lejeune, [Marine Corps] Air Station Cherry Point, the "presidential fleet;" and Coast Guard aircraft (Chapter 2: Existing Conditions, p. 30).

Zoning & Subdivision Regulations

The New Hanover County (NHC) Zoning Ordinance includes airport-related regulations, but does not include regulations related to military installations. Unincorporated portions of New Hanover County are located between the Cape Fear River and the Towns of Carolina Beach and Kure

Beach (within the MOTSU ESCZ); however, these areas fall within the Towns' extraterritorial planning jurisdiction (ETJ). Thus, the County's development regulations do not apply.

The Zoning Ordinance regulates "electricity generating facilities," the definition of which includes both solar and wind energy facilities. However, for purposes of the Table of Permitted Uses, solar farms are considered a separate use from other electricity generating facilities. The ordinance does not reference the statutory requirement for coordination with military installations on wind energy facilities or other tall structures.

The County's Subdivision Regulations require plat certificates, including subdivision street disclosures in accordance with N.C.G.S. § 136-102.6 and "planned thoroughfare disclosure[s]" (NHC Zoning Ordinance, Section 66).

Easements, Leases, Licenses, and Other Agreements with MOTSU

New Hanover County does not have easements, leases, licenses, or other agreements with MOTSU.

CAROLINA BEACH

Land Use Plan

At the time of the JLUS, the Town of Carolina Beach was in the process of updating its land use plan. Adoption of the new plan was anticipated to occur in May 2019. This section reviews the Town's CAMA Land Use Plan last amended in 2008.

The plan recognizes MOTSU as a potential hazard and land use conflict (p. 48). The MOTSU ESCZ is located within the Town's ETJ and abuts the corporate limits. The plan does not include specific policies limiting land use in or adjacent to the ESCZ, but notes the ESCZ is mostly zoned as a Conservation District. The plan also notes that a municipal wastewater treatment plant and an inactive landfill (monitored by the NC Division of Waste Management, Inactive Hazardous Waste Sites Branch) are located in the MOTSU ESCZ (Section 3. Analysis of Trends and Emerging Conditions, 3.3.2 Land Use Conflicts and Land Use and Water Quality Conflicts, p. 49).

The plan states the Town Council "recently [as of 2008] approved an easement on MOTSU ESCZ land to build a nearly 3 acre detention pond to serve the existing Carolina Sands development and any new development that occurs in that area" (Section 3. Analysis of Trends and Emerging Conditions, 3.4.2 Stormwater Systems, p. 60). This easement on federally-owned land associated with the MOTSU ESCZ was granted by the Army in 2009.

Zoning & Subdivision Regulations

The Carolina Beach Zoning Ordinance includes protocol for formal coordination with MOTSU on land use matters (Carolina Beach Zoning Ordinance, Section 40-522), as required by state statute.

The Town regulates wireless telecommunication towers and facilities, but the regulations do not include the requirement to coordinate with major military installations pursuant to the State's Military Lands Protection Act of 2013 (N.C.G.S. §§ 143-151.70 through 143-151.77).

The ordinance does not regulate renewable energy facilities, and so does not include the state requirement to coordinate with military installations on the siting of wind energy facilities.

The Town exercises extraterritorial planning jurisdiction (ETJ), which allows it to apply its development regulations in areas outside the Town's corporate limits. Portions of the MOTSU ESCZ are located within the Town's ETJ, and are zoned as a Conservation District. The Conservation District allows limited types of public uses, such as museums and parking lots, as well as low density single-family homes and related accessory uses.

The Town's Subdivision Regulations require plat certificates, including the subdivision street disclosures required by state law.

Easements, Leases, Licenses, and Other Agreements with MOTSU

As noted above, the Town of Carolina Beach ETJ includes portions of the MOTSU ESCZ located on Pleasure Island. The Town has several agreements with MOTSU related to use of the ESCZ, including for water and wastewater facilities, stormwater facilities, public recreation, and a bicycle path. The Town and MOTSU also have a mutual aid agreement for fire protection.

KURE BEACH

Land Use Plan

The Town of Kure Beach Land Use Plan 2006 (last amended in 2007) notes the Town's desire for the MOTSU ESCZ to remain in a natural state, with Town Public Works facilities as the only allowable use (Executive Summary, p. 1). The plan explicitly establishes the Town's policy "to support the federal government's policy of keeping (the MOTSU ESCZ) this area in its natural state" (Part II, Section 2: Policies for Growth & Development, p. 101). Kure Beach is the only JLUS Jurisdiction with specific comprehensive plan policies limiting land use in the vicinity of MOTSU.

The plan recognizes that the MOTSU buffer area offers benefits, including helping to protect the town from riverine flooding and limiting the potential negative effect of development in Kure Beach on local water quality (Part I, Section 3: Natural Systems Analysis, pp. 51-52 and 61-62).

The Future Land Use Plan includes a Federal Conservation land use designation for the MOTSU ESCZ. The plan requires development in this area to be consistent with the Land Use Plan policies (Part II, Section 3: Future Land Use, pp. 128-129).

Zoning & Subdivision Regulations

The Kure Beach Zoning Ordinance does not include military-related regulations. According to the Town zoning map (available: http://www.townofkurebeach.org/zoning-map.aspx), the MOTSU buffer area is located within the Town's ETJ but is unzoned.

The ordinance allows solar panels as an accessory use in any district (Kure Beach Zoning Ordinance, Section 19-341), but otherwise does not regulate renewable energy facilities.

The Town's Subdivision Regulations require subdivision street disclosures, in accordance with N.C.G.S. § 136-102.6.

Easements, Leases, Licenses, and Other Agreements with MOTSU

As noted above, the Town of Kure Beach ETJ includes portions of the MOTSU ESCZ. Like Carolina Beach, the Town has three agreements with MOTSU related to use of the ESCZ, including:

- A lease to operate a wastewater treatment facility (lagoon) on approximately 6.44 acres of land;
- A license to operate a public recreational facility (Joe Eakes Park), a water well, and a storage facility on approximately 28.5 acres of land; and
- A license to operate a water well and maintain an elevated water tank on approximately 2.7 acres of land.

The Town and MOTSU also have mutual aid agreements for emergency response.

SECTION 7: RECOMMENDATIONS

This section provides recommendations that, if implemented, will help to ensure the long-term sustainability of the mission at Military Ocean Terminal Sunny Point as the region's communities continue to grow and prosper, while also fostering a cooperative relationship between MOTSU and its host communities.

7.1 OVERVIEW

In order to achieve the goals established at the beginning of the Joint Land Use Study process, a comprehensive list of recommendations was prepared for the consideration of, and voluntary implementation by, local governments in the region. Each community will determine how it will move forward with the study's recommendations based on their particular needs and local compatibility factors. In support of the recommendations, Section 7.3 outlines an implementation plan with community-specific strategies to provide guidance on how the recommendations can be implemented by the study partners.

7.2 RECOMMENDATIONS

A broad range of recommendations were developed for consideration by local governments in the region. The recommendations were organized into five categories as outlined below.

- Coordination (C)
- Land Use/Zoning (LU)
- Public Safety (PS)
- Transportation (T)
- Pleasure Island ESCZ (PIE)

Note: when the term "local governments" is used in the recommendations, it is generally applicable to each of the JLUS partner communities (including those communities within the 5 mile notification area who will be invited to participate), unless otherwise specified or modified by reference to a particular geography.

7.2.1 Coordination Recommendations (C)

C-1: THE LOCAL GOVERNMENTS AND MOTSU SHOULD ESTABLISH AN ENDURING REGIONAL ORGANIZATION TO SERVE AS A FORUM AND ADVOCACY GROUP FOR JOINT CIVIL-MILITARY RELATIONS BETWEEN MOTSU AND ITS HOST COMMUNITIES.

A: Hold annual command briefings and new elected official orientations (including installation tours) to keep governing boards informed of MOTSU activities. Ensure that state and federal

legislative delegates, as well as agency representatives, are invited to participate in these activities.

B: Hold semi-annual staff level coordination meetings to help establish and maintain relationships between senior administrative staff leaders of MOTSU, local governments and related agencies.

C: Establish a permanent web presence for the organization to serve as a clearinghouse for MOTSU related public information.

D: Establish a staff level public safety committee composed of emergency managers and first responders from local, state, and federal agencies to enhance coordination and provide a forum to discuss matters of mutual concern.

E: The organization should reach out to other jurisdictions within the 5 mile land use notification area and along the southern portion of the Cape Fear shipping channel to give other local governments the opportunity to participate in the organization and help to educate administrative staff and elected officials about MOTSU.

Justification: For the JLUS to be successful, it must be supported by an enduring organization that transcends the study and provides a forum for communication and vehicle for interaction between all of the participating entities. Implementing the study's recommendations will require a concerted effort by all of the JLUS partners that will last well beyond the conclusion of the study, By establishing a formal partnership, preferably with some level of dedicated administrative staffing, implementation efforts will likely be more successful over the long term. This central point of collaboration will be critical to ensuring that there is continuity during times of leadership transition; helping to ensure that the critical tasks related to coordination are completed on a regular basis.

C-2: MOTSU SHOULD ESTABLISH A CLEAR AND CONSISTENT POINT OF CONTACT (DEFINED STAFF POSITION) TO RECEIVE, DISTRIBUTE, AND RESPOND TO LAND USE NOTICES. RESPONSES SHOULD BE PROVIDED FOR ALL NOTICES THAT ARE RECEIVED.

Justification: It was noted during the stakeholder interview process that local government employees were unclear as to who to contact at MOTSU when land use issues arose that required coordination with the installation. Those jurisdictions that have been following the statutory requirement for providing notice of certain land use related matters have also noted that responses to their notices were rarely acknowledged. While a substantial portion of the previously provided notices likely did not present a compatibility concern, the lack of a response, even to confirm receipt and state no issues were identified, diminishes the importance of the notification. Ensuring that local government

officials know who to provide notice to, and ensuring that a response is given in every case will help to reinforce the collaborative nature of the relationship between MOTSU and its partners.

C-3: LOCAL GOVERNMENTS SHOULD ADOPT POLICIES THROUGH THEIR LAND USE ORDINANCES TO REQUIRE NOTIFICATION OF STATUTORILY REQUIRED ACTIONS (AS WELL AS ANY LOCAL MODIFICATIONS) WITHIN 5 MILES OF THE MOTSU RAIL CORRIDOR, IN ADDITION TO THE MAIN TERMINAL, INTERCHANGE YARD, AND PLEASURE ISLAND ESCZ.

Justification: While the relevant statute is clear as to the applicability of the 5-mile notification area with regard to those portions of the installation that the Army has fee-simple ownership of, it is not clear as to whether the statute would require notice to be provided along the rail corridor since a majority of the line is within an easement. By applying the same notice provisions to the rail line, local governments will enhance MOTSU's situational awareness with regard to pending development activity and remove any uncertainty about when and where notice is required. Given the recommendation for MOTSU to pursue full ownership of the rail corridor, it is also possible that this would at some point fall within the clear statutory definition of a military installation, and thus begin to legally require that notices be provided. Initiating this step ahead of such a change will help to ensure that the communities are compliant with the statutory mandate from the outset if this occurs.

C-4: LOCAL GOVERNMENTS SHOULD CONSIDER ADOPTING POLICIES TO EXPAND THE TYPES OF ACTIONS / DECISIONS THAT ARE COVERED BY NOTICE TO MOTSU WITHIN THE 5 MILE NOTIFICATION AREAS DUE TO LACK OF CLARITY / RELEVANCE IN THE MILITARY LAND USE NOTIFICATION STATUTES. EXAMPLES INCLUDE:

A: All proposed subdivisions to ensure that MOTSU is aware of pending development activity. (primary relevance is the rail corridor).

B: Tall structures (exceeding 5 stories or 50 feet), other than telecom towers to ensure that technical input can be provided to mitigate potential explosive safety hazards to such structures.

C: Permits for assembly occupancies, or other uses that present a potential evacuation issue, such as schools, daycares, nursing homes, and churches. (primary relevance is the rail corridor).

Justification: The range of land use related actions that trigger notification to military installations do not necessarily cover the full spectrum of issues that may lead to future compatibility concern. Expanding those items that would trigger a notice to MOTSU to include a wider range of land use activities would enhance the installation's situational awareness and help to prompt proactive coordination on matters of local importance (based on the unique compatibility concerns of

an ammunition terminal). This, in turn, would help to foster a more compatible and sustainable operational environment for MOTSU's mission.

C-5: THE WILMINGTON MPO SHOULD EXPAND THE MEMBERSHIP OF ITS TECHNICAL COORDINATING COMMITTEE (TCC) TO INCLUDE A REPRESENTATIVE FROM MOTSU, WHO SHOULD ATTEND ALL WMPO MEETINGS.

Justification: Although the primary operation portion of MOTSU is located outside of the formal boundary of the Wilmington MPO, portions of the installation, including the Leland interchange yard and the Pleasure Island ESCZ, fall within the MPO's planning area boundary. Furthermore, critical components of the region's transportation infrastructure that serve the installation fall within the MPO's boundary. As an entity that has similar stature to the NC State Port or any of the largest industries in Wilmington's urbanized area, it is critical that MOTSU has a seat at the table, even in an advisory capacity, to ensure that its mission-critical transportation needs are taken into consideration as regional transportation plans and funding recommendations are made by the MPO.

C-6: LOCAL GOVERNMENTS SHOULD INVITE MOTSU REPRESENTATIVES TO PARTICIPATE ON STEERING / ADVISORY COMMITTEES FOR LOCAL COMPREHENSIVE / LAND USE PLANNING PROJECTS, AND MOTSU STAFF SHOULD PARTICIPATE IN MEETINGS OF THOSE COMMITTEES.

Justification: As with any stakeholder, it is important that MOTSU have an opportunity to participate in local government planning projects, particularly given the mission compatibility and public safety concerns that could arise from a planning effort that did not adequately consider the possibility of such impacts. By involving MOTSU in local government planning efforts, issues of mutual concern and benefit can be identified early in the process, and plans can be shaped in a manner that mitigates compatibility issues and exploits opportunities to achieve mutually beneficial goals.

C-7: MOTSU SHOULD MAKE SUBJECT MATTER EXPERTS AVAILABLE, AS REQUESTED AND AS AVAILABLE, FOR LOCAL GOVERNMENTS TO USE AS A RESOURCE ON MATTERS OF MUTUAL RELEVANCE.

Justification: When local governments encounter technical issues related to mission compatibility or public safety that fall outside of their expertise, MOTSU can be of significant assistance in providing subject matter expertise to help ensure that well-informed decisions are being made. This can extend to other matters, such as stormwater management, transportation issues, and other matters of mutual concern or relevance that may arise.

C-8: MOTSU AND ITS LOCAL GOVERNMENT PARTNERS SHOULD JOINTLY DEVELOP PUBLIC OUTREACH MATERIALS (DIGITAL, PRINT, ETC.) THAT EXPLAIN THE MOTSU MISSION AND THE VARIOUS LAND USE, PUBLIC SAFETY, AND

OTHER CONCERNS AND RULES (E.G. ESCZ TRESPASSING, CAPE FEAR RIVER RESTRICTED AREA), AND MAKE THESE MATERIALS AVAILABLE THROUGH A WEB PORTAL AND IN LOCAL GOVERNMENT OFFICES.

Justification: As the JLUS moves into its implementation phase, there is a significant opportunity to maintain an open dialogue with the public about MOTSU and its mission. By jointly developing public outreach materials, all of the entities involved in the process will have the opportunity to contribute to this dialogue and ensure that there is cohesive messaging between the installation and its local government partners.

C-9: MOTSU AND THE REGION AS A WHOLE SHOULD PARTICIPATE IN, AND SEEK REPRESENTATION ON, STATEWIDE MILITARY ADVOCACY ORGANIZATIONS SUCH AS THE MILITARY COMMANDERS COUNCIL AND THE MILITARY AFFAIRS COMMISSION.

Justification: In order for MOTSU and its host communities to effectively advocate for their needs at the state level, it is critical that they engage with established military advocacy organizations. The NC Military Commanders Council provides a forum for installation commanders to present their needs and concerns to the NC Department of Military and Veterans Affairs, while the NC Military Affairs Commission serves as an advisory board to the Secretary, and advocates for the needs of military installation, servicemen, and their families. Participation in these organizations will help to ensure that MOTSU and its host communities are at the table as important legislation and state programs are discussed, and could provide opportunities to obtain funding to assist with JLUS implementation efforts.

C-10: ONCE ESTABLISHED, MOTSU SHOULD COMMUNICATE THE NEW PROCEDURE FOR REQUESTING REAL ESTATE AGREEMENTS / OUTGRANTS ON INSTALLATION PROPERTY TO THE STANDING COORDINATING COMMITTEE.

Justification: The lack of clarity in how communities submitted real estate agreement / outgrant requests to MOTSU was an underlying reason and impetus for conducting the Joint Land Use Study. Real estate agreement request procedures are now in flux due to Army policy changes. Providing the new procedure to the communities, once established, will help improve transparency and enhance communication between MOTSU and its host communities.

7.2.2 Land Use / Zoning (LU)

LU-1: LOCAL GOVERNMENTS SHOULD CONSIDER IMPLEMENTING ZONING REGULATIONS ALONG THE MOTSU – LELAND RAIL CORRIDOR AND AROUND THE INTERCHANGE YARD TO LIMIT THE DENSITY AND INTENSITY OF RESIDENTIAL DEVELOPMENT AND RESTRICT USES THAT ARE INCOMPATIBLE WITH THE POTENTIAL NEED TO EVACUATE IN CASE OF AN EMERGENCY SITUATION.

Justification: As noted in the study, there are significant emergency evacuation distances recommended for incidents involving munitions being transported by rail. Limiting both the density of any future residential development along the MOTSU rail corridor, and restricting the development of uses that concentrate large numbers of people or accommodate groups that might be more difficult to evacuate will help to preserve the compatibility of the area along the corridor. The specific density of residential development that might be compatible is relative to a range of factors, particularly transportation routes for evacuation and proximity to the rail line. Specific uses that would be incompatible with the need to evacuate quickly from the area along the corridor would include high density multi-family developments, churches, schools, day care centers, nursing homes, hospitals, as well as any other use that concentrates large numbers of people in close proximity to the rail line and the potential evacuation area.

LU-2: LOCAL GOVERNMENTS HAVING JURISDICTION WITHIN THE K88 GLASS BREAKAGE HAZARD AREA SHOULD ADOPT REGULATIONS AS PART OF AN OVERLAY DISTRICT THAT EITHER PROHIBIT THE CONSTRUCTION OF HABITABLE STRUCTURES TALLER THAN 5 STORIES (50 FEET) OR REQUIRE THE ISSUANCE OF A SPECIAL USE PERMIT FOR SUCH STRUCTURES SO THAT THEIR PROPOSED SITING, ORIENTATION, AND CONSTRUCTION CAN BE EVALUATED FOR PUBLIC SAFETY CONCERNS.

Justification: The North Carolina General Statutes do not permit local modifications to building codes, leaving few options to deal with issues such as glass breakage hazards and blast wave resistance for tall structures. If tall structures are not otherwise prohibited, then a requirement for a special / conditional use permit for tall structures that fall within areas of explosives safety concern (where otherwise permitted by the underlying zoning) can be adopted locally to give such projects more scrutiny. Local governments can take the opportunity to assess these unique compatibility concerns and grant approvals contingent upon compliance with compatible structural design techniques based on the interest of promoting public safety.

LU-3: LOCAL GOVERNMENTS, WITH ASSISTANCE FROM TECHNICAL EXPERTS FROM MOTSU, SHOULD DEVELOP VOLUNTARY CONSTRUCTION STANDARDS TO MAKE AVAILABLE TO DEVELOPERS / CONTRACTORS IN THE AREA BETWEEN THE IBD AND K88 FOR ALL TYPES OF CONSTRUCTION TO MITIGATE POTENTIAL SAFETY ISSUES FROM GLASS BREAKAGE AND OTHER HAZARDS.

Justification: As noted above, the lack of local government authority to adopt local modifications to building codes will require creative solutions to promoting the compatibility of the built environment with potential explosives safety hazards where they are present. To this end, the development of a set of design recommendations and technical resources for builders, engineers, and architects to utilize on a voluntary basis will help to promote the compatibility of the built environment through enhanced awareness regarding the specific design and safety issues that can increase compatibility in areas of concern.

LU-4: LOCAL GOVERNMENT COMPREHENSIVE PLANS SHOULD BE UPDATED TO INCLUDE RELEVANT INFORMATION, POLICIES, AND LAND USE GUIDANCE RELATED TO MOTSU AND THE JOINT LAND USE STUDY.

Justification: Updating local plans to reflect the findings of the JLUS will help to ensure that its recommendations for land use compatibility, transportation, public safety, and other matters are taken into consideration as local governments in the region plan for their future. The incorporation of land use recommendations and identification of areas of potential compatibility concern, in particular, will enhance the ability of property owners, developers, planning staff, and elected and appointed officials to assess the consistency of proposed zoning decisions and other development projects with MOTSU's mission. In turn, this should lead to better informed decisions on the part of local governments and the development community.

LU-5: LOCAL GOVERNMENT LAND USE ORDINANCES SHOULD BE UPDATED TO EXPLICITLY REFERENCE THE STATUTORY MILITARY LAND USE NOTIFICATION REQUIREMENTS (AS WELL AS ANY LOCALLY ADOPTED EXPANSIONS OF NOTICE REQUIREMENTS).

Justification: Although the military land use notification statute is applicable regardless of its inclusion in a local land use regulatory ordinance, the presence of the statutory reference helps to reinforce the need to comply with this legal requirement. Including it in local ordinances also helps to maintain public awareness of the requirement and provides a better opportunity for continuing compliance during periods of staff transition, particularly in smaller communities where institutional knowledge about this statute is less likely to be passed between departing and incoming staff.

LU-6: LOCAL GOVERNMENTS SHOULD ENSURE THAT CAMA PLANS ARE CONSISTENT WITH MOTSU'S MISSION WITH REGARD TO ITS ONGOING ACTIVITIES IN AREAS OF ENVIRONMENTAL CONCERN.

Justification: The Coastal Area Management Act requires that permits for development in areas of environmental concern (AEC) be consistent with locally adopted CAMA plans. By ensuring that MOTSU is consulted during the planning process and the local CAMA plans incorporate land use and other recommendations that are consistent with the needs of the military mission, local governments will help to ensure that MOTSU can obtain CAMA permits for mission critical infrastructure on the installation.

LU-7: LOCAL GOVERNMENTS SHOULD CONSIDER THE ADOPTION OF POLICIES REQUIRING THAT ANY RESPONSE OR ANALYSIS PROVIDED BY MOTSU REGARDING THE COMPATIBILITY OF A PROPOSED LAND USE ACTION BE PROVIDED TO THE GOVERNING BOARD AS PART OF THE STAFF REPORT FOR THAT ITEM.

Justification: When MOTSU provides a response to a notice regarding a proposed land use action covered by the statutory notification requirements, the governing board is required to consider

such response prior to taking final action on the matter at hand. Establishing, by policy, that such responses be provided as part of the staff report will help to ensure that governing boards are aware of any compatibility concerns identified by MOTSU. In the event that no response is received, or the response does not identify a compatibility concern, this should be provided to the governing board as well.

LU-8: LOCAL GOVERNMENTS SHOULD JOINTLY DEVELOP ADDITIONAL ZONING / SUBDIVISION STANDARDS TO PROVIDE FOR ENHANCED SAFETY AND SECURITY IN AREAS IMMEDIATELY ADJACENT TO THE RAIL CORRIDOR. EXAMPLES COULD INCLUDE REQUIREMENTS FOR ESTABLISHING BERMS, FENCING, OR SIMILAR DEVELOPMENT STANDARDS IN AREAS OF POTENTIAL PUBLIC SAFETY CONCERN.

Justification: Local land use regulations provide an opportunity to enhance public safety and security by imposing development standards that are tailored to the potential hazards presented by MOTSU. Care should be taken in developing such standards, including consultation with subject matter experts from MOTSU, to ensure that the proposed measures are proportional and relevant to the nature and extent of the hazard. The joint development and adoption of a standardized set of regulations will help to ensure consistency between jurisdictions.

LU-9: MOTSU SHOULD WORK WITH NCDOT TO ENSURE THAT SAFETY AND SECURITY ARE TAKEN INTO ACCOUNT WHEN IT IS CONSIDERING GRANTING PERMITS / ENCROACHMENT AGREEMENTS FOR THE ESTABLISHMENT OF WIRELESS TELECOM TOWERS IN STATE ROW.

Justification: NCDOT is mandated by statute to approve the construction of "small cell" wireless telecommunications towers within state right-of-way. In some instances, the location of a proposed tower (which can be up to 50 feet tall) may pose a security concern to the installation. Moving forward, it is advised that MOTSU work closely with the local NCDOT Division to ensure that it is given the opportunity to review and comment on such applications around the installation to ensure that any safety or security concerns are mitigated through either the modification or denial of the proposal.

LU-10: MOTSU AND THE LOCAL GOVERNMENTS SHOULD MONITOR PLANNING EFFORTS FOR THE NC STATE PORT PROPERTY SOUTH OF MOTSU AND SEEK TO WORK COLLABORATIVELY WITH THE NCSPA ON ITS PLANS FOR THE FUTURE OF THE SITE.

Justification: The NC State Port Authority owns a large tract of land on the Cape Fear River south of MOTSU that was once under consideration for a new container port to spur international trade in the state. While defined explosives safety concerns do not presently extend onto the site, the presence of such a significant port terminal could pose other issues for MOTSU with regard to transportation

(highway and rail congestion) and increased ship traffic in the river. Going forward, MOTSU should continue to monitor plans for the site and engage with the NCSPA to ensure that it is aware of and involved in discussions for the future use and disposition of the property.

LU-11: LOCAL GOVERNMENTS SHOULD INVITE MOTSU STAFF TO PARTICIPATE IN TECHNICAL REVIEW COMMITTEE MEETINGS WHERE ITEMS OF POTENTIAL CONCERN TO THE INSTALLATION WILL BE DISCUSSED.

Justification: When development plans are reviewed by local governments, a committee of subject matter experts is often engaged to assist planning staff in reviewing technical aspects of the proposal. By including MOTSU in this process, the installation can be engaged with discussions on development plans that might impact land use or operational compatibility. Generally, this should apply to projects within the 5 mile notification area, although projects of greatest potential concern will be those in closest proximity to the installation or one of the key transportation routes leading to MOTSU, including the rail corridor and interchange.

LU-12: MOTSU SHOULD SEEK FUNDING FROM SOURCES SUCH AS THE REPI AND ACUB PROGRAMS, AND WORK WITH LOCAL GOVERNMENTS AND REGIONAL LAND CONSERVATION ORGANIZATIONS TO SECURE SUPPLEMENTAL FUNDING FROM PROGRAMS SUCH AS THE CLEAN WATER MANAGEMENT TRUST FUND, TO ACQUIRE CONSERVATION EASEMENTS AND/OR PURCHASE UNDEVELOPED LAND ALONG THE MOTSU RAIL CORRIDOR TO ENHANCE FUTURE MISSION COMPATIBILITY AND ACHIEVE CONSERVATION GOALS.

Justification: Ongoing regional population growth and transportation improvements, such as the Cape Fear Crossing, will likely lead to developers seeking to purchase and develop land along the remaining undeveloped portion of the rail corridor between MOTSU and the Leland interchange. By purchasing property, or the right to develop property, MOTSU and its partners can retain a greater degree of compatibility along the corridor than would be likely under even the most optimistic regulatory scenarios.

LU-13: LOCAL GOVERNMENTS SHOULD CONSIDER ADOPTING REGULATIONS IN THEIR SUBDIVISION ORDINANCES TO REQUIRE PLAT NOTATIONS INDICATING PROXIMITY TO MOTSU, ITS RAIL CORRIDOR AND INTERCHANGE YARD, AS WELL AS REQUIRE PRELIMINARY SUBDIVISION PLATS AND SITE PLANS TO INDICATE THEIR DISTANCE TO THOSE FACILITIES WHEN SUBMITTED FOR REVIEW TO ENSURE THAT DEVELOPERS (AND FUTURE PURCHASERS) ARE AWARE OF THE POTENTIAL HAZARDS AND ASSOCIATED RISK.

Justification: In many cases, development within relatively close proximity to MOTSU and its various components, will be undertaken "by-right" under the respective land use regulations of each local government. Even with expanded notification requirements, some development activity might not rise to the degree of density or intensity where notice to MOTSU would be required. Given that, it

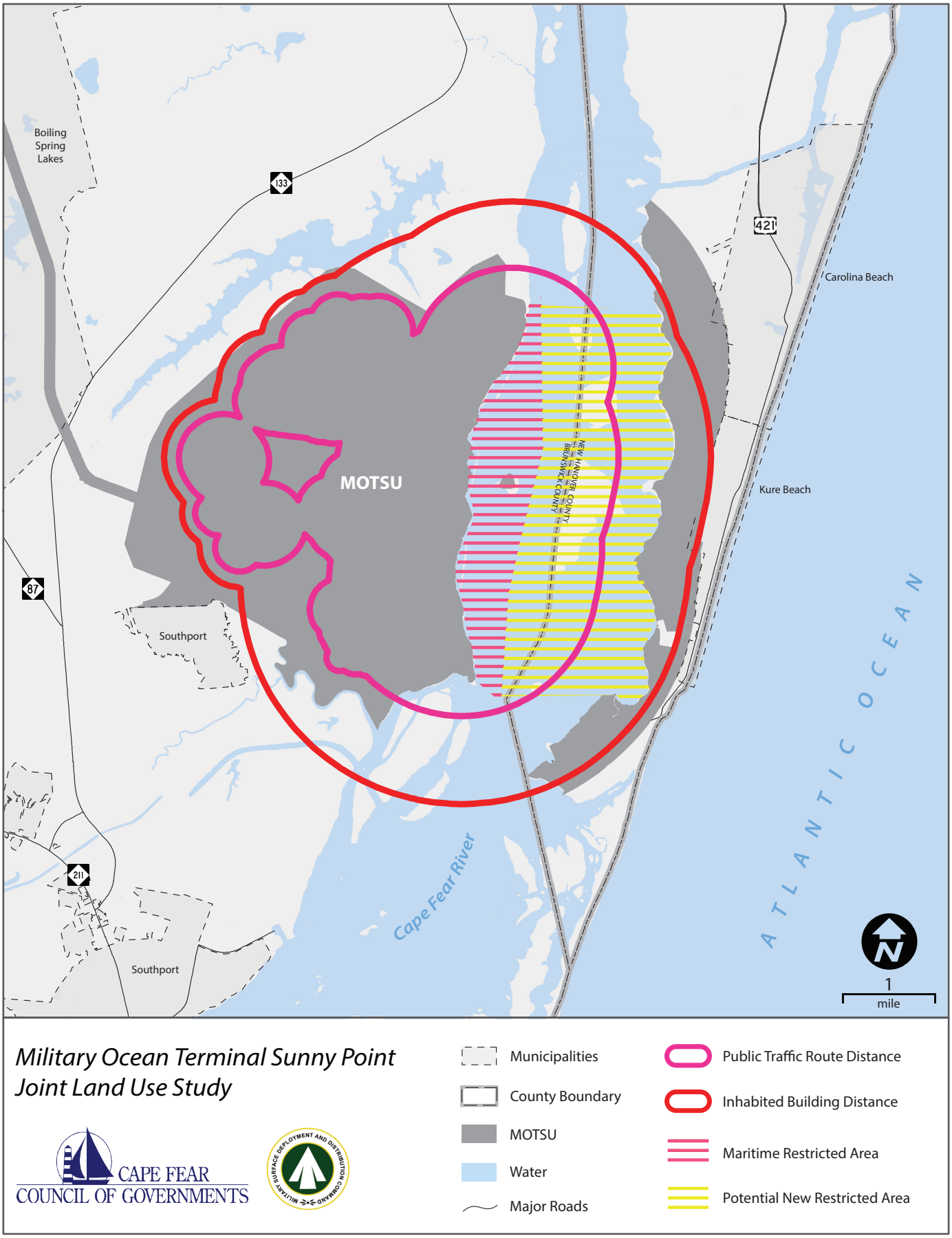


Figure 7.1: Potential Cape Fear Restricted Area Expansion (Recommendation PS-4)

would be prudent for local governments to require disclosure on final subdivision plats and require site plans, preliminary plats, and similar development submittals to include notation regarding their proximity to the main terminal or one of its components.

7.2.3 Public Safety (PS)

PS-1: MOTSU AND THE LOCAL GOVERNMENTS SHOULD CONTINUE PARTICIPATION IN MUTUAL AID AGREEMENTS AND JOINT EXERCISES WITH LAW ENFORCEMENT, FIRE, AND OTHER EMERGENCY RESPONSE AGENCIES.

Justification: MOTSU and local emergency response agencies have a long history of providing mutual support to each other. These long-term relationships were often cited as the strongest and most tangible benefits to both the military and civilian communities. Continuing these partnerships helps to reinforce the bonds between MOTSU and its host communities and provide opportunities for joint training and collaboration on matters of mutual benefit.

PS-2: MOTSU AND LOCAL EMERGENCY RESPONSE / MANAGEMENT AGENCIES SHOULD DEVELOP, AND REGULARLY REVIEW AND UPDATE, CONTINGENCY PLANS FOR EVACUATION MEASURES FOR RAIL, TRUCK, AND FACILITY RELATED INCIDENTS.

> **A:** Ensure that all local emergency response agencies are included in contingency planning for the various MOTSU related scenarios that they may be called to respond to.

Justification: Preparing for the known types of emergencies that may arise at MOTSU benefits both the installation and its civilian emergency response partners. In the event of any large scale emergency involving explosives safety, particularly when located outside of the installation, emergency responders including law enforcement, fire, and EMS agencies would be heavily relied upon to support any necessary evacuation efforts. Given the large geographic area in which a response may be needed, the wide range of scenarios that may occur, and complexity of evacuating a civilian population, it is critical to jointly plan and prepare for potential emergencies. Outreach to agencies and departments beyond the immediate vicinity of the installation will also be critical to ensuring that during large scale emergencies, these more distant agencies that would likely be called on to provide support have a firm grounding in what might be expected of them and understand emergency protocols that would be instituted during any large scale emergency scenario.

PS-3: MOTSU SHOULD CONSIDER PREPOSITIONING WOODLAND FIREFIGHTING EQUIPMENT ON PLEASURE ISLAND TO ENHANCE RESPONSES TO INCIDENTS IN THE ESCZ.

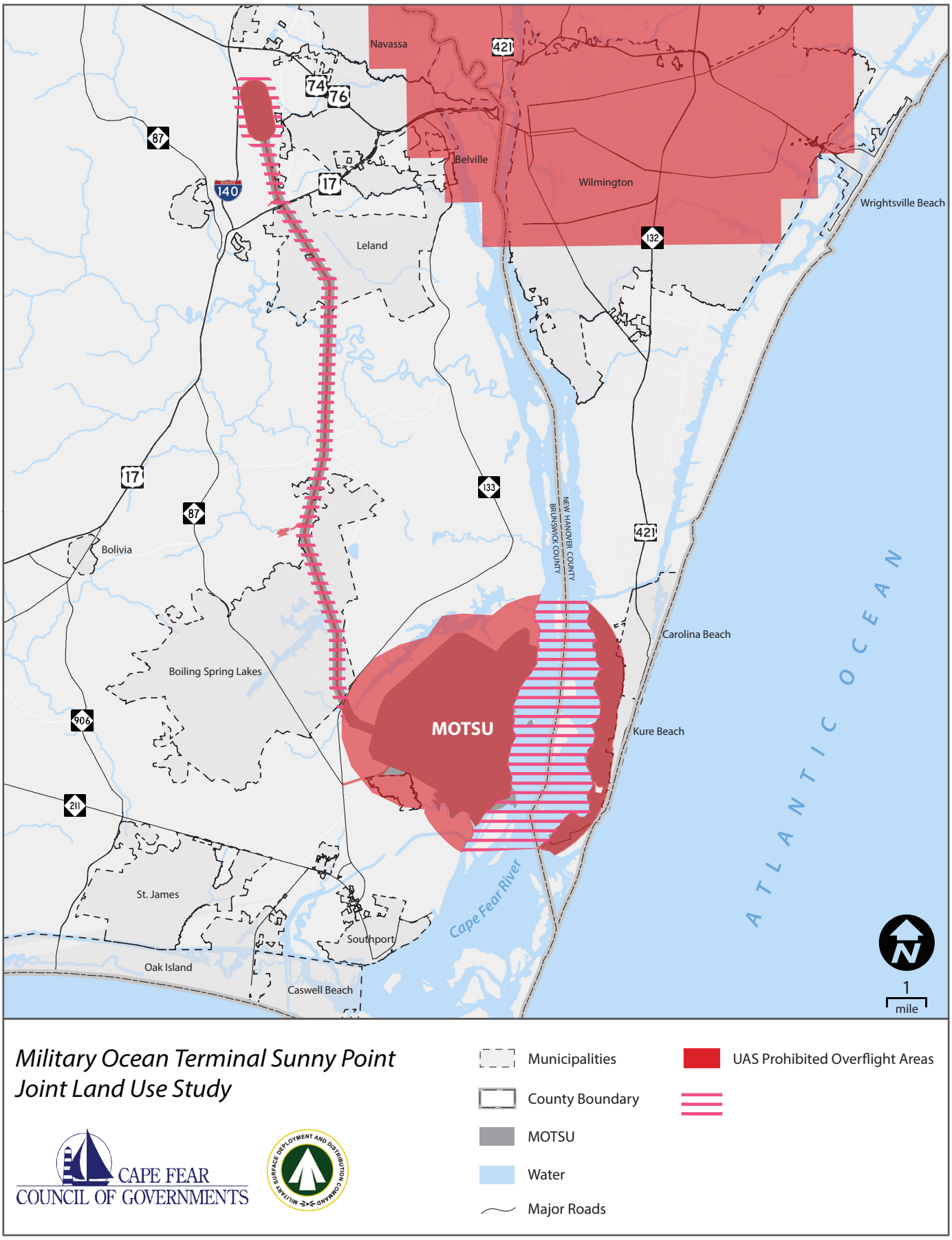


Figure 7.2: Potential UAS "No-Fly" Area Expansion (Recommendation PS-5)

Justification: The wooded MOTSU ESCZ area on Pleasure Island is located in close proximity to relatively densely developed urban areas in Carolina Beach and Kure Beach. While fire departments on the island have agreements to respond to wildfire incidents in the ESCZ, these agencies, as municipal departments primarily designed to serve urban areas, do not have significant woodland fire fighting capacity. While MOTSU has resources that it can bring to bear for a woodland fire incident, the distance between the terminal (and the presence of the river) make a fast response difficult to effect. By prepositioning such equipment (potentially surplus or grant funded equipment) on Pleasure Island, the agencies providing the first response to a woodland fire could be better equipped to suppress a fire until MOTSU is able to deploy its full resources and other agencies are able to respond.

PS-4: MOTSU SHOULD CONSIDER PERMANENTLY EXPANDING THE RESTRICTED AREA (OR EXPLORE OPTIONS FOR TEMPORARY EXPANSIONS) IN THE CAPE FEAR RIVER TO BETTER MATCH OPERATIONAL, SAFETY, AND SECURITY REQUIREMENTS OF ITS MISSION.

Justification: While the area west of the main shipping channel / ICWW in the Cape Fear River is restricted to military vessels, the eastern portion of the river, including areas within the Public Transportation Route and Inhabited Building Distance blast arcs, are available for use by the public. Although it would not be practical to fully prohibit navigation of the river outside of the current restricted area, the ability to enforce some additional restriction on boat traffic, such as requiring vessels to transit through the area with due speed and prohibit loitering in the vicinity of the installation would enhance both public safety and security. As this type of measure is not necessarily needed on a full-time basis, seeking Congressional authorization to implement temporary restrictions in this portion of the river (see Figure 7.1) would be prudent and should be supported by the local government partners.

PS-5: MOTSU SHOULD CONTINUE TO SEEK THE DESIGNATION OF THE CAPE FEAR RIVER AS A "NO-FLY" AREA FOR UAS BY THE FAA AND SEEK EXPANSION OF THE WIDTH OF THE "NO-FLY" AREA ALONG THE RAIL CORRIDOR AND AROUND THE LELAND INTERCHANGE YARD.

Justification: The airspace immediately above the main terminal, the ESCZ, rail corridor and interchange yard are all designated by the FAA as "no-fly" areas for UAS operators for national security reasons. Although likely an oversight in the initial implementation of the regulation, the area above the Cape Fear River is unrestricted for UAS flight, permitting hobbyists, or others, the ability to legally fly in these areas (it should be noted that the airspace above MOTSU is not restricted for manned aircraft), which in turn creates safety and security concerns. And, although the airspace immediately above the rail corridor is restricted, the narrowness of the corridor means that for practical purposes, there is no real restriction from flying a UAS along the rail line. In the interest of

public safety and security, MOTSU, with the support of its local government partners, should seek to both apply a no-fly area above the river and expand the area of restriction along the rail corridor and interchange yard (see Figure 7.2)

PS-6: MOTSU SHOULD WORK WITH LOCAL GOVERNMENTS TO GRANT THE AUTHORITY TO EMERGENCY RESPONSE AGENCIES TO FLY UAS IN RESTRICTED AREAS (PARTICULARLY THE ESCZ) WITH PRIOR NOTICE TO MOTSU SECURITY OFFICIALS.

Justification: Local emergency response agencies are beginning to acquire and deploy UAS as part of their fire fighting, law enforcement, and search and rescue activities. FAA regulations give MOTSU the ability to grant permission for UAS overflight of otherwise restricted airspace over the installation (including the Pleasure Island ESCZ and rail corridor). Proactively granting emergency responders the authority to deploy UAS with notice to MOTSU when responding to incidents on or near the installation will enhance the capability of these agencies to resolve emergency situations in a more timely and effective manner, while coordinating the deployment of the aircraft with MOTSU security officials.

PS-7: MOTSU, NCDOT, NCDNCR, AND BRUNSWICK COUNTY SHOULD EXPLORE OPTIONS FOR RESTRICTING PUBLIC ACCESS TO THE PORTION OF PLANTATION ROAD SOUTH OF ST. PHILLIPS ROAD, WHILE ENSURING ONGOING ACCESS TO BRUNSWICK TOWN / FORT ANDERSON AND ORTON PLANTATION.

Justification: MOTSU has a secondary access point on Plantation Road that can be used in the event of an emergency to provide alternate access to the installation. This gate is located in a relatively remote area, and while monitored by MOTSU security officials, the NCDOT maintained road leading to the gate is open to the public. While the road also provides access to Brunswick Town and Fort Anderson, as well as a portion of Orton Plantation, the section of the road south of St. Phillips Road could theoretically be closed to the public to enhance security at MOTSU's rear gate. Restricting access to the intersection during non-business hours could also enhance security for Brunswick Town by limiting approaches by road to the historic site.

PS-8: MOTSU SHOULD ENHANCE PUBLIC NOTICES / NO TRESPASSING SIGNAGE ALONG THE ESCZ BOUNDARY ON PLEASURE ISLAND AND ALONG THE RAIL CORRIDOR.

Justification: The ESCZ area on Pleasure Island presents a tempting opportunity for vacationers to the community who may see the area as an outdoor recreation asset rather than as a restricted access portion of a military installation. Limited security resources prevent the installation from being able to patrol the ESCZ on a constant 24 hour basis, leaving access restrictions mainly to the fencing and no trespassing signage that is in place. Since many visitors are likely unfamiliar with the area,

and may innocently believe it to be a public open space, it is recommended that MOTSU enhance the no trespassing signage along the perimeter of the ESCZ to ensure that the general public is well informed of the restricted nature of the wooded area. By increasing notice to the public, it is hoped that fewer people would innocently trespass on the land, which, when noticed, requires a law enforcement response to find them and remove them from the area. This, in turn, taxes both military and civilian law enforcement resources that could otherwise be utilized for other purposes.

PS-9: MOTSU, THE LOCAL GOVERNMENTS, AND INDEPENDENT EMERGENCY RESPONSE AGENCIES SHOULD CONTINUE TO PROVIDE OPPORTUNITIES FOR LOCAL FIRE AGENCY PERSONNEL TO RECEIVE ENHANCED TRAINING IN EXPLOSIVES SAFETY / FIRE RESPONSE, SHIPBOARD, AND WOODLAND FIREFIGHTING TO ENHANCE THEIR CAPABILITIES TO SUPPORT MOTSU.

Justification: Local emergency response agencies partnering with MOTSU through mutual aid agreements provides the installation with additional resources and manpower to respond to large incidents. These formal relationships also provides the installation with the opportunity to enhance the capability of these agencies through specialized training in emergency response techniques that are outside of the realm of many of the agencies' normal operations. By providing these enhanced training opportunities, both MOTSU and its emergency response partners will be better prepared to respond to the unique types of emergency situations related to MOTSU's mission that can arise both on and off the installation.

PS-10: MOTSU, THE LOCAL GOVERNMENTS, AND INDEPENDENT EMERGENCY RESPONSE AGENCIES SHOULD EXPLORE OPPORTUNITIES FOR LOCAL FIRE AGENCIES TO OBTAIN SPECIALIZED EQUIPMENT THAT ENHANCES THEIR CAPABILITIES AND CAPACITY TO SUPPORT MOTSU.

Justification: Given the nature of certain types of emergencies that may arise related to MOTSU's mission that may require specialized equipment (such as shipboard firefighting and explosives response), local emergency response agencies should work with MOTSU to identify additional equipment that may be necessary to provide effective assistance to an emergency. MOTSU, in turn, should work with local emergency responders to identify sources of funding, including grants, to provide and maintain such equipment.

PS-11: MOTSU, BRUNSWICK COUNTY, BOILING SPRING LAKES, AND LELAND SHOULD CONTINUE TO WORK TOWARDS AGREEMENTS ON CONCURRENT LAW ENFORCEMENT JURISDICTION ON THE RAIL CORRIDOR AS THE ARMY CONTINUES TO PURSUE EFFORTS TO ACQUIRE FEE SIMPLE OWNERSHIP OF THE CORRIDOR.

Justification: Since the Army does not have fee simple ownership of the entire rail corridor between the main terminal and Leland, there are some limitations on its ability to effectively deal with trespassing

and other potential criminal activity along the corridor. Pursuing concurrent law enforcement jurisdiction through Brunswick County would enhance the capability of MOTSU's security forces to deal with these situations in an effective and timely manner, while eliminating confusion about their legal authority to act in a law enforcement capacity along the rail line.

7.2.4 Transportation (T)

T-1: MOTSU AND THE USACE SHOULD CONTINUE TO EXPLORE OPPORTUNITIES TO ACQUIRE FEE SIMPLE OWNERSHIP OF THE RAIL CORRIDOR.

Justification: When MOTSU was established, much of the rail corridor to Leland was acquired as an easement (either through purchase or condemnation) rather than fee simple purchase of the underlying property. Over time, this has led to some confusion about the rights and responsibilities of the Army with regard to limiting access to the corridor as well as a host of other issues. Full ownership of the corridor would make security improvements, such as sealing the corridor, more feasible, and would help to establish clear law enforcement jurisdiction along the rail line.

T-2: MOTSU, NCDOT, CAPE FEAR RPO, WILMINGTON MPO, AND THE LOCAL GOVERNMENTS SHOULD EXPLORE OPPORTUNITIES FOR THE ELIMINATION OF AT-GRADE ROAD CROSSINGS OF THE MOTSU RAIL LINE AND WORK TOWARD SEALING THE RAIL CORRIDOR BETWEEN MOTSU AND LELAND (TO THE EXTENT PRACTICAL).

Justification: Road crossings of the rail line exist along the entire corridor between MOTSU and Leland. While some are necessary for rural transportation connectivity, there are some opportunities to eliminate road crossings. This would, in turn, enhance safety and security by limiting road access to the rail line and reducing the number of potential conflict points for train-vehicle incidents.

T-3: MOTSU AND THE LOCAL GOVERNMENTS SHOULD CONTINUE WORKING WITH NCDOT TO MITIGATE AND ELIMINATE FLOODING ISSUES ALONG THE HIGHWAY ACCESS ROUTES TO MOTSU TO ENSURE CONTINUOUS ACCESS TO THE INSTALLATION.

Justification: As demonstrated frequently over recent years, flooding is an ongoing and potentially increasing concern along the highway routes from the main highway arteries in the region to MOTSU. In particular, there are numerous locations on NC 87, NC 211, and NC 133 that are subject to flooding hazards, with portions of NC 133, in particular, subject to flooding during and after smaller rain events. Maintaining highway access to MOTSU is critical to ensuring that personnel and cargo can reach the installation, particularly in situations where natural disasters might have affected access along the rail corridor.

T-4: MOTSU, NCDOT, AND THE WILMINGTON MPO SHOULD SUPPORT THE COMPLETION OF I-140 (TO THE CAPE FEAR CROSSING) TO PROVIDE MORE DIRECT TRUCK ACCESS TO MOTSU.

Justification: Most of the routes under consideration for the Cape Fear Crossing will provide a limited access highway route to an interchange with NC 133. This new limited access highway route provides an opportunity to gain a more feasible secondary highway access route to MOTSU via NC 133, and, with improvement to the road (flooding issues, lane widths, curves) could provide a better option for truck cargo traffic to the installation since it would bypass the more densely developed portion of Boiling Spring Lakes that much of the truck cargo currently passes through to reach the terminal.

T-5: MOTSU, NCDOT, THE CAPE FEAR RPO, AND WILMINGTON MPO SHOULD ANALYZE THE IMPACT OF THE COMPLETION OF I-140 ON HIGHWAY ACCESS / INTERSECTION FUNCTIONALITY FOR MOTSU TRUCK TRAFFIC AND DEVELOP MITIGATION STRATEGIES FOR INCLUSION IN TRANSPORTATION PLANS IF ISSUES ARE IDENTIFIED.

Justification: When the preferred route for the Cape Fear Crossing is identified, MOTSU should work with local transportation agencies to identify and mitigate any negative impacts that might arise from the future completion of the route to ensure that changes in traffic patterns do not create bottlenecks or congestion in unexpected areas that might impede safe and efficient highway access to the terminal. Since MOTSU does not have any authority to direct road improvements off of the installation, it will rely on NCDOT and other agencies to advocate for such improvements during the project development process.

T-6: NCDOT AND THE CAPE FEAR RPO SHOULD EXPLORE OPPORTUNITIES FOR CONSTRUCTING A GRADE SEPARATION OF NC-133 OVER THE MOTSU RAIL LINE.

Justification: Of the at-grade road crossings of the MOTSU rail line to Leland, the NC-133 crossing is the most heavily traveled. Traffic volumes on the highway, particularly during summer months and holiday weekends, can cause long backups on the road when trains pass through the crossing. Heavy traffic volume at this point also increases the likelihood of an incident between a vehicle and a train. By providing a grade separated crossing, both the safety and efficiency of the highway and rail line can be enhanced.

T-7: MOTSU, THE CAPE FEAR RPO, AND THE WILMINGTON MPO SHOULD EXPLORE OPPORTUNITIES FOR PROVIDING REDUNDANT RAIL ACCESS TO THE LELAND INTERCHANGE IN CONJUNCTION WITH THE POSSIBLE REOPENING OF THE WHITEVILLE – MALMO AND CASTLE HAYNE – WALLACE RAIL CORRIDORS.

Justification: MOTSU is currently reliant on the CSX rail line between Wilmington and Pembroke as the only main-line rail access to the installation. A study is underway regarding reopening the

Whiteville to Malmo line and many studies have taken place over the years regarding reopening the abandoned line between Castle Hayne and Wallace. Reopening either one of these abandoned rail corridors would provide MOTSU with a more resilient transportation network that could be utilized in the event of issues on the main CSX line.

T-8: MOTSU SHOULD COORDINATE WITH NCDOT FERRY DIVISION ON THE PLANNED EXPANSION OF THE FREQUENCY OF FERRY SERVICE BETWEEN FORT FISHER AND SOUTHPORT TO IDENTIFY AND MITIGATE ANY POTENTIAL OPERATIONAL IMPACTS (ON EITHER PARTY).

Justification: A recently proposed expansion of the Fort Fisher - Southport ferry route to include a third vessel could increase passenger ferry traffic on the river from 32 to 48 crossings per day during the peak summer operating season. MOTSU should work with the NCDOT Ferry Division to ensure that the additional crossings and passenger volumes are compatible with its operational safety requirements and won't negatively impact shipping access to MOTSU. Conversely, the Ferry Division should also examine whether it can maintain the higher service levels given any operational constraints that may be placed on it due to operations at MOTSU.

T-9: MOTSU, THE CAPE FEAR RPO, AND WILMINGTON MPO SHOULD ENSURE THAT MOTSU'S RAIL, HIGHWAY, AND MARITIME TRANSPORTATION NEEDS ARE REFLECTED IN REGIONAL TRANSPORTATION PLANS.

Justification: As a key generator of transportation volumes in the region, MOTSU has unique needs that need to be reflected in transportation plans adopted by the Wilmington MPO and Cape Fear RPO. Including both the impacts and necessary improvements to mitigate transportation issues related to MOTSU in these regional plans will ensure that planners and engineers are aware of its needs and that they are taken into account when identifying and designing transportation improvement projects.

T-10: THE PLEASURE ISLAND COMMUNITIES, NEW HANOVER COUNTY, AND THE WMPO SHOULD CONDUCT A FEASIBILITY STUDY TO EXAMINE THE POTENTIAL FOR EXPANDING / REPLACING THE EXISTING SNOWS CUT BRIDGE WITH A WIDER CROSS SECTION (INBOUND AND OUTBOUND) THAT COULD ACCOMMODATE BICYCLE / PEDESTRIAN TRAFFIC IN OUTSIDE LANES THAT COULD ALSO BE UTILIZED FOR VEHICLE TRAFFIC TO IMPROVE TRAFFIC THROUGHPUT DURING A POTENTIAL EVACUATION.

Justification: The Snows Cut bridge provides the only fixed means of travel for vehicles to and from Pleasure Island. The current four lane configuration of the bridge does not include shoulders or any other means of expanding capacity (other than reversing lanes) to accommodate heavy traffic volumes that would accompany an evacuation order during the tourist season. Given the multiple potential points of genesis for a potential evacuation order, such as a hurricane warning, incident

at the Brunswick Nuclear Station, or an incident at MOTSU, there is wide applicability to the need for sufficient capacity to accommodate an orderly evacuation. An expanded bridge cross section with outside lanes wide enough to be used as vehicle travel lanes during an emergency would expand the ability to safely evacuate the island, while also providing safe pedestrian and bicycle access to Pleasure Island (a recent local example of this is the new Topsail Island bridge in Surf City.)

7.2.5 Pleasure Island ESCZ (PIE)

PIE-1: MOTSU SHOULD CLEARLY DELINEATE THE NECESSARY SAFETY ZONE, BASED ON MISSION REQUIREMENTS, WHERE JOINT USE OPPORTUNITIES WILL NOT BE FEASIBLE (IBD – CURRENT AND FUTURE). IN THE REMAINDER OF THE ESCZ AREA, MOTSU SHOULD WORK WITH THE PLEASURE ISLAND COMMUNITIES TO IDENTIFY THE SPECIFIC TYPE, LOCATION, AND NATURE OF USES THAT MAY BE CONSIDERED FOR ESTABLISHMENT IN THE ESCZ.

Justification: The clear delineation of those areas of the Army owned property on Pleasure Island that are likely to fall outside of any defined explosives safety zones well into the future will help both MOTSU and its local government partners on the island better understand the location and extent of potential land resources that may be available for compatible development. Once clearly identified, MOTSU should work closely with Carolina Beach and Kure Beach to identify and plan for compatible community uses in those areas that can be safely utilized for infrastructure, recreation, or other beneficial uses. The map in Figure 7.3 identifies the portion of the Army's property on Pleasure Island that currently falls outside of the Inhabited Building Distance.

PIE-2: MOTSU AND THE USACE SHOULD ESTABLISH LONGER TERMS FOR OUTGRANTS FOR LOCAL GOVERNMENT USES IN THE ESCZ, WHERE GRANTED, TO ALLOW LOCAL GOVERNMENTS TO PLAN FOR THE FUTURE AND ELIMINATE UNCERTAINTY IN THEIR CAPITAL / INFRASTRUCTURE PLANS AND BUDGETS.

Justification: MOTSU and the Corps of Engineers are currently authorizing annual real estate agreements for civilian community uses in the ESCZ. Year-to-year real estate agreements introduce uncertainty into local governments' infrastructure planning and capital budgeting processes. In the interest of facilitating more effective planing and budgeting practices, MOTSU should seek to grant longer term real estate agreements for these necessary community uses (particularly infrastructure). In turn, this will reduce the administrative burden on all parties by reducing the frequency with which new real estate agreements will need to be negotiated and renewed.

PIE-3: LOCAL GOVERNMENTS SHOULD STRICTLY ABIDE BY ALL TERMS AND CONDITIONS IMPOSED AS PART OF REAL ESTATE AGREEMENTS GRANTED FOR COMPATIBLE USES IN THE ESCZ, AND MOTSU SHOULD PROACTIVELY WORK TO ENFORCE THE TERMS OF THE AGREEMENTS GRANTED TO LOCAL GOVERNMENTS AND OTHER AGENCIES FOR THE USE OF ITS PROPERTY.

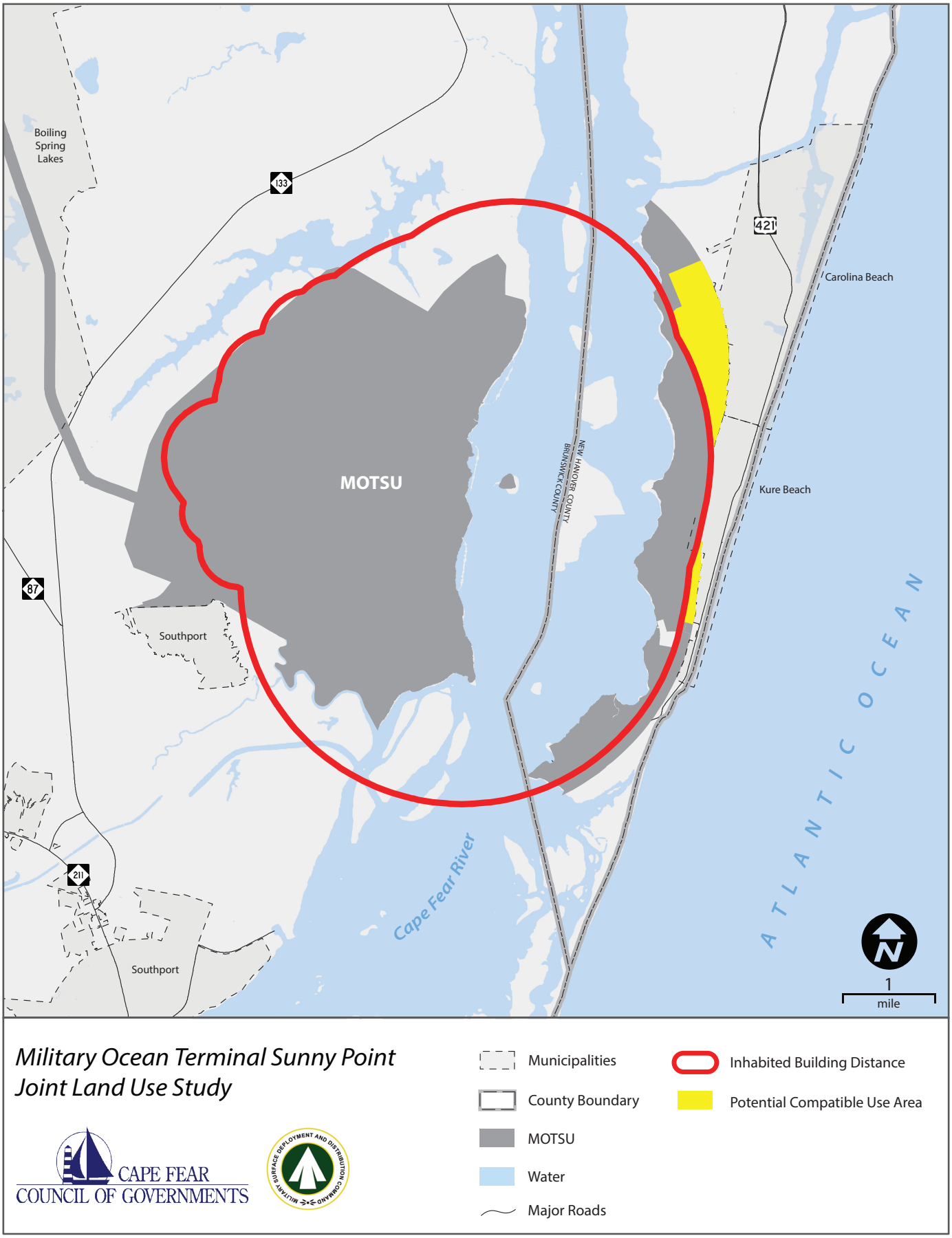


Figure 7.3: Potential Areas of Compatible Use Outside of the IBD (Recommendation PIE-1)

Justification: As tenants on federal land, and subject to voluntarily agreed to terms and conditions in licensing agreements granted by the Army, local governments have a responsibility to act in accordance with the agreements. Violations of these agreements can put longstanding relationships at risk, and potentially lead to their termination. In years past, it has been anecdotally related that enforcement of the strict terms of the agreements were not always carried out by MOTSU. Whether by omission or tacit agreement, this has led, in some cases, to the discovery of violations that local governments may have felt some implied consent to undertake. When discovered and required to be corrected, this can strain relations between the installation and its community partners. By proactively enforcing its real estate agreement terms through regular inspections and ongoing communication with its partners, MOTSU and the communities will be able to maintain stronger relationships, and when issues or new needs arise that may lead to changes in a real estate agreement, these can be worked out and mutually agreed to in a formal manner.

PIE-4: THE LOCAL GOVERNMENTS ON PLEASURE ISLAND (AND NEW HANOVER COUNTY) SHOULD JOINTLY WORK TO IDENTIFY COMMUNITY NEEDS THAT MIGHT BE MET THROUGH THE USE OF MOTSU PROPERTY AND WORK TOGETHER TO IMPLEMENT PLANS FOR INFRASTRUCTURE THAT WOULD SERVE BOTH COMMUNITIES.

Justification: Since land on Pleasure Island is a finite and diminishing resource, the communities on the island have a responsibility to work together jointly to ensure that when opportunities arise or needs are identified that can be met through the compatible use of MOTSU ESCZ land that they make the most efficient use of the resource. Future opportunities exist to compatibly use ESCZ land to meet the needs of both communities, and so a joint plan should be developed to identify those needs and to work with MOTSU to identify and secure suitable land to meet them.

PIE-5: LOCAL GOVERNMENTS ON PLEASURE ISLAND SHOULD CONTINUE TO EXPLORE OPTIONS FOR THE USE OF THE FORMER LORAN SITE IN SOUTHERN NEW HANOVER COUNTY FOR INFRASTRUCTURE AND PUBLIC WORKS USES WHICH MIGHT BE ABLE TO BE RELOCATED OFF OF THE ISLAND.

Justification: The LORAN radio navigation site near Snow's Cut is currently owned by the Coast Guard, but has been decommissioned as an active installation. This significant land resource located near the island presents an opportunity to reduce the reliance on land in the MOTSU ESCZ for community uses that do not necessarily have to be located directly within their jurisdictions (storage of materials and equipment being good examples). While approval from the Coast Guard would be necessary to make use of the site, the potential to reduce reliance on ESCZ land in the future could prove to be a strong negotiating point for both MOTSU and the communities to approach the USCG and Congress, if necessary, to secure approval for use of a portion of this federal asset.

PIE-6: LOCAL GOVERNMENTS ON PLEASURE ISLAND SHOULD WORK WITH MOTSU TO IDENTIFY OPPORTUNITIES TO CONTINUE DEVELOPING COMPATIBLE RECREATIONAL USES IN THE PLEASURE ISLAND ESCZ (SUCH AS THE RECENTLY CONSTRUCTED GREENWAY TRAIL IN CAROLINA BEACH).

Justification: Passive recreation uses, outside of the defined explosives safety zones, in particular, present a good opportunity for MOTSU and its local government partners to make beneficial and compatible use of ESCZ land. The Town of Carolina Beach's recent greenway project provides a good example of a collaborative effort by the community and MOTSU to identify an opportunity and design and implement it in a manner that benefits both parties. In the future, the Pleasure Island communities should work together as part of their overall joint planing efforts for compatible community use of the ESCZ to identify and work toward the establishment of additional recreation infrastructure in locations that meet both safety and security needs of the installation.

PIE-7: LOCAL GOVERNMENTS ON PLEASURE ISLAND SHOULD WORK JOINTLY TO DEVELOP CONTINGENCY PLANS FOR INTERCONNECTION WITH THE CFPUA AS WELL AS THE RELOCATION OF OTHER VITAL MUNICIPAL SERVICE USES IN THE EVENT THAT MOTSU IS REQUIRED TO RECLAIM THE FULL USE OF THE ESCZ.

Justification: Both Carolina Beach and Kure Beach have critical utility infrastructure within the ESCZ that would be difficult, if not impossible, to relocate elsewhere on the island. While there is no indication that the Army, or Congress, might act to reclaim the full use of the ESCZ for military purposes only and prohibit the renewal or granting of an agreement, the possibility always exists that such a circumstance could arise for safety or security reasons. Jointly and proactively planning for this remote occurrence, even at a conceptual level, will help to ensure that the communities are better prepared to act in case this unlikely situation were ever to arise.

PIE-8: LOCAL GOVERNMENTS ON PLEASURE ISLAND AND MOTSU SHOULD WORK TOGETHER TO IDENTIFY AND RESOLVE STORM DRAINAGE ISSUES RELATED TO CHANNELS THAT PASS THROUGH THE ESCZ, AND DEVELOP A LONG TERM PLAN TO ENSURE ADEQUATE DRAINAGE.

Justification: During the JLUS process, communities on Pleasure Island (in particular Kure Beach) identified the maintenance of storm drainage channels on the MOTSU ESCZ as an ongoing challenge. Regular and recurring maintenance of these channels and natural drainage-ways is critical to resolving flooding issues in the urban areas on the island. The local governments and MOTSU should therefore work together to identify and implement a long term maintenance and improvement plan that ensures the functionality of this infrastructure.

PIE-9: MOTSU SHOULD WORK COLLABORATIVELY WITH LOCAL GOVERNMENTS ON PLEASURE ISLAND TO DEVELOP AND IMPLEMENT A PLAN TO MANAGE THE SIZE AND HEALTH OF THE DEER POPULATION AND TO MANAGE POTENTIAL NUISANCE WILDLIFE (SUCH AS COYOTES) THAT INHABIT THE ESCZ.

Justification: The ESCZ's natural woodland habitat, coupled with a lack of natural predators and hunting, has led to what might be considered an overabundance of deer on Pleasure Island. Maintaining the size of the population at a reasonable level will help to ensure the health of the population and reduce nuisance activity from deer foraging for food in the urban areas of the island, which in turn presents safety concerns for vehicles as deer cross the rural portions of Dow Road to enter the towns looking for food. In addition to deer, there have been anecdotal reports of growing numbers of coyotes, which find refuge in the ESCZ, but also forage in the urban areas. Unlike deer, coyotes carry a higher threat of rabies and other diseases that could be transmitted to pets or humans due to their predatory nature.

7.3 IMPLEMENTATION

Following the conclusion of the JLUS process, the study partners will likely want to undertake the implementation of some number of the recommendations presented in this section. It should be noted that the adoption or implementation of any of the recommendations in the JLUS are purely at the discretion of the entities that are the subject of the recommendation. The intent of the JLUS process is to identify ways that a region can grow compatibly with the military and ultimately find ways to implement those ideas to support the mission.

Given the complexity, expense, or potential lack of support for a given recommendation, some may need to ripen or be delayed for a period of time until they can be acted on in the right environment and with the right resources. It is hoped that the region can move forward in a cohesive manner to begin working on implementing the study in support of MOTSU's mission. To that end, one of the most important recommendations of the study is to establish an enduring regional organization to serve as an umbrella group for communities associated with MOTSU and to help lead and coordinate implementation efforts between the communities, MOTSU, and other interested agencies. One of the deliverables for the JLUS is a Communications Manual, which provides additional recommendations for the initial establishment and operation of such an organization.

Tables have been included on the following pages to better organize and present the recommendations that are discussed previously in this section. In addition to the unique identifier for each recommendation, there are several columns in the tables which help the reader to more easily identify the applicability of the recommendation, implementation responsibility, the nature of the required action, a general note on resources, and a suggested period to initiate the implementation of the recommendation. Generally speaking, those items listed as short-term should begin implementation within 1-2 years, medium term items should begin implementation within 3-5 years, and long term recommendations should be initiated within 5-10 years. Those items identified as "ongoing" should be initiated as soon as practical, and would be a continuing task of the responsible party.

In addition to the implementation of the study recommendation, it will be critical for the region to revisit this study on a regular basis to incorporate new information, measure success with implementation, and recharge the strong relationships that are growing between MOTSU and its local government partners.

COORDINATION RECOMMENDATIONS

C-1

The local governments and MOTSU should establish an enduring regional organization to serve as a forum and advocacy group for joint civil-military relations between MOTSU and its host communities.

Applicability	Responsibility	Action	Resources	Time Frame
CFCOG Local Governments MOTSU	Staff + Governing Boards	Establish Organization + Assign Representatives	Staff Time + Ongoing Funding	Short (1-2 years) / Ongoing

C-2

MOTSU should establish a clear and consistent point of contact (defined staff position) to receive, distribute, and respond to land use notices. Responses should be provided for all notices that are received.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU	MOTSU Commander	Assign Staff	Staff Time	Short (1-2 years) / Ongoing

C-3

Local governments should adopt policies through their land use ordinances to require notification of statutorily required actions (as well as any local modifications) within 5 miles of the MOTSU rail corridor, in addition to the main terminal, interchange yard, and pleasure island ESCZ.

Applicability	Responsibility	Action	Resources	Time Frame
Local Governments	Planning Staff + Governing Boards	Amend Land Use Ordinances	Staff Time	Short (1-2 years)

C-4

Local governments should Consider adopting policies to expand the types of actions / decisions that are covered by notice to MOTSU within the 5 mile notification areas due to lack of clarity / relevance in the military land use notification statutes.

Applicability	Responsibility	Action	Resources	Time Frame
Local Governments	Planning Staff + Governing Boards	Amend Land Use Ordinances	Staff Time	Short (1-2 years)

COORDINATION RECOMMENDATIONS

C-5

The Wilmington MPO should expand the membership of its technical coordinating committee (TCC) to include a representative from MOTSU, who should attend all WMPO meetings.

Applicability	Responsibility	Action	Resources	Time Frame
Wilmington MPO MOTSU	MPO Board + MOTSU Commander	Amend Bylaws + Assign Representative	Staff Time	Short (1-2 years)

C-6

Local governments should invite MOTSU representatives to participate on steering / advisory committees for local comprehensive / land use planning projects, and MOTSU staff should participate in meetings of those committees.

Applicability	Responsibility	Action	Resources	Time Frame
Local Governments MOTSU	Governing Boards + MOTSU Commander	Establish Policy + Invite MOTSU to Participate	Staff Time	Short (1-2 years) / Ongoing

C-7

MOTSU should make subject matter experts available, as requested and as available, for local governments to use as a resource on matters of mutual relevance.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU	MOTSU Commander	Assign Staff	Staff Time	Ongoing

C-8

MOTSU and its local government partners should jointly develop public outreach materials (digital, print, etc.) That explain the MOTSU mission and the various land use, public safety, and other concerns and rules (e.g. ESCZ trespassing, Cape Fear River restricted area), and make these materials available through a web portal and in local government offices.

Applicability	Responsibility	Action	Resources	Time Frame
Coordinating Committee	Committee + Staff	Develop, Publish and Update Materials	Staff + Printing + Website	Short (1-2 years) / Ongoing

COORDINATION RECOMMENDATIONS

C-9

MOTSU and the region as a whole should participate in, and seek representation on, statewide military advocacy organizations such as the Military commanders council and the military affairs commission.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Coordinating Committee	MOTSU Commander + Committee	Join, Seek Appointment, and Participate in Committees	Time + Travel Expenses	Short (1-2 years) / Ongoing

C-10

Once established, MOTSU should communicate the new procedure for requesting real estate agreements / outgrants on installation property to the Standing Coordinating Committee (see recommendation C-1).

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Coordinating Committee	MOTSU Commander	Finalize Outgrant Approval Procedure and Provide the Procedure to the Coordinating Committee	Staff Time	Short (1-2 years)

LAND USE RECOMMENDATIONS

LU-1

Local governments should Consider implementing zoning regulations along the MOTSU – Leland rail corridor and around the interchange yard to limit the density and intensity of residential development and restrict uses that are incompatible with the potential need to evacuate in case of an emergency situation.

Applicability	Responsibility	Action	Resources	Time Frame
Brunswick County Boiling Spring Lakes Leland	Planning Staff + Governing Boards	Amend Land Use Ordinances	Staff Time	Short (1-2 years)

LU-2

Local governments having jurisdiction within the K88 glass breakage hazard area should adopt regulations as part of an overlay district that either prohibit the construction of habitable structures taller than 5 stories (50 feet) or require the issuance of a special use permit for such structures so that their proposed siting, orientation, and construction can be evaluated for public safety concerns.

Applicability	Responsibility	Action	Resources	Time Frame
Brunswick County Southport New Hanover County Carolina Beach	Planning Staff + Governing Boards	Amend Land Use Ordinances	Staff Time	Short (1-2 years)

LU-3

Local governments, with assistance from technical experts from MOTSU, should develop voluntary construction standards to make available to developers / contractors in the area between the IBD and K88 for all types of construction to mitigate potential safety issues from glass breakage and other hazards.

Applicability	Responsibility	Action	Resources	Time Frame
Local Governments MOTSU	Planning / Inspections Staff + MOTSU Commander	Develop and Distribute Construction Standards	Staff + Publication Costs	Medium (3-5 years)

LU-4

Local government comprehensive plans should be updated to include relevant information, policies, and land use guidance related to MOTSU and the Joint Land Use Study.

Applicability	Responsibility	Action	Resources	Time Frame
Local Governments	Planning Staff + Governing Boards	Amend Comprehensive Plans	Staff Time	Short (1-2 years)

LAND USE RECOMMENDATIONS

LU-5

Local government land use ordinances should be updated to explicitly reference the statutory military land use notification requirements (as well as any locally adopted expansions of notice requirements).

Applicability	Responsibility	Action	Resources	Time Frame
Local Governments	Planning Staff + Governing Boards	Amend Land Use Ordinances	Staff Time	Short (1-2 years)

LU-6

Local governments should ensure that CAMA plans are consistent with MOTSU's mission with regard to its ongoing activities in areas of environmental concern.

Applicability	Responsibility	Action	Resources	Time Frame
Local Governments	Planning Staff + Governing Boards	Amend CAMA Plans	Staff Time	Medium (3-5 years)

LU-7

Local governments should consider the adoption of policies requiring that any response or analysis provided by MOTSU regarding the compatibility of a proposed land use action be provided to the governing board as part of the staff report for that item.

Applicability	Responsibility	Action	Resources	Time Frame
Local Governments	Planning Staff + Governing Boards	Update Policies	Staff Time	Short (1-2 years)

LU-8

Local governments should jointly develop additional zoning / subdivision standards to provide for enhanced safety and security in areas immediately adjacent to the rail corridor. Examples could include requirements for establishing berms, fencing, or similar development standards in areas of potential public safety concern.

Applicability	Responsibility	Action	Resources	Time Frame
Brunswick County Boiling Spring Lakes Leland	Planning Staff + Governing Boards	Amend Land Use Ordinances	Staff Time	Short (1-2 years)

LAND USE RECOMMENDATIONS

LU-9	MOTSU should work with NCDOT to ensure that safety and security are taken into account when it is considering granting permits / encroachment agreements for the establishment of wireless telecom towers in state ROW.				
	Applicability	**Responsibility**	**Action**	**Resources**	**Time Frame**
	MOTSU NCDOT	MOTSU Commander + District Engineer	Coordinate with NCDOT	Staff Time	Short (1-2 years)
LU-10	MOTSU and the local governments should monitor planning efforts for the NC State Port property south of MOTSU and seek to work collaboratively with the NCSPA on its plans for the future of the site.				
	Applicability	**Responsibility**	**Action**	**Resources**	**Time Frame**
	MOTSU Local Governments	MOTSU Commander + Planning Staff	Coordinate with NCSPA	Staff Time	Ongoing
LU-11	Local governments should invite MOTSU staff to participate in Technical Review Committee meetings where items of potential concern to the installation will be discussed.				
	Applicability	**Responsibility**	**Action**	**Resources**	**Time Frame**
	Local Governments MOTSU	Planning Staff + MOTSU Commander	Invite MOTSU to Participate in TRC	Staff Time	Ongoing
LU-12	MOTSU should seek funding from sources such as the REPI and ACUB programs, and work with local governments and regional land conservation organizations to secure supplemental funding from programs such as the Clean Water Management Trust Fund, to acquire conservation easements and/or purchase undeveloped land along the MOTSU rail corridor to enhance future Mission Compatibility and achieve conservation goals.				
	Applicability	**Responsibility**	**Action**	**Resources**	**Time Frame**
	MOTSU	MOTSU Commander	Seek Compatible Use Easement Funding	Staff / Program + Grant Funding	Medium (3-5 years) / Ongoing

LAND USE RECOMMENDATIONS					
LU-13	Local governments should consider adopting regulations in their subdivision ordinances to require plat notations indicating proximity to MOTSU, its rail corridor and interchange yard, as well as require preliminary subdivision plats and site plans to indicate their distance to those facilities when submitted for review to ensure that developers (and future purchasers) are aware of the potential hazards and associated risk.				
	Applicability	**Responsibility**	**Action**	**Resources**	**Time Frame**
	Brunswick County Boiling Spring Lakes Leland	Planning Staff + Governing Boards	Amend Land Use Ordinances	Staff Time	Short (1-2 years)

PUBLIC SAFETY RECOMMENDATIONS

PS-1

MOTSU and the local governments should continue participation in mutual aid agreements and joint exercises with law enforcement, fire, and other emergency response agencies.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Local Governments Public Safety Agencies	MOTSU Commander + Public Safety Chiefs + Governing Boards	Adopt and Renew Mutual Aid Agreements + Conduct Joint Exercises	Staff Time + Training Funding	Ongoing

PS-2

MOTSU and local emergency response / management agencies should develop, and regularly review and update, contingency plans for evacuation measures for rail, truck, and facility related incidents.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Local Governments Public Safety Agencies	MOTSU Commander + Public Safety Chiefs	Develop and Update Contingency Plans	Staff Time + Planning Funds	Short (1-2 years) / Ongoing

PS-3

MOTSU should consider prepositioning woodland firefighting equipment on Pleasure Island to enhance responses to incidents in the ESCZ.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Carolina Beach Kure Beach New Hanover County	MOTSU Commander + Fire Chiefs	Acquire and Preposition Equipment	Equipment Acquisition Funding	Long (5-10 years)

PS-4

MOTSU should consider permanently expanding the restricted area (or explore options for temporary expansions) in the Cape Fear River to better match operational, safety, and security requirements of its mission.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU	MOTSU Commander	Pursue Amendment of 33 CFR 334.450	Staff Time	Medium (3-5 years)

PUBLIC SAFETY RECOMMENDATIONS

PS-5

MOTSU should continue to seek the designation of the Cape Fear River as a "no-fly" area for UAS by the FAA and seek expansion of the width of the "no-fly" area along the rail corridor and around the Leland interchange yard.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU	MOTSU Commander	Pursue Amendment of UAS Flight Restrictions	Staff Time	Short (1-2 years)

PS-6

MOTSU should work with local governments to grant the authority to emergency response agencies to fly UAS in restricted areas (particularly the ESCZ) with prior notice to MOTSU security officials.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Local Governments	MOTSU Commander + Public Safety Chiefs	Develop MOUs and Procedures for UAS Overflight	Staff Time	Short (1-2 years)

PS-7

MOTSU, NCDOT, NCDNCR, and Brunswick County should explore options for restricting public access to the portion of Plantation Road south of St. Phillips Road, while ensuring ongoing access to Brunswick Town / Fort Anderson and Orton Plantation.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU NCDOT NCDNCR Brunswick County	MOTSU Commander + NCDOT District Engineer + County Commissioners	Abandon Plantation Road ROW and Transfer to MOTSU (with access to Orton and Brunswick Town)	Staff Time + Maintenance Funds	Medium (3-5 years)

PS-8

MOTSU should enhance public notices / no trespassing signage along the ESCZ boundary on Pleasure Island and along the rail corridor.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU	MOTSU Commander	Acquire and Install Additional Boundary Signage	Sign Acquisition and Installation Funding	Short (1-2 years)

PUBLIC SAFETY RECOMMENDATIONS

PS-9

MOTSU, the local governments, and independent emergency response agencies should continue to provide opportunities for local fire agency personnel to receive enhanced training in explosives safety / fire response, shipboard, and woodland firefighting to enhance their capabilities to support MOTSU.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Public Safety Agencies	Public Safety Agency Chiefs	Continue Joint Training Exercises	Staff Time + Training Funding	Ongoing

PS-10

MOTSU, the local governments, and independent emergency response agencies should explore opportunities for local fire agencies to obtain specialized equipment that enhances their capabilities and capacity to support MOTSU.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Public Safety Agencies	Public Safety Agency Chiefs	Seek Funding for Acquisition of Specialized Equipment	Staff Time + Equipment Acquisition Funds	Medium (3-5 years)

PS-11

MOTSU, Brunswick County, Boiling Spring Lakes, and Leland should continue to work towards agreements on concurrent law enforcement jurisdiction on the rail corridor as the Army continues to pursue efforts to acquire fee simple ownership of the corridor.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Brunswick County Boiling Spring Lakes Leland	MOTSU Commander + Law Enforcement Chiefs	Seek Concurrent Law Enforcement Jurisdiction for the Rail Corridor	Staff Time	Short (1-2 years)

TRANSPORTATION RECOMMENDATIONS

T-1

MOTSU and the USACE should continue to explore opportunities to acquire fee simple ownership of the rail corridor

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU	MOTSU Commander	Seek Fee Simple ROW Acquisition	Staff Time + Land Acquisition Funding	Long (5-10 years)

T-2

MOTSU, NCDOT, Cape Fear RPO, Wilmington MPO and the local governments should explore opportunities for the elimination of at-grade road crossings of the MOTSU rail line and work toward sealing the rail corridor between MOTSU and Leland (to the extent practical).

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU NCDOT WMPO+CFRPO Brunswick County Leland Boiling Spring Lakes	MOTSU Commander + District Engineer + TPO Boards + Governing Boards	Develop and Implement Plans to Eliminate Railroad Grade Crossings	Planning and Construction Funding	Long (5-10 years)

T-3

MOTSU and the local governments should continue working with NCDOT to mitigate and eliminate flooding issues along the highway access routes to MOTSU to ensure continuous access to the installation.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU NCDOT Brunswick County Leland Boiling Spring Lakes	MOTSU Commander + District Engineer + Governing Boards	Develop and Implement a Plan to Mitigate Highway Flooding Hazards	Planning and Construction Funding	Short (1-2 years)

T-4

MOTSU, NCDOT, and the Wilmington MPO should support the completion of I-140 (to the Cape Fear Crossing) to provide more direct truck access to MOTSU.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU NCDOT WMPO	MOTSU Commander + MPO Board	Support Funding and Construction of the Cape Fear Crossing	N/A	Short (1-2 years)

TRANSPORTATION RECOMMENDATIONS

T-5

MOTSU, NCDOT, the Cape Fear RPO, and Wilmington MPO should analyze the impact of the completion of I-140 on highway access / intersection functionality for MOTSU truck traffic and develop mitigation strategies for inclusion in transportation plans if issues are identified.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU NCDOT CFRPO WMPO	MOTSU Commander + District Engineer + TPO Staff	Prepare Traffic Impact Models and Mitigation Plans for Preferred CFC Route	Planning Funds	Medium (3-5 years)

T-6

NCDOT and the Cape Fear RPO should explore opportunities for constructing a grade separation of NC-133 over the MOTSU rail line.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU NCDOT CFRPO	MOTSU Commander + District Engineer + CFRPO Board	Conduct and Engineering Study and Seek Funding for Construction	Planning and Construction Funding	Long (5-10 years)

T-7

MOTSU, the Cape Fear RPO, and the Wilmington MPO should explore opportunities for providing redundant rail access to the Leland interchange in conjunction with the possible reopening of the Whiteville – Malmo and Castle Hayne – Wallace rail corridors.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU WMPO CFRPO NCDOT	MOTSU Commander + TPO Boards + NCDOT Rail Division	Conduct MOTSU Rail Needs Assessment and Advocate for Redundant Rail Access	Planning Funds	Long (5-10 years)

T-8

MOTSU should coordinate with NCDOT Ferry Division on the planned expansion of the frequency of ferry service between Fort Fisher and Southport to identify and mitigate any potential operational impacts (on either party).

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU NCDOT Ferry Division	MOTSU Commander + NCDOT Ferry Division	Coordinate on Ferry Service Expansion	Staff Time	Short (1-2 years)

TRANSPORTATION RECOMMENDATIONS

T-9

MOTSU, the Cape Fear RPO, and Wilmington MPO should ensure that MOTSU's rail, highway, and maritime transportation needs are reflected in regional transportation plans.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU WMPO CFRPO	MOTSU Commander + TPO Boards + TPO Staff	Include MOTSU Transportation Needs in Regional Transportation Plans	Staff Time	Short (1-2 years) / Ongoing

T-10

The Pleasure Island Communities, New Hanover County, and the WMPO should conduct a feasibility study to examine the potential for expanding / replacing the existing snows cut bridge with a wider cross section (Inbound and outbound) that could accommodate bicycle / pedestrian traffic in outside lanes that could also be utilized for vehicle traffic to improve traffic throughput during a potential evacuation.

Applicability	Responsibility	Action	Resources	Time Frame
WMPO NCDOT Carolina Beach Kure Beach New Hanover County	WMPO Board + Planning Staff + Governing Boards	Conduct Feasibility Study and Seek STIP Prioritization and Funding	Staff Time + Study Funding + Construction Funding	Long (5-10 years)

PLEASURE ISLAND ESCZ RECOMMENDATIONS

PIE-1

MOTSU should clearly delineate the necessary safety zone, based on mission requirements, where joint use opportunities will not be feasible (IBD – current and future). In the remainder of the ESCZ area, MOTSU should work with the Pleasure Island communities to identify the specific type, location, and nature of uses that may be considered for establishment in the ESCZ.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Carolina Beach Kure Beach New Hanover County	MOTSU Commander	Clearly Define Future Mission Requirement for ESQD on Pleasure Island	Staff Time + Planning Funding	Short (1-2 years)

PIE-2

MOTSU and the USACE should establish longer terms for real esate outgrants for local government uses in the ESCZ, where granted, to allow local governments to plan for the future and eliminate uncertainty in their capital / infrastructure plans and budgets.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU	MOTSU Commander	Extend the Length of Outgrants	Staff Time	Short (1-2 years) / Ongoing

PIE-3

Local governments should strictly abide by all terms and conditions imposed as part of real estate agreements granted for compatible uses in the ESCZ, and MOTSU should proactively work to enforce the terms of the agreements granted to local governments and other agencies for the use of its property.

Applicability	Responsibility	Action	Resources	Time Frame
Local Government Licensees	MOTSU Commander + Chief Executives	Actively Monitor Outgrant Activities and Sites for Compliance	Compliance and Monitoring Funding	Ongoing

PIE-4

The local governments on Pleasure Island (and New Hanover County) should jointly work to identify community needs that might be met through the use of MOTSU property and work together to implement plans for infrastructure that would serve both communities.

Applicability	Responsibility	Action	Resources	Time Frame
Carolina Beach Kure Beach New Hanover County	Governing Boards	Develop Joint Infrastructure and Program Plans	Planning Funding	Medium (3-5 years)

PLEASURE ISLAND ESCZ RECOMMENDATIONS

PIE-5

Local governments on Pleasure Island should continue to explore options for the use of the former LORAN site in southern New Hanover County for infrastructure and public works uses which might be able to be relocated off of the island.

Applicability	Responsibility	Action	Resources	Time Frame
Carolina Beach Kure Beach New Hanover County	Governing Boards	Explore Opportunities for Lease / Acquisition of LORAN Property	Staff Time + Acquisition Funding	Short (1-2 years)

PIE-6

Local governments on pleasure island should work with MOTSU to identify opportunities to continue developing compatible recreational uses in the Pleasure Island ESCZ (such as the recently constructed greenway trail in Carolina Beach).

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Carolina Beach Kure Beach New Hanover County	MOTSU Commander + Governing Boards	Develop and Implement Compatible Recreation Plans	Staff Time + Planning Funding	Medium (3-5 years)

PIE-7

Local governments on Pleasure Island should work jointly to develop contingency plans for interconnection with the CFPUA as well as the relocation of other vital municipal service uses in the event that MOTSU is required to reclaim the full use of the ESCZ.

Applicability	Responsibility	Action	Resources	Time Frame
Carolina Beach Kure Beach	Governing Boards	Prepare Utility Contingency Plans	Planning Funding	Long (5-10 years)

PIE-8

Local governments on pleasure island and MOTSU should work together to identify and resolve storm drainage issues related to channels that pass through the ESCZ, and develop a long term plan to ensure adequate drainage.

Applicability	Responsibility	Action	Resources	Time Frame
MOTSU Carolina Beach Kure Beach	MOTSU Commander + Governing Boards	Prepare and Implement Drainage Plans	Planning and Maintenance Funding	Short (1-2 years) / Ongoing

PLEASURE ISLAND ESCZ RECOMMENDATIONS					
PIE-9	MOTSU should work collaboratively with local governments on Pleasure Island to develop and implement a plan to manage the size and health of the deer population and to manage potential nuisance wildlife (such as coyotes) that inhabit the ESCZ.				
	Applicability	**Responsibility**	**Action**	**Resources**	**Time Frame**
	MOTSU Carolina Beach Kure Beach New Hanover County	MOTSU Commander + Governing Boards	Prepare and Implement Wildlife Management Plans	Planning and Management Funding	Medium (3-5 years) / Ongoing

APPENDICES

APPENDIX A: ACRONYMS

ACUB - Army Compatible Use Buffer (Program)

AEC - Area of Environmental Concern (regarding the Coastal Area Management Act)

BRAC - Base Realignment and Closure

CAMA - Coastal Area Management Act

CFCOG - Cape Fear Council of Governments

CWMTF - Clean Water Management Trust Fund

DA PAM - Department of the Army Pamphlet

DCM - Division of Coastal Management

DoD - Department of Defense

DDESB - Department of Defense Explosives Safety Board

DESR - Defense Explosives Safety Regulation

ESA - Endangered Species Act

ESQD - Explosives Safety Quantity Distance

ESCZ - Explosives Safety Clear Zone

ETJ - Extraterritorial Jurisdiction

IBD - Inhabited Building Distance

ICRMP - Integrated Cultural Resources Management Plan

INRMP - Integrated Natural Resources Management Plan

JLUS - Joint Land Use Study

MLLW - Mean Lower Low Water

MOTSU - Military Ocean Terminal Sunny Point

MPO - Metropolitan Planning Organization

MTMC - Military Traffic Management Command (predecessor of SDDC)

NCDEQ - North Carolina Department of Environmental Quality

NCDOT - North Carolina Department of Transportation

NCDNCR - North Carolina Department of Natural and Cultural Resources

NCGS - North Carolina General Statutes

NEW - Net Explosive Weight

NOAA - National Oceanic and Atmospheric Administration

OEA - Office of Economic Adjustment

PES - Potential Explosive Site

PTRD - Public Traffic Route Distance

QD - Quantity Distance

REPI - Readiness and Environmental Protection Integration

RPO - Rural Planning Organization

SDDC - United States Army Surface Deployment and Distribution Command

UAS - Unmanned Aerial System

USACE - United States Army Corps of Engineers

USDOT - United States Department of Transportation

USFWS - United States Fish and Wildlife Service

APPENDIX B:
DA PAM 385-64 COMPATIBLE USE TABLE

Table 8–5
Type of exposed sites and safe separation distance required

Type of structure/activity	Safe separation distance required	Notes
Aboveground storage tanks	IBD (table 8–7)	1. The guidance below will be followed to prevent rupture and collapse of unprotected aboveground storage tanks for hazardous materials (such as petroleum, oils, lubricants, industrial chemicals). Exceptions: Large permanent bulk storage facilities are of primary concern when applying IBD to storage tanks. For smaller tanks, it may be best to weigh the cost of distance and protective construction against the strategic value of the stored material, the ease of replacement after an accident, and the potential environmental impact. The command may approve distances less than IBD without formal certificate of risk acceptance through such a risk management process, but only if spill containment is provided to safeguard adjacent facilities. 2. Distances less than IBD may be used when an engineered design protects against ruptures and collapse from fragments and blast. 3. Small quantities of POL and other hazardous materials used for operational purposes require no specific QD separation distance for explosion safety. 4. A service tank supporting a single potential explosion site shall be separated from the potential explosion site by the appropriate NFPA distance (see NFPA, parts 30 and 31). The distance from the service tank to other PESs shall be the NFPA distance or the QD distance between the PESs, whichever is greater. Consider the following example: An explosion operating line consists of two buildings, A and B. For QD purposes, A and B are separated by 200 feet ILD. A service tank supports A. The NFPA requires 25 feet from the tank to A. The distance between the tank and the other potential explosion site (Building B) is the greater of the NFPA distance (25 feet) or the QD distance between A and B (200 feet). Therefore, the distance required between the tank and B is 200 feet. 5. QD from underground ammunition storage to above-ground storage tanks must be determined on a site specific basis taking account of crater, blast, ground shock, debris hazards, and potential adverse environmental impacts.
Administrative areas	IBD	
Administrative area parking lots	PTRD	Minimum fragment distances apply.
Bleachers - training and recreational	IBD	Open areas between explosive storage and handling sites and between these sites and nonexplosive buildings and structures shall be controlled carefully regarding use for recreation or training facilities. As a general rule, the fragment hazard will be severe from the explosion site out to approximately the PTRD.
Break rooms	Prudent fire protection distance	
Briefing rooms for daily work schedules or on-site safety matters	Prudent fire protection distance	
Classification yard from other structures	Magazine distance	
Classification yard to other structures	Appropriate safe-separation distance applies to non-explosives locations as well as explosives locations if the yard is used at any time for any purpose other than listed at right	1. Receiving, dispatching, classifying, and switching of cars. 2. When a classification yard is used solely as an interchange yard, see below. 3. Conducting external inspection of motor vehicles and railcars, or opening of free rolling doors of railcars to remove documents and make a visual inspection of the cargo.
Electrical distribution lines	Distribution lines, the poles or towers supporting them, and electrical substations directly connected to distribution lines will be separated from PESs by PTRD, based on blast only. (Use formulas contained in notes to table 8–8.)	These are normally lines solely supplying multiple garrison or installation locations.

Table 8–5
Type of exposed sites and safe separation distance required—Continued

Type of structure/activity	Safe separation distance required	Notes
Electrical service lines serving a combustible facility or an open potential explosion site.	No closer than the distance between the supporting poles or towers.	1. Line must be run underground for the last 50 feet to an explosives facility. 2. Service lines are those lines supplying individual garrison or installation locations. 3. If an effective means is provided to ensure that energized lines, upon breaking, cannot come into contact with the combustible facility or an open potential explosion site or its appurtenances, then they may be closer than the distance between the poles. Examples of effective means include messenger lines, cable trays, and ground fault circuit interrupters. Before implementing any of these means, a safety submission must be approved.
Electrical transmission lines - 69 kV or more	A. IBD, based on blast — if the line is part of a grid system serving a large off post area use. B. PTRD based on blast only — If loss of the line will not create a serious social or economic hardship use.	1. A minimum distance equal to the length of the lines between the supporting poles or towers, if loss of the line does not cause loss of power (that is, power is rerouted through other existing lines and/or networks). This distance may be further reduced if an effective means is provided to ensure that energized lines, upon breaking, cannot come into contact with facilities of combustible construction or an open potential explosion site. 2. Transmission lines are those lines supplying locations outside the garrison or installation uniquely, or in common with the garrison or installation. Any line carrying 69 kV or more shall be classified as a transmission line for QD purposes.
Heating plants	Prudent fire protection distance	
Industrial areas	IBD	
Inert storage	Command determined	1. Commands shall determine acceptable locations for inert storage that is directly related to the explosives mission and for inert storage that is not directly related but where control of and access to such inert storage is restricted only to personnel directly related to the explosives mission. 2. Commands shall determine what constitutes "directly related." The following apply to inert storage: a. Locations for inert storage shall be determined only after consideration of personnel exposure, the importance of the materiel in relation to the explosives mission, the operational conditions, and the availability of space. b. Sites meeting the conditions above do not require site plans. c. Inert storage that will be accessed by personnel not related to the explosives mission shall be sited as inhabited buildings (based on blast only). Minimum fragment distances do not apply.
Inter-service support and tactical facilities	See paragraph 8–9	1. Common requirements. 2. Appropriate safety distances provided herein will be applied between Army facilities and facilities of another military service regardless of the boundary between the Army and other service installations. 3. Safety criteria based on toxicity, noise, thermal radiation, flight trajectory, incendiary, or other hazards may be greater than explosives safety distance criteria. In these cases, the criteria based on the greatest hazard will be considered.
Joiner (wood/metal) shops	Prudent fire protection distance	
Line offices	Prudent fire protection distance	
Loading docks servicing firing ranges	ILD	1. Separated from firing points having either unarmored vehicles or unprotected personnel by ILD. 2. For firing points with armored vehicles when personnel are in the vehicles with the hatches closed, no QD applies, but a 100 feet fire protection distance must be maintained from the firing point to the loading dock. 3. Separate loading docks will be sited on the basis of use.
Loading docks servicing magazines	IMD	Separate loading docks will be sited on the basis of use.

Table 8–5
Type of exposed sites and safe separation distance required—Continued

Type of structure/activity	Safe separation distance required	Notes
Loading docks serving operating buildings	ILD	Separate loading docks will be sited on the basis of use.
POV Parking Lots for administrative areas	PTRD	Minimum fragment distances apply.
POV Parking Lots serving multiple PESs	ILD	Access for emergency vehicles must be provided.
POV Parking Lots serving a single potential explosion site	ILD	1. May be separated at less than ILD only from its associated facility but no less than 100 feet is required to the associated facility to protect it from vehicle fires. 2. Access for emergency vehicles must be provided.
Rail holding yards	Aboveground magazine	Rail holding yards will be laid out on a unit car-group basis with each car-group separated by the applicable aboveground magazine distance. Separate from other facilities by applicable QD criteria.
Rail holding yards -Christmas tree	Aboveground magazine	1. Separated by the applicable aboveground magazine distance for the net quantity of HE in the cars on the spurs. 2. Will be separated from other facilities by the applicable QD criteria. 3. Arrangement consisting of a ladder track with diagonal dead-end spurs projecting from each side at alternate intervals.
Rail yards two parallel ladder tracks connected by diagonal spurs	Aboveground magazine	1. Separated by applicable aboveground magazine distance for the unit-group quantities of HE. 2. Will be separated from other facilities by the applicable QD criteria.
Railcar holding yards	QD separations are not required	May be used to interchange truck trailers or railcars between the commercial carrier and the Army activity and to conduct visual inspections.
Railcar inspection stations	QD separations are not required	1. They should be as remote as practical from hazardous or populated areas. 2. Activities that may be performed at the inspection station after railcars containing ammunition and explosives are received from the delivering carrier and before further routing within the garrison or installation are as follows: External visual inspection of the railcars. 3. Visual inspection of the external condition of the cargo packaging in vehicles (such as, trailers, railcars) that have passed the external inspection indicated above. 4. Interchange of railcars or MILVANS between the common carrier and the Army activity.
Railcar Interchange yards	Applicable QD tables apply unless meets remarks.	1. Railcar interchange yards are not subject to QD regulations when they are used exclusively— a. For the interchange of railcars containing ammunition and explosives between the commercial carrier and Army activities. b. To conduct external inspection of the railcars, or MILVANs containing ammunition and explosives. c. To conduct visual inspection of the external condition of the cargo in vehicles (such railcars, and MILVANS) that passed the external inspection.
Recreational facilities - open air - no structures	Sited at not less than PTRD and preferably as near IBD as practical.	Open areas between explosive storage and handling sites and between these sites and non-explosive buildings and structures shall be controlled carefully regarding use for recreation or training facilities. As a general rule, the fragment hazard will be severe from the explosion site out to approximately the PTRD. For an exception, see table 8–16 and paragraph 8–15b.
Recreational facilities - structures, *including bleachers*	Sited at not less than IBD.	Open areas between explosive storage and handling sites and between these sites and non-explosive buildings and structures shall be controlled carefully regarding use for recreation or training facilities. As a general rule, the fragment hazard will be severe from the explosion site out to approximately the PTRD. For an exception, see table 8–16 and paragraph 8–15b.

Table 8–5
Type of exposed sites and safe separation distance required—Continued

Type of structure/activity	Safe separation distance required	Notes
Roll-on or roll-off operations (not involving lifting)	QD criteria apply to all roll-on or roll-off operations.	Site plans will be submitted in accordance with DA Pam 385–65. When QD requirements cannot be met the following mitigation factors should be considered: 1. Total NEWQD present shall not exceed 50,000 lbs. 2. Conducted on garrisons or installations under U.S. control, when possible, to limit exposures to the public. 3. All ammunition and explosives present (such as, in trailers, railcars, barges, ships) must be associated only with the RORO operation being conducted. 4. Roll-on or roll-off operations shall not exceed 24 hours following arrival of ammunition and explosives, including ammunition and explosives staged at a transshipment point. 5. Roll-on or roll-off operations shall be located as remote as practicable from populated areas, in order to minimize exposure of unrelated personnel. 6. Off-installation military vans/International Standardization Organization (MILVAN/ISO) container inter- or intra-modal transfers (involving highway and rail modes only) where containers are not stored or other operations performed.
Secure explosives holding area.	Aboveground magazine	1. Will be laid out on a unit truck-group basis with each group separated by the applicable aboveground magazine distances. 2. Will be separated from other facilities by the applicable QD criteria. 3. An area designated for the temporary parking of commercial carriers' motor vehicles transporting DOD-owned Arms, Ammunition, and Explosives (AAE), classified (SECRET or CONFIDENTIAL) materials, and controlled cryptographic item (CCI). There are two types of secure holding areas. (Note: Although the intent of such areas is to provide a secure storage location for commercial carriers while in-transit, or during emergencies or other circumstances that are beyond a carrier's control, this Standard imposes no requirement for garrisons or installations to have such areas. The term Secure Holding Area is applicable to areas (CONUS, Hawaii, Alaska, and Puerto Rico) governed by Part 205 of Defense Transportation Regulation (DTR) 4500. 9–R, Part II Cargo Movement.
Secure Non-explosives Holding Area	The holding of HD 1.4S materials, without regard to QD, is permitted at this location	No siting required if located outside all QD arcs. If located within a QD arc, provide appropriate safe separation distance.
Security posts and similar locations	Prudent fire protection	May be at explosives operations servicing only one building or operation.
Service tanks - Unprotected	May be sited in accordance with table 8–7 provided the conditions in the notes are met-	1. Unprotected service tanks which support aboveground explosives storage or operating complexes, but not inhabited buildings (such as those in administrative, supply, industrial, and housing areas). 2. The Command must accept the possible loss of the tanks and any collateral damage that a fire might cause if the tanks were punctured by fragments. 3. A dike system must be installed meeting the requirements of NFPA, part 30 to provide spill containment. 4. If the tank is supplied by a pipe system as opposed to a tank truck, then the supply pipe must be protected from blast and fragments to prevent a spill larger than the contents of the tank. If the supply pipe is underground, it will be located from PESs in accordance with below. If it is aboveground, use IBD or protective design in accordance with this pamphlet.
Storage tanks for water	-QD does not apply if the loss of the water tank is acceptable -IBD applies if the loss of the water tank is unacceptable -Buried tanks and associated components of like value shall meet the siting requirements below for underground tanks	1. A key QD consideration is whether loss of the water tank is acceptable. If a water tank is used for firefighting and no adequate alternate water supplies exist, the tank is essential and its loss is unacceptable. If adequate alternate water supplies do exist, loss of the tank may be acceptable. However, consider other factors, such as the replacement cost of the tank and the effect of its loss on the garrison or installation mission, before making a final determination. 2. The Command shall designate the approval authority level for the siting of aboveground water tanks within IBD of PESs, and for buried tanks or pipelines sited at less than the distances required see "Underground pipelines".

Table 8–5
Type of exposed sites and safe separation distance required—Continued

Type of structure/activity	Safe separation distance required	Notes
Training facilities - open air - no structures	Sited at not less than PTRD — preferably as near IBD as practical.	Open areas between explosive storage and handling sites and between these sites and nonexplosive buildings and structures shall be controlled carefully regarding use for recreation or training facilities. As a general rule, the fragment hazard will be severe from the explosion site out to approximately the PTRD. For an exception, table 8–16 and paragraph 8–15b.
Training facilities - structures, *including bleachers*	IBD	Open areas between explosive storage and handling sites and between these sites and nonexplosive buildings and structures shall be controlled carefully regarding use for recreation or training facilities. As a general rule, the fragment hazard will be severe from the explosion site out to approximately the PTRD. For an exception, see table 8–16 and paragraph 8–15b.
Transportation mode change locations	QD criteria apply to all transfer operations involving ammunition and explosives	Movement and transfer of ammunition and explosives must comply with national, international, and host country-specific transportation regulations with the appropriate safe-separation distance for each exposed site based on it type and use.
Truck holding yards	Aboveground magazine	1. Where feasible, trucks will be separated individually or in truckgroups by the applicable aboveground magazine distance. 2. Will be separated from other facilities by the applicable QD criteria.
Truck inspection stations	QD separations are not required but they should be as remote as practical from hazardous or populated areas.	Activities that may be performed at the inspection station for motor vehicles containing ammunition and explosives after they are received from the delivering carrier and before further routing within the garrison or installation are as follows: 1. External visual inspection of the vehicles. 2. Visual inspection of the external condition of the cargo packaging in vehicles (such as trucks, trailers, railcars) that have passed the external inspection indicated above. 3. Interchange of trucks, trailers, railcars, or MILVANS between the common carrier and the Army activity.
Truck-Trailer Interchange yards	Applicable QD tables apply unless meets remarks.	1. Truck, interchange yards are not subject to QD regulations when they are used exclusively— 2. For the interchange of vehicles containing ammunition and explosives between the commercial carrier and Army activities. 3. To conduct external inspection of the trucks, trailers, or MILVAN's containing ammunition and explosives. 4. To conduct visual inspection of the external condition of the cargo in vehicles (such as trucks, trailers, and MILVAN's) that passed the external inspection.
Underground pipelines	-Separation for HD 1.1 use $D=3.0W^{1/3}$ with a minimum distance of 80 feet. -Separated HDs 1.2 through 1.4 by a minimum distance of 80 feet.	
Underground tanks	-Separation for HD 1.1 use formula $D=3.0W^{1/3}$ with a minimum distance of 80 feet. -Separated for HDs 1.2 through 1.4 by a minimum distance of 80 feet.	

APPENDIX C:
EXAMPLE MOTSU REAL ESTATE AGREEMENT

Rec'd
6/16/14

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

June 2, 2014

Real Estate Division

SUBJECT: Transmittal of License No. DACA21-3-14-4020, Military Ocean Terminal, Sunny Point, North Carolina

The Honorable Dean Lambeth
Mayor of Town of Kure Beach
117 Settlers Lane
Kure Beach, North Carolina 28449

Dear Mayor Lambeth:

Enclosed is your executed copy of the subject document which grants the Town of Kure Beach authority to use approximately 28.43 acres of land for recreational activities, operation and maintenance of a water well, and approximately 5,000 SF of land for a storage facility in the buffer zone Military Ocean Terminal, Sunny Point, North Carolina.

If you have any questions, please contact me at (912) 652-5024.

Sincerely,

Yadira V. Gill
Realty Specialist
Management and Disposal Branch

Enclosure

LICENSE NO. DACA21-3-14-4020

DEPARTMENT OF THE ARMY LICENSE
MILITARY OCEAN TERMINAL, SUNNY POINT
NEW HANOVER COUNTY, NORTH CAROLINA

THE SECRETARY OF THE ARMY, hereinafter referred to as the Secretary, under authority of the general administrative authority of the Secretary, hereby grants to the **TOWN OF KURE BEACH** duly organized and existing under and by virtue of the laws of the State of North Carolina, with its principal office at 117 Settlers Lane, Kure Beach, North Carolina 28449 hereinafter referred to as the grantee, a license for public outdoor recreational activities, operation and maintenance of water well including approximately 5,000 SF of land for a storage facility, over, across, in and upon lands of the United States, as identified on EXHIBIT(S) "A", attached hereto and made a part hereof, hereinafter referred to as the premises.

THIS LICENSE is granted subject to the following conditions.

1. TERM

This license is granted for a term of **five (5)** years, beginning **January 1, 2014**, and ending **December 31, 2018**, but revocable at will by the Secretary.

2. CONSIDERATION

a. The grantee shall pay in advance to the United States the amount of **One Thousand Fifty and NO/100 Dollars ($1,050.00),** per annum, payable to the order of the Finance and Accounting Officer, Savannah District and delivered to the District Engineer, US Army Engineer District, Savannah District, 100 W. Oglethorpe Avenue, Savannah, Georgia 31401-3604.

b. All consideration and other payments due under the terms of this license must be paid on or before the date they are due in order to avoid the mandatory sanctions imposed by the Debt Collection Act of 1982, 31 U.S.C. Section 3717. This statute requires the imposition of an interest charge for the late payment of debts owed to the United States, an administrative charge to cover the costs of processing and handling delinquent debts, and the assessment of an additional penalty charge on any portion of a debt that is more than 90 days past due. The provisions of the statute will be implemented as follows:

(1) The United States will impose an interest charge, the amount to be determined by law or regulation, on late payment of debts. Interest will accrue from the due date. An administrative charge to cover the cost of processing and handling each payment will also be imposed.

(2) In addition to the charges set forth above, the United States will impose a penalty charge of six percent (6%) per annum on any payment, or portion thereof, more than ninety (90) days past due. The penalty shall accrue from the date of the delinquency and will continue to accrue until the debt is paid in full.

(3) All payments received will be applied first to any accumulated interest, administrative and penalty charges and then to any unpaid rental or other payment balance. Interest will not accrue on any administrative or late payment penalty charge.

3. NOTICES

All correspondence and notices to be given pursuant to this license shall be addressed, if to the grantee to **Town of Kure Beach, 117 Settlers Lane, Kure Beach, NC 28449** if to the United States, to the District Engineer, Attention: Chief, Real Estate Division, Savannah District (DACA21-3-14-4020), 100 W. Oglethorpe Avenue, Savannah, GA 31401-3604; or as may from time to time otherwise be directed by the parties. Notice shall be deemed to have been duly given if and when enclosed in a properly sealed envelope, or wrapper, addressed as aforesaid, and deposited, postage prepaid, in a post office regularly maintained by the United States Postal Service.

4. AUTHORIZED REPRESENTATIVES

Except as otherwise specifically provided, any reference herein to "Secretary", "District Engineer", or "said officer" shall include their duly authorized representatives. Any reference to "grantee" shall include any duly authorized representatives.

5. SUPERVISION BY THE INSTALLATION COMMANDER

The use and occupancy of the premises shall be subject to the general supervision and approval of the Installation Commander, Military Ocean Terminal, Sunny Point, hereinafter referred to as said officer, and subject to such rules and regulations as may be prescribed from time to time by said officer.

6. APPLICABLE LAWS AND REGULATIONS

The grantee shall comply with all applicable Federal, state, county and municipal laws, ordinances and regulations wherein the premises are located.

7. CONDITIONAL USE BY GRANTEE

The exercise of the privileges herein granted shall be:

a. without cost or expense to the United States;

b. subject to the right of the United States to improve, use or maintain the premises.

c. subject to other outgrants of the United States on the premises.

d. personal to the grantee, and this license, or any interest therein, may not be transferred or assigned.

8. CONDITION OF PREMISES

The grantee acknowledges that it has inspected the premises, knows its condition, and understands that the same is granted without any representations or warranties whatsoever and without any obligation on the part of the United States.

9. COST OF UTILITIES

The grantee shall pay the cost, as determined by the officer having immediate supervision over the premises, of producing and/or supplying any utilities and other services furnished by the Government or through Government-owned facilities for the use of the grantee, including the grantee's proportionate share of the cost of operation and maintenance of the Government-owned facilities by which such utilities or services are produced or supplied. The Government shall be under no obligation to furnish utilities or services. Payment shall be made in the manner prescribed by the officer having such jurisdiction.

10. PROTECTION OF PROPERTY

The grantee shall keep the premises in good order and in a clean, safe condition by and at the expense of the grantee. The grantee shall be responsible for any damage that may be caused to the property of the United States by the activities of the grantee under this license, and shall exercise due diligence in the protection of all property located on the premises against fire or damage from any and all other causes. Any property of the United States damaged or destroyed by the grantee incident to the exercise of the privileges herein granted shall be promptly repaired or replaced by the grantee to a condition satisfactory to said officer, or at the election of said officer, reimbursement made therefor by the grantee in an amount necessary to restore or replace the property to a condition satisfactory to said officer.

11. RESTORATION

On or before the expiration of this license or its termination by the grantee, the grantee shall vacate the premises, remove the property of the grantee, and restore the premises to a condition satisfactory to said officer. If, however, this license is revoked, the grantee shall vacate the premises, remove said property and restore the premises to the aforesaid condition within such time as the said officer may designate. In either event, if the grantee shall fail or neglect to remove said property and restore the premises, then, at the option of said officer, the property shall either become the property of the United States without compensation therefor, or said officer may cause the property to be removed and no claim for damages against the United States or its officers or agents shall be created by or made on account of such removal and restoration work. The grantee shall also pay the United States on demand any sum which may be expended by the United States after the expiration, revocation, or termination of this license in restoring the premises.

12. NON-DISCRIMINATION

The grantee shall not discriminate against any person or persons or exclude them from participation in the grantee's operations, programs or activities conducted on the licensed premises, because of race, color, religion, sex, age, handicap or national origin in the conduct of operations on the premises. The grantee will comply with the Americans with Disabilities Act and attendant Americans with Disabilities Act Accessibility Guidelines (ADAAG) published by the Architectural and Transportation Barriers Compliance Board.

13. TERMINATION

This license may be terminated by the grantee at any time by giving the District Engineer at least ten (30) days notice in writing provided that no refund by the United States of any consideration previously paid shall be made and provided further, that in the event that said notice is not given at least ten (10) days prior to the rental due date, the grantee shall be required to pay the consideration for the period shown in the Condition on CONSIDERATION.

14. ENVIRONMENTAL PROTECTION

a. Within the limits of their respective legal powers, the parties to this license shall protect the premises against pollution of its air, ground and water. The grantee shall comply with any laws, regulations, conditions, or instructions affecting the activity hereby authorized if and when issued by the Environmental Protection Agency, or any Federal, state, interstate or local governmental agency having jurisdiction to abate or prevent pollution. The disposal of any toxic or hazardous materials within the premises is specifically prohibited. Such regulations, conditions, or instructions in effect or prescribed by said Environmental Protection Agency, or any Federal, state, interstate or local governmental agency are hereby made a condition of this license. The grantee shall not discharge waste or effluent from the premises in such a manner that the discharge will contaminate streams or other bodies of water or otherwise become a public nuisance.

b. The grantee will use all reasonable means available to protect the environment and natural resources, and where damage nonetheless occurs from the grantee's activities, the grantee shall be liable to restore the damaged resources.

c. The grantee must obtain approval in writing from said officer before any pesticides or herbicides are applied to the premises.

15. HISTORIC PRESERVATION

The grantee shall not remove or disturb, or cause or permit to be removed or disturbed, any historical, archeological, architectural or other cultural artifacts, relics, remains or objects of antiquity. In the event such items are discovered on the premises, the grantee shall immediately notify said officer and protect the site and the material from further disturbance until said officer gives clearance to proceed.

LICENSE NO. DACA21-3-14-4020

16. DISCLAIMER

This license is effective only insofar as the rights of the United States in the premises are concerned; and the grantee shall obtain any permit or license which may be required by Federal, state, or local statute in connection with the use of the premises. It is understood that the granting of this license does not preclude the necessity of obtaining a Department of the Army permit for activities which involve the discharge of dredge or fill material or the placement of fixed structures in the waters of the United States, pursuant to the provisions of Section 10 of the Rivers and Harbors Act of 3 March 1899 (33 USC Section 403), and Section 404 of the Clean Waters Act (33 USC Section 1344).

17. SPECIAL CONDITIONS

a. In the event this license is renewed by a similar instrument, then Condition No. 11 hereof, will not be applicable.

b. This license replaces DACA21-3-98-3416 which was granted to the Town of Kure Beach for a five (5) years term beginning June 15, 1996 and ending June 14, 2001 as supplemented further for additional terms ending on December 14, 2013.

c. The Grantee acknowledges that the premises are located within the buffer zone for contingency operations at Military Ocean Terminal, Sunny Point, and are subject to safety requirements oriented for the protection of the public and personnel. The Grantee shall evacuate the premises immediately upon notification by the Installation Commander that operational contingencies will be initiated at Military Ocean Terminal, Sunny Point, and the Grantee will implement measures to prevent the public and any personnel access to the premises until notification by the Installation Commander that the evacuation can be terminated.

SIGNATURE PAGE FOLLOW

LICENSE NO. DACA21-3-14-4020

THIS LICENSE is not subject to Title 10, United States Code, Section 2662, as amended.

IN WITNESS WHEREOF, I have hereunto set my hand by authority of the Secretary of the Army, this 4th day of June, 2014.

Ralph J. Werthmann
Savannah District
Chief, Real Estate Division
Real Estate Contracting Officer

THIS LICENSE is also executed by the grantee this 19th day of May, 2014.

TOWN OF KURE BEACH

BY: _____

TITLE: Dean Lambell, Mayor

CERTIFICATE OF AUTHORITY

APPENDIX D:
EXAMPLE REAL ESTATE DENIAL LETTER

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
100 W. OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

December 10, 2013

Real Estate Division

SUBJECT: Request for Use of Road Right of Way, Town of Kure Beach, North Carolina

Honorable Dean Lambeth
Mayor of Town of Kure Beach
117 Settlers Lane
Kure Beach, North Carolina 28449

Dear Mayor Lambeth:

This is in response to the request, dated December 3, 2013, from your Director of Public Works, Mr. Sonny Beeker to Mr. Michael Fuller, Military Ocean Terminal, Sunny Point (MOTSU). Your request to use 25 feet of the Seventh Street road right of way that is located in the Buffer Zone is disapproved.

After reviewing the drawing submitted and our boundary maps, it was determined that an alternate road, owned by the Town of Kure Beach can be used to access the lay down area. Your proposal would result in added vehicular traffic through the buffer zone and require increased surveillance of the area. MOTSU currently does not have adequate resources for this additional requirement.

A copy of this letter is being furnished to Mr. Michael Fuller, at MOTSU, 6280 Sunny Point Road SE, Southport, NC 28461-7800. If you have any questions, please contact Yadira Gill at (912) 652-5024.

Sincerely,

Robert M. Jewell
Chief, Management & Disposal Branch
Real Estate Division

APPENDIX E:
EXAMPLE MOTSU MUTUAL AID AGREEMENTS

DEPARTMENT OF THE ARMY
MILITARY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND
596th Transportation Brigade
6280 Sunny Point Road SE
SOUTHPORT, NORTH CAROLINA 28461-7800

REPLY TO
ATTENTION OF:

MEMORANDUM OF AGREEMENT
BETWEEN
MILITARY OCEAN TERMINAL SUNNY POINT
AND
KURE BEACH POLICE DEPARTMENT

1. Purpose: To describe Kure Beach Police Department (KBPD) support to the Military Ocean Terminal Sunny Point (MOTSU), for incidents occurring in the "Buffer Zone".

2. Situation: Sunny Point relies heavily upon assistance from New Hanover County Sheriff Department, Carolina Beach Police Department, Kure Beach Police Department and Carolina Beach State Park for protection of historic and environmentally sensitive sites in the Sunny Point explosive safety buffer zone on Pleasure Island. This area shares concurrent jurisdiction between the U.S. Government and the state of North Carolina.

3. Scope: These incidents include, but are not limited to: trespassing, destruction of government property, hunting and game violations and other crimes committed by persons not subject to the Uniform Code of Military Justice.

4. Agreement:

a. Sunny Point personnel will notify KBPD when the MOTSU Chief of Police determines a need for support when conditions included within the scope of this agreement are present.

b. CBPD personnel will remain under command and control of CBPD throughout any support situation.

c. During periodic exercises on Sunny Point, request for support may be made in advance. This will help foster knowledge of the layout of Sunny Point and security measures in place to ensure responders know actions to be taken in the event of an actual emergency.

d. Based on information provided, KBPD will respond upon notification with available and appropriate manpower.

e. The MOTSU Commander or his designated representative retains sole approval authority for active engagement.

f. Personnel of KBPD are authorized and presumed to routinely patrol the buffer zone. KBPD will document any incidents that arise out of those patrols and notify the Sunny Point Provost Marshal Division of any actions taken.

g. Personnel of CBPD will notify Sunny Point Provost Marshal Division personnel (457-8315/8503) immediately after apprehending or citing any violations on U.S. Government property. Courtesy copies of all reports will be forwarded to:

Commander
596th Transportation Brigade
Military Ocean Terminal, Sunny Point
Attn: Provost Marshal Division
6280 Sunny Point Road SE
Southport, NC 28461-7800

h. Personnel of Provost Marshal Division, Sunny Point will notify KBPD personnel (458-7586) within 24 hours of apprehending or citing any civilians on U.S. Government property. For serious felony violations, KBPD personnel will be notified immediately. Information copies of violation reports will be forwarded to:

Kure Beach Police Department
117 Settlers Lane
Kure Beach, NC 28449

5. This Memorandum of Agreement will remain in effect until a mutually agreed upon revision is approved in writing.

CHRIS S. HART
COL, LG
Commanding

14 Apr 15
(Date)

DENNIS COOPER
Chief of Police
Kure Beach, NC

4/14/15
(Date)

COPY

SUNNY POINT

DEPARTMENT OF THE ARMY
MILITARY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND
596th TRANSPORTATION BRIGADE
MILITARY OCEAN TERMINAL, SUNNY POINT
6280 SUNNY POINT ROAD SE
SOUTHPORT, NORTH KURE 28461-7800

MEMORADUM OF MUTUAL AID AGREEMENT
BETWEEN
KURE BEACH FIRE DEPARTMENT
AND
SUNNY POINT FIRE & EMERGENCY SERVICES

SUBJECT: Mutual Aid Agreement

1. Reference: Section 1856a, title 42, United States Code.

2. This agreement, entered on this 1st day of March 2012, between the Secretary of the Army acting according to the authority of Section 1856a, title 42, United States Code, and the Kure Beach Fire Department is to secure for each benefits of mutual aid in Fire Prevention, Emergency Rescue, Hazardous Materials (Haz-Mat), Chemical Biological Radiological Nuclear Environmental (CBRNE), Weapons Of Mass Destruction (WMD), the protection of life and property from fire and firefighting.

3. It is agreed that:

a. On request to a representative of the Sunny Point Fire & Emergency Services by a representative of the Kure Beach Fire Department, fire fighting and rescue equipment and personnel of the Sunny Point Fire & Emergency Services will be dispatched when available to any point within the area for which the Kure Beach Fire Department normally provides fire and rescue protection as designated by the representative of the Kure Beach Fire Department.

b. On request to a representative of the Kure Beach Fire Department by a representative of the Sunny Point Fire & Emergency Services, firefighting equipment and personnel of the Kure Beach Fire Department will be dispatched when available to any point within the fire fighting jurisdiction of the Sunny Point Fire & Emergency Services.

c. The rendering of assistance under the terms of this agreement shall not be mandatory, but the party receiving the request for assistance should immediately inform the requesting department if, for any reason, assistance cannot be rendered.

d. Any dispatch of equipment and personnel pursuant to this agreement is subject to the following conditions:

SUBJECT: Mutual Aid Agreement

(1) Any request for aid under this agreement will specify the location to which the equipment and personnel are to be dispatched; however, the amount and type of equipment

and number of personnel to be furnished will be determined by a representative of the responding organization.

(2) The responding organization will report to the officer in charge of the requesting organization at the location to which the equipment is dispatched, and will be subject to the orders of the official.

(3) The responding organization will be released by the requesting organization when the services of the responding organization are no longer required, or when the responding organization is needed within the area for which it normally provides fire and rescue protection.

(4) If a crash of aircraft owned or operated by the United States or military aircraft of any foreign nation occurs within the area for which the Kure Beach Fire Department normally provides fire protection, the chief of the Sunny Point Fire & Emergency Services, or his or her representative, may assume full command on arrival at the scene of the crash.

e. Each party hereby waives all claims against every other party for compensation for any loss, damage, injury or death occurring as a consequence of the performance of this agreement except those claims authorized under 15 U.S.C. 2210.

f. The chief fire officers and personnel of the fire departments of both parties to this agreement are invited and encouraged, on a reciprocal basis, to frequently visit each other's activities for guided familiarization tours consistent with local security requirements and, as feasible, to jointly conduct pre-fire planning inspections and drills.

g. The technical heads of the fire departments of the parties to this agreement are authorized and directed to meet and draft any detailed plans and procedures of operations necessary to effectively implement this agreement. Such plans and procedures of operations shall become effective upon ratification by the signatory parties.

h. All equipment used by the Kure Beach Fire Department in carrying this agreement will be owned by the Kure Beach Fire Department and all personnel acting for the Kure Beach Fire Department under this agreement will, at the time of such action, be an employee or volunteer member of the Kure Beach Fire Department.

i. This agreement shall become effective upon the date hereof and remain in full force and effect until cancelled by mutual agreement of the party hereto or by written notice by one party to the other party, giving thirty (30) days notice of said cancellation.

SUBJECT: Mutual Aid Agreement

4. Effective date: March 1, 2012.

For Kure Beach Fire Department

Harold Heglar
Chief Kure Beach Fire Dept.

Harold Heglar

05/28/2012

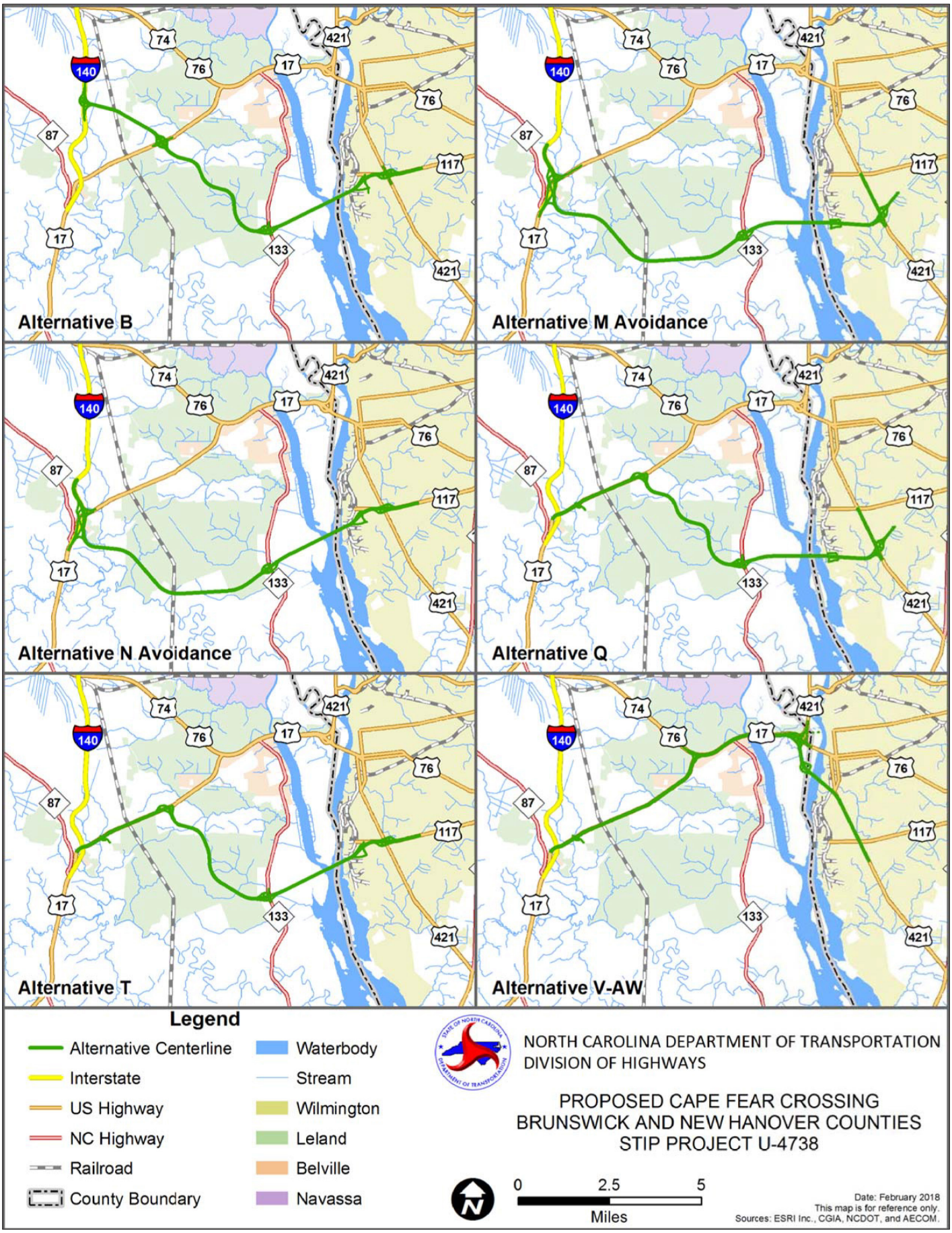
Date

For the Secretary of the Army

Joseph E. Calisto
Colonel, U.S. Army
Commanding

Date

APPENDIX F:
CAPE FEAR CROSSING STUDY ROUTES


Alternative B
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Alternative N Avoidance
Alternative Q
Alternative T
Alternative V-AW
Legend
Alternative Centerline
Interstate
US Highway
NC Highway
Railroad
County Boundary
Waterbody
Stream
Wilmington
Leland
Belville
Navassa
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROPOSED CAPE FEAR CROSSING
BRUNSWICK AND NEW HANOVER COUNTIES
STIP PROJECT U-4738
0
2.5
5
Miles
Date: February 2018
This map is for reference only.
Sources: ESRI Inc., CGIA, NCDOT, and AECOM.

APPENDIX G:
PUBLIC PARTICIPATION PLAN

Public Participation Plan

Military Ocean Terminal Sunny Point Joint Land Use Study

Updated April 26, 2019

BENCHMARK PLANNING

PUBLIC PARTICIPATION PLAN

Military Ocean Terminal Sunny Point Joint Land Use Study

BACKGROUND

The initial step in preparing the Military Ocean Terminal Sunny Point Joint Land Use Study has involved several project meetings with the JLUS Project Manager during the first three months of 2018. During these initial meetings, key dates were discussed for the project schedule, initial stakeholders were identified and the basic study process was discussed in more detail. The consulting team and project manager developed a draft communication and public engagement strategy that is designed to encourage participation in the process by key stakeholders and the general public. In addition, the consulting team and project manager will hold a weekly phone conference call to help keep the project moving forward in an efficient manner.

PROJECT SCHEDULE

Since this project involves multiple groups and individuals in the planning process, a schedule of events was established, which includes meeting dates for the project kickoff and installation tour, stakeholder interviews, public meetings, advisory review meetings, policy committee meetings and final presentations. Other unspecified meeting dates will be determined as needed.

Dates	Meeting	Location
2018		
February 23	Project Team Meeting	CFCOG Office
April 11	Project Kickoff, Installation Tour & Committee Meetings	MOTSU
May 21-24	Stakeholder Interviews	CFCOG Office
June 26	Advisory Committee Meeting – Review Draft Background Research	CFCOG Office
July 30	Public Kickoff Meeting – Study Overview & Background Research 1 Day (2 locations)	Southport Carolina Beach
August 28	Advisory Committee Meeting – Review Compatibility Analysis	Leland
October 16	Advisory Committee Meeting - Review Conflict Resolution Strategies	Leland
Nov. 19	Policy Committee Meeting – Review Conflict Resolution Strategies	New Hanover County
December 4	Advisory Committee Meeting – Draft Recommendations	Boiling Spring Lakes
December 4	Public Meetings – Interim Findings 1 Day (2 locations)	Boiliong Spring Lakes Carolina Beach
2019		
January 29	Policy Committee Meeting – Draft Recommendations	CFCOG Office
February 25	Advisory Committee Meeting – Present Draft Study Documents	CFCOG Office
March 25	Advisory Committee Meeting – Review Draft Study Documents	Kure Beach
April 30	Advisory Committee Meeting - Finalize Draft Study Documents	CFCOG Office
May 14	Advisory & Policy Committee Meeting – Finalize Study Documents	New Hanover County
June 24-25	Public Meetings – Final Presentation	Kure Beach (June 24) Southport (June 25)

COMMUNICATION STRATEGY

It is important to develop a strategy for public outreach that is a meaningful part of the process. In this effort, the project team will be working closely together to establish meeting locations and to notify stakeholders and the general public of meeting dates and times. The project team will also provide updates to the CFCOG for posting information on the Cape Fear Council of Governments website for those seeking additional details. The following is a list of actions identified for organizing and advertising each meeting.

Stakeholder Interviews

For these meetings, extensive coordination will be required by the project team. The CFCOG staff will assist with the consultant team in communicating with stakeholders to schedule interviews (in groups of related stakeholders when possible). If a conflict arises, project team members will attempt to schedule either phone interviews or a follow-up meeting date for in-person interviews, if necessary. The list of identified stakeholders and detailed actions for holding the meetings are outlined below.

Project Stakeholders

As part of the project team's background research, information will be obtained from individuals who are directly involved with the various governmental and private entities influencing land use in the region. The project team will seek information related to planning, economic development, utilities, transportation, and environmental issues. The project stakeholders include principal staff, officials, and key individuals from:

- Military Ocean Terminal Sunny Point
- Brunswick County
- City of Boiling Spring Lakes
- Town of Leland
- City of Southport
- New Hanover County
- Town of Carolina Beach
- Town of Kure Beach
- Cape Fear Council of Governments
- Carolina Beach State Park
- Brunswick Town Historic Site
- Fort Anderson Historic Site
- Fort Fisher State Historic Site
- NC Aquarium at Fort Fisher
- NC State Port Authority
- NCDOT
- Wilmington MPO
- Cape Fear RPO
- USAF Recreation Area
- H2GO
- CSX Railroad
- Duke Energy (Nuclear Plant)
- US Coast Guard
- NCDEQ
- FAA (Transponder vicinity Kure Beach)
- Martin Marietta Aggregates
- Orton Plantation Preserve
- Wilmington District USACE
- International Longshoreman's Association
- Wilmington/Cape Fear Pilots Association
- Private Land Owners (southern boundary)
- State of NC (western boundary)
- NC Sentinel Landscapes (NCREDC)
- State of NC Military & Veteran's Affairs
- Zekes Island Estuarine Reserve
- Atlantic Commercial Properties

Stakeholder Interview Times

The stakeholder interviews should be scheduled with small groups, where feasible, and may include individual interviews where appropriate. The stakeholder meetings will be scheduled the week of May 21st and will primarily take place at the CFCOG conference room and the conference room of consulting team member Dial Cordy & Associates offices in downtown Wilmington. CFCOG staff will assist the consultant team in setting up the stakeholder interviews and locations.

July and November- Public Kickoff Meeting & Interim Findings Presentation

Once the stakeholder interviews are completed and the background research is completed, public kickoff meetings will be scheduled on one day in two locations to provide more opportunity for input across the study area. An informational meeting will be scheduled on each side of the Cape Fear River; one in Southeast Brunswick County and one in the Pleasure Island area to provide an opportunity for the general public to learn about the Joint Land Use Study process and the key issues. The meeting participants will also have the opportunity to ask questions and provide comments. The meetings will be advertised through the CFCOG website, email distribution lists, local news media and other organizations that can assist in reaching the public throughout the study area. The final details for these meetings are yet to be determined; however, the public kick-off meeting is set for July 30, 2018. Near the mid-point of the study, a second round of public meetings will be scheduled in November for the project team to present the interim findings of the study. The interim findings meetings will focus on the compatibility analysis and conflict resolution strategies. The general public will have the opportunity to ask questions and provide comments similar to the kickoff meeting. The success from advertising the first round of meetings will help determine the methods of advertisement utilized for the second round of meetings. The Cape Fear Council of Governments will take the lead on notifying the local media and the jurisdictions with the consultant team designing the materials and information to be distributed.

JLUS Advisory Committee Review Meetings

The Advisory Committee primarily consists of staff from the various local governments and partners within the study that are familiar with technical issues and the policy implications related to the preparation and implementation of the Joint Land Use Study. The Advisory Committee is a key part of the public participation process, representing the elected officials and citizens of the local governments they serve. The Advisory Committee members will serve as a liaison to the elected officials, other staff and the general public. The project team will meet with the Advisory Committee at up to 8 key points in the study process as displayed previously in the project schedule. The first meeting will include an overview of the process and the installation tour, with the second meeting focusing on the review of background research prior to holding the first public meetings. At the third committee meeting, the group will review the compatibility analysis followed by a review of the conflict resolution strategies prior to the presentation of interim findings to the public. The Advisory Committee will then meet up to four additional times to review draft recommendations and draft study documents prior to making a final recommendation to the Policy Committee.

JLUS Policy Committee Review Meetings

The Policy Committee primarily consists of local elected officials representing each local government in the study area. The Policy Committee provides oversight of the study process and work of the Advisory Committee, endorsing the final study upon its completion. The project team will meet with the Policy Committee at up to five key points in the study process. The first meeting will include the installation tour and an overview of the study process. The second meeting will focus on the review of the compatibility analysis and conflict resolution strategies prior to the presentation of the interim findings to the public. The Policy Committee will meet a fourth time to review the draft recommendations and a final time in March to review the final study documents as recommended by the Advisory Committee for approval by the Policy Committee prior to the final presentations in June of 2019.

Final Public Presentation Meetings

Once the Policy Committee has reviewed and approved the final study documents, the final presentations of the Joint Land Use Study and its recommendations will be made to the public at locations to be determined in Southeast Brunswick County and the Pleasure Island area. The presentations will be informational, providing the general public an opportunity to learn more about the study and the implementation strategies. The meetings will take place in April/May 2019.

PUBLIC OUTREACH TOOLS

The Cape Fear Council of Governments staff will communicate directly by email and phone with the key stakeholders. In an effort to notify all potentially interested parties, the Advisory and Policy Committee members will help notify the broader business community and citizens through various means of electronic distribution and mailings. In addition, the CFCOG will post public meeting notices with the various media outlets in the area, with the consultant team providing the content and design of these materials. A final public outreach tool will be the utilization of the CFCOG website. Relevant project information and reports will be posted on this website for stakeholders, property owners and the general public to learn more about the JLUS and future meetings. In addition, an opportunity will be provided for the public to sign up for regular email notices and participate in a survey through the project website and at public meetings. Relevant media outlets to include on notifications regarding public meetings include:

- Wilmington Star News
- Brunswick Beacon
- State Port Pilot
- Port City Daily
- Wilmington Business Journal
- Wilmington Journal
- Island Gazette
- WHQR
- WAAV
- WWAY
- WSFX
- WECT
- WILM

APPENDIX H:
DA PAM 385-64 SAFE SEPARATION DISTANCES AND EFFECTS TABLE

Table 8–1
Safe separation distances and expected severities (HD 1.1)

Distance	Over- pressure (psi)	Expected effects	Severity
Inhabited building distance	***1.2 - 0.90***	—Unstrengthened buildings are likely to sustain damage up to about 5 percent of the replacement cost.	**Moderate**
W<100,000 lbs	***1.2***	— Personnel are provided a high degree of protection from death or serious injury, with likely injuries principally being caused by broken glass and building debris.	
W>250,000 lbs	***0.9***	— Personnel in the open are not expected to be injured seriously directly by the blast. Some personnel injuries may be caused by fragments and debris, depending largely upon the potential explosion site structure and the amount of ammunition and its fragmentation characteristics. Air blast effects on personnel. The following describes air blast over-pressure effects to personnel. One percent eardrum rupture at 3.4 psi exposure. Fifty percent eardrum rupture at 16 psi exposure. Threshold lung rupture at 10 psi (50 msec duration) or 20–30 psi (3 msec duration). One percent mortality at 27 psi exposure (50 msec duration) or 60–70 psi (3 msec duration).	
Public Traffic W<100,000 lbs	**2.3 - 1.7**	— Unstrengthened buildings are likely to sustain damage approximating 20 percent of the replacement cost.	**Critical**
W>250,000 lbs	**2.3**	— Occupants of exposed structures may suffer temporary hearing loss or injury from secondary blast effects such as building debris and the tertiary effect of displacement.	
Route distance	**1.7**	— Personnel in the open are not expected to be killed or seriously injured directly by blast. There may be some personnel injuries caused by fragments and debris, depending largely upon the potential explosion site structure and the amount of ammunition and its fragmentation characteristics. — Vehicles on the road should suffer little damage unless hit by a fragment or unless the blast wave causes momentary loss of control. — Aircraft should suffer some damage to appendages and sheet metal skin from blast and possible fragment penetration; however, the aircraft should be operational with minor repair. — Cargo ships should suffer minor damage to deck structure and exposed electronic gear from blast and possible fragment penetration, but such damage should be readily repairable.	
Unbarricaded intraline distance (IL(U))	**3.5**	— Direct propagation of explosion is not likely. — Delayed communication of an explosion may occur from fires or equipment failure at the exposed site. — Damage to unstrengthened buildings will be serious and approximate 50 percent or more of the total replacement cost. — There is a 1 percent chance of eardrum damage to personnel. — Serious personnel injuries are likely from fragments, debris, firebrands, or other objects. — Cargo ships would suffer damage to decks and superstructure from being struck by fragments and having doors and bulkheads on the weather deck buckled by overpressure. — Aircraft can be expected to suffer considerable structural damage from blast. Fragments and debris are likely to cause severe damage to aircraft at distances calculated from the formula $18W^{1/3}$ when NEWs under 9,000 pounds are involved. — Transport vehicles will incur extensive, but not severe, body and glass damage consisting mainly of dishing of body panels and cracks in shatter-resistant window glass.	**Critical**

Table 8–1
Safe separation distances and expected severities (HD 1.1)—Continued

Distance	Over- pressure (psi)	Expected effects	Severity
Aboveground magazine distance - unbarricaded	**8**	— Damage to unstrengthened buildings will approach total destruction. — Personnel are likely to be injured seriously by the blast, fragments, debris, and translation. — There is a 20 percent risk of eardrum rupture. — Explosives vessels are likely to be damaged extensively and delayed propagation of explosion may occur. — Aircraft will be damaged heavily by blast and fragments; ensuing fire will likely destroy them. — Transport vehicles will sustain severe body damage, minor engine damage, and total glass breakage.	**Catastrophic**
Barricaded intraline distance (IL(B))	**12**	— Unstrengthened buildings will suffer severe structural damage approaching total destruction. — Severe injuries or death to occupants of the exposed site may be expected from direct blast, building collapse, or translation. — Aircraft will be damaged beyond economical repair both by blast and fragments. If the aircraft are loaded with explosives, delayed explosions are likely from subsequent fires. — Transport vehicles will be damaged heavily, probably to the extent of total loss. — Immediate spread of the fire between two explosives locations is unlikely when barricades are interposed between them to intercept high-velocity low-angle fragments. Delayed propagation is possible from lobbed munitions and burning materials. — Improperly designed barricades or structures may increase the hazard from flying debris, or may collapse increasing the risk to personnel and equipment. — Control at IL(B). Barricading is required. Exposed structures containing equipment of high monetary value or critical mission importance or where personnel exposure is significant may require hardening to protect personnel and equipment.	**Catastrophic**
Aboveground magazine distance barricaded	**27**	— Unstrengthened buildings will be destroyed completely. — Personnel will be killed by direct action of blast, by being struck by building debris, or by impact against hard surfaces. — Transport vehicles will be overturned and crushed by blast. — Explosives vessels will be damaged severely, with propagation of explosion likely. — Aircraft will be destroyed by blast, thermal, and debris effects.	**Catastrophic**

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A. REFERENCED DOCUMENTS

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B. GIS DATA SOURCES

Brunswick County
Data: Tax Parcels, Municipal Boundaries
Link: http://www.brunswickcountync.gov/gis/data/

Federal Aviation Administration
Data: UAS Prohibited Overflight Areas
Link: http://uas-faa.opendata.arcgis.com/

National Oceanic and Atmospheric Administration
Data: Storm Surge Inundation Model
https://www.nhc.noaa.gov/nationalsurge/#data

New Hanover County
Data: Tax Parcels, Municipal Boundaries
Link: https://maps.nhcgov.com/find-download-data/

NC Department of Transportation
Data: County Boundaries, Roads (Route Characteristics), Functional Classification, MPO/RPO Boundaries, Railroads, Railroad Crossings
Link: https://connect.ncdot.gov/resources/gis/pages/gis-data-layers.aspx

Data: Traffic Volume (AADT)
Link: https://connect.ncdot.gov/resources/State-Mapping/Pages/Traffic-Survey-GIS-Data.aspx

NC Department of Emergency Management - Floodplain Mapping Program
Data: Flood Hazard Areas
Link: https://sdd.nc.gov/sdd/DataDownload.aspx#

NC Department of Environmental Quality
Data: Protected Aquatic Habitat
Link: http://portal.ncdenr.org/web/mf/primary-nursery-areas

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Link: https://ncnhde.natureserve.org/content/data-download

US Army / Military Ocean Terminal Sunny Point

Data: Installation Boundary, Inhabited Building Distance, Public Transportation Route Distance, K88 Distance, Compatible Use Easements

US Census Bureau

Data: Census Blocks (2010) with Population and Housing Data

Link: https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-data.2010.html

US Department of Agriculture

Data: Land Cover

Link: https://nassgeodata.gmu.edu/CropScape/

US Department of Transportation

Data: Maritime Navigation Routes

Link: http://osav-usdot.opendata.arcgis.com/datasets/fdd63ec4b7bc4d278d03dceb2b8d2a7d_0

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Data: National Wetlands Inventory

Link: https://www.fws.gov/wetlands/Data/Data-Download.html

Benchmark

Data: Study Area Boundary, MOTSU Rail Corridor. Facility Withdrawal Distance, Rail Withdrawal Distance, Generalized Cape Fear Crossing Routes (from Wilmington MPO / NCDOT Maps). IBD Uses, Tall Structures, Fort Fisher Ferry Route, Maritime Restricted Area, 5 Mile Land Use Notification Area.