FINAL
ENVIRONMENTAL IMPACT STATEMENT

U.S. Marine Corps Grow the Force at MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point, North Carolina

Volume II: Appendices

December 2009

In cooperation with the U.S. Army Corps of Engineers

Printed on recycled paper.

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VOLUME II

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APPENDIX A
PUBLIC NOTIFICATION AND AGENCY CORRESPONDENCE

Dated: December 10, 2007.

T.M. Cruz,

Lieutenant, Judge Advocate Generals Corps, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. E7–24214 Filed 12–13–07; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Prepare an Environmental Impact Statement for the U.S. Marine Corps Grow the Force Initiative (or GTF) at Marine Corps Base Camp Lejeune, Marine Corps Air Station New River, and Marine Corps Air Station Cherry Point, NC

AGENCY: Department of the Navy; DoD.

ACTION: Notice.

SUMMARY: Pursuant to section (102)(2)(c) of the National Environmental Policy Act (NEPA) of 1969, as implemented by the Council on Environmental Quality Regulations (40 Code of Federal Regulations parts 1500–1508) and U.S. Marine Corps (USMC) NEPA implementing regulations in Marine Corps Order P5090.2A, the USMC announces its intent to prepare an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock.

The proposed action includes incremental permanent personnel increases at existing USMC installations. By Fiscal Year (FY) 2011 MCBCL, MCASNR, and MCASCP personnel (military and civilian) increases are expected to be approximately 7,700 (MCBCL), 1,400 (MCASNR), and 800 (MCASCP). Alternatives to be examined in the EIS may consist of alternative sitting locations on these installations for new facility construction, renovation and use of existing facilities, or a combination of both new and existing facilities. The no-action alternative, of not permanently basing these Marines and associated personnel, will also be examined.

The USMC is initiating the scoping process with this notice of intent. Scoping assists the USMC in identifying community concerns and local issues related to the proposed action.

DATES: Three open house scoping meetings will be held in the Jacksonville and Havelock regional area from 4 p.m. to 7 p.m. on the following dates and locations:

(1) Tuesday, January 29, 2008, Havelock Tourist and Event Center, 201 Tourist Center Drive, Havelock, NC.

(2) Wednesday, January 30, 2008, Coastal Carolina Community College, 444 Western Boulevard, Jacksonville, NC.

(3) Thursday, January 31, 2008, Dixon High School, 160 Dixon School Road, Holly Ridge, NC.

ADDRESSES: Federal, state, and local agencies, and interested groups and persons are encouraged to attend the scoping open house meetings. All are encouraged to provide comments on the proposed action either at the scoping meetings or by mail, postmarked no later than February 3, 2008 to ensure proper consideration in the EIS to the following address: Mr. Michael H. Jones, Naval Facilities Engineering Command Mid-Atlantic, Code BMEV31 Building C, Room 3012, 6506 Hampton Blvd, Norfolk, VA 23508–1278.

FOR FURTHER INFORMATION CONTACT: Mr. Michael H. Jones, 757–322–4942. Please submit requests for special assistance, sign language interpretation for the hearing impaired or other auxiliary aids at the public meeting to Mr. Jones by January 8, 2008.

SUPPLEMENTARY INFORMATION: In January 2007, the President of the United States, on the recommendation of the Secretary of Defense, announced that the Marine Corps would increase its end strength from approximately 180,000 to 202,000 by 2011. This increase is needed to provide adequate time to recover between deployments, train to meet combat readiness, and prepare for redeployment. The purpose of the proposed action is to ensure that Marines are properly prepared and trained for existing combat and homeland protection missions and future conflicts.

The Marine Corps uses the Total Force Structure Process (TFSP) to transform strategic guidance, policy constraints, and commander-generated recommendations into the integrated capabilities required to execute Marine Corps missions. The TFSP relies on a detailed, integrated examination of doctrine, organization, training, material, leadership, personnel, and facilities, ensuring that no aspect of the enterprise is ignored when new requirements for the Corps are identified. In order to meet the purpose and need, the proposed action of increasing the Marine Corps must be expedited while not compromising the current Marine Corps missions. Existing force structure and organization would be maintained in order to not further complicate, retard, or jeopardize the Marine Corps mission. The proposed action accomplishes this by augmenting existing units with Marines possessing the appropriate skill sets. These existing units are already established at current Marine Corps bases. Consequently, alternative bed-down locations to the proposed action are not feasible because they would not meet the purpose and need of the proposed action.

Specifically, the EIS will evaluate the potential environmental effects of the proposed action at the three installations on the following resources: Land; water resources (e.g., wetlands and coastal zones); natural resources, including threatened and endangered species; air; earth resources (e.g., soils and geology); visual resources, and cultural resources. Issues and activities that will be addressed include: Hazardous materials and hazardous waste; noise; recreation; transportation; socioeconomics; and environmental justice. Other resources, activities, and issues as identified through the scoping process will be included in the EIS and the analysis will evaluate both direct and indirect impacts, and account for cumulative impacts from other past, present, and reasonably foreseeable future actions in the Jacksonville and Havelock, NC regional area.

The USMC values the good relationship between its three installations in eastern NC and the surrounding communities, and will work closely with community stakeholders to assess the potential impacts of the proposed action on traffic and other transportation issues; stormwater and other environmental concerns; population increases and the related concerns with respect to schools, child care, and other quality of life issues; and other potential impacts that may be identified.

Dated: December 10, 2007.

T.M. Cruz,

Lieutenant, Office of the Judge Advocate General, U.S. Navy, Administrative Law Division, Federal Register Liaison Officer.

[FR Doc. E7–24234 Filed 12–13–07; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF EDUCATION

Submission for OMB Review; Comment Request

AGENCY: Department of Education.

SUMMARY: The IC Clearance Official, Regulatory Information Management

UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

N REPLY REFER TO:
5090.11.2
IF&E
FEB 13 2008

From: Commanding General, Marine Corps Installations East
To: Commander, United States Army, Corps of Engineers, Wilmington District, Post Office Box 1890, Wilmington, North Carolina 28402-1890

Subj: REQUEST FOR U.S. ARMY CORPS OF ENGINEERS PARTICIPATION IN 202K ENVIRONMENTAL IMPACT STATEMENT (EIS) PREPARATION

Encl: (1) Notice of Intent to Prepare EIS

1. Marine Corps Installations East (MCIEAST) requests your formal participation in preparation of an EIS to address the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock.

2. As a cooperating agency, MCIEAST requests that you participate in EIS development as may be required. This includes: (a) participating in the document development process, including review of internal draft documents (b) ensuring that the final EIS provides the required information, for your NEPA documentation, throughout subsequent permitting processes (c) making staff support available, to enhance interdisciplinary review capability, and (d) responding in writing to this request.

3. Our point of contact is Mr. Scott Brewer, MCIEAST Installations, Facilities, and Environment Department; he can be contacted at 910.451.7019 or scott.a.brewer@usmc.mil.

Sincerely,

J. D. VOLTZ
CAPT, CEC, USN
By direction

Copy to:
NAVFAC Mid-Atlantic (Attn: Mr Mike Jones / admin record)

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON. NORTH CAROLINA 28402-1890

REPLY TO
ATTENTION OF:

CESAW-RG (1145b)

10 March 2008

MEMORANDUM FOR: Commanding General, Marine Corps Installations East. ATTN: Mr. Scott Brewer

SUBJECT: Request for U.S. Army Corps of Engineers Participation in 202K Environmental Impact Statement (EIS) Preparation

1. Reference Memorandum, MCIEAST Commanding General, Wilmington Engineering District Commander, 13 February 2008, SAB

2. On 19 February 2008, the above referenced memorandum was received requesting the Wilmington District, U.S. Army Corps of Engineers to participate as a cooperating agency in the preparation of the EIS for the U.S. Marine Corps Grow the Force Initiative at Marine Corps Base Camp Lejeune, Marine Corps Air Station New River, and Marine Corps Air Station Cherry Point, North Carolina.

3. The Wilmington District will be pleased to serve as a cooperating agency in the development of the EIS. It is our intent to formally adopt the EIS, in whole or in part, provided it meets our requirements relative to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 at the conclusion of your NEPA process. Please note that other program commitments will preclude the funding or writing of any portion of the subject document. However, it is our intention to fully participate in the development of the EIS throughout the NEPA process by providing comments and input within our area of regulatory authority and expertise as early as possible. This should result in substantial time savings during the review process for any required Department of the Army permits.

4. My points of contact, should you have any questions, are Mr. Ken Jolly, Regulatory Division Chief, at (910) 251-4630, and Mr. Richard Spencer, Regulatory Project Manager, at (910) 251-4172.

JOHN E. PULLIAM, JR.
Colonel, EN
Commanding

The ***U.S. Marine Corps*** is preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of the Grow the Force initiative at MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point, NC. By Fiscal Year 2011, the Marine Corps plans to permanently increase its end force (military and civilian) by about 9,900 personnel across the three installations.

The ***Marine Corps is holding open house scoping meetings*** at the locations below and invites your participation. All meetings will be held in an open house format, and your participation will assist Marine Corps representatives identify issues and concerns associated with the Grow the Force initiative and define the scope of analysis for the EIS. During the open house, the Marine Corps will be available to describe the proposed action and alternatives, define the process involved in preparing the EIS, outline the opportunities for public involvement in the process, and answer questions relevant to the proposal the public might have. All **open house meetings will begin at 4:00 p.m. and last until 7:00 p.m.** and be held at the following locations:

City/Town	***Date***	***Location***
Havelock	Tuesday, January 29	Havelock Tourist & Event Center, Room B, 201 Tourist Center Drive
Jacksonville	Wednesday, January 30	Coastal Carolina Community College, James S. Melton Vocation Skills Bldg., Room 104, 444 Western Boulevard,
Holly Ridge	Thursday, January 31	Dixon High School, Cafeteria, 160 Dixon School Road,

If you are unable to attend one of these open house meetings you may visit our website at www.GrowTheForceNC.com and obtain the information disseminated at the meetings and to provide any comments you might have or you may submit written comments to:

Mr. Michael H. Jones
Naval Facilities Engineering Command Mid-Atlantic, Code BMEV31
Building C, Room 3012, 6506 Hampton Blvd
Norfolk, VA 23508-1278

Although we will accept comments throughout the process, we recommend that your scoping comments be sent by February 3, 2008, to ensure equitable consideration in the draft EIS.

UNITED STATES MARINE CORPS
MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E

APR 16 2008

Mr. Tom Augspurger
United States Fish & Wildlife Service
Raleigh Field Office
P.O. Box 33726
Raleigh, NC 27636

Dear Mr. Augspurger,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

The purpose of the proposed action is to ensure the Marine Corps training system provides the means to attain an exacting level of combat readiness across the entire spectrum of military operations. Reduction of time available to train unnecessarily complicates the Marine Corps' ability to provide combat-ready units training in the war fighting capabilities across the spectrum of conflict. To avoid these negative impacts to readiness, training, mission, and quality of life (QOL), the Secretary of Defense established an improved deployment-to-dwell ratio (the time a Marine is deployed versus the time stationed at home) from 1:1 to 1:2 for all active component forces. The increased dwell time for Marines would provide an opportunity to alleviate the strain on units abroad, provide better QOL, and allow for the proper training environments necessary to conduct expeditionary operations across the spectrum of crises and conflicts.

Focused growth, coupled with improved deployment-to-dwell ratio, would provide the opportunity to enhance the irregular warfare capabilities and contingency missions training, and increase the available training time for most units. The result would be a Marine Corps, prepared as a "total force," to meet the challenges and opportunities of a rapidly changing world and emerging threats.

The scope of the EIS includes the proposed action, and alternatives to be examined in the EIS may consist of alternative siting locations on these installations for new facility construction, renovation and use of existing facilities, or a combination of both new and existing facilities. The no-action alternative, of not permanently basing these Marines and associated personnel at these three installations, will also be examined.

When combined with the previously announced increases of the two US Navy F/A-18 squadrons at Marine Corps Air Station Cherry Point and the MARSOC increases at Marine Corps Base Camp Lejeune, the additional 9,900 Marines, sailors and civilians will make the overall active-duty and civilian employee increases nearly 11,500 at the three eastern North Carolina USMC bases by the end of FY 2011. Many of those additional personnel will have dependents, making the overall growth even larger. The cumulative effects of these previously announced increases along with all the associated dependents at all three installations will be addressed in the EIS.

Please call Mr. Michael H. Jones at (757) 322-4942 if you have any questions. You may submit written comments by April 25, 2008 to: Mr. Michael H. Jones, Naval Facilities Engineering Command Mid-Atlantic, Code BMEV31 Building C, Room 3012, 6506 Hampton Blvd., Norfolk, VA 23508-1278. Comments can also be submitted by visiting our website at: www.GrowTheForceNC.com.

Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E

APR 16 2008

Ms. Coleen Sullins
Division of Water Quality
North Carolina Department of
Environment and Natural Resources
1617 Mail Service Center
Raleigh, NC 27699

Dear Ms. Sullins,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E

APR 16 2008

Mr. Cameron Weaver
Wilmington Regional Office
North Carolina Department of
Environment and Natural Resources
127 Cardinal Drive Extension
Wilmington, NC 28405

Dear Mr. Weaver,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E
APR 16 2008

Ms. Deborah Walker
District Ranger
United States Forest Service
Croatan National Forest
141 E. Fisher Avenue
New Bern, NC 28560

Dear Ms. Walker,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E

APR 16 2008

Dr. Jeffrey Crow
State Historic Preservation Office
4610 Mail Service Center
Raleigh, NC 27699

Dear Dr. Crow,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E

APR 16 2008

Mr. Keith B. Overcash, P.E.
Division of Air Quality
North Carolina Department of
Environment and Natural Resources
1641 Mail Service Center
Raleigh, NC 27699

Dear Mr. Overcash,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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Please call Mr. Michael H. Jones at (757) 322-4942 if you have any questions. You may submit written comments by April 25, 2008 to: Mr. Michael H. Jones, Naval Facilities Engineering Command Mid-Atlantic, Code BMEV31 Building C, Room 3012, 6506 Hampton Blvd., Norfolk, VA 23508-1278. Comments can also be submitted by visiting our website at: www.GrowTheForceNC.com.

Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E
APR 16 2008

Mr. Randy McElveen
Hazardous Waste Section
North Carolina Department of
Environment and Natural Resources
1646 Mail Service Center
Raleigh, NC 27699

Dear Mr. McElveen,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E

APR 16 2008

Ms. Sandy Gordan
Washington Regional Office
North Carolina Department of
Environment and Natural Resources
943 Washington Square Mall
Washington, NC 27889

Dear Ms. Gordan,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E

APR 16 2008

Mr. Steve Everhart
Regional Office, Division of
Coastal Management
North Carolina Department of
Environment and Natural Resources
127 Cardinal Drive Extension
Wilmington, NC 28405

Dear Mr. Everhart,

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS INSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
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IF&E

APR 16 2008

Mr. Steve Underwood
Division of Coastal Management
North Carolina Department of
Environment and Natural Resources
1638 Mail Service Center
Raleigh, NC 28557

Dear Mr. Underwood,

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E
APR 16 2008

Ms. Tere Barrett
Division of Coastal Management
North Carolina Department of
Environment and Natural Resources
400 Commerce Avenue
Morehead City, NC 28557

Dear Ms. Barrett,

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

UNITED STATES MARINE CORPS
MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
5090.12
IF&E

APR 16 2008

Dr. Willie R. Taylor
U. S. Department of Interior
Office of Environmental Policy
and Compliance
1849 C Street NW
Mailstop 2340
Washington, DC 20240

Dear Dr. Taylor,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

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MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

IN REPLY REFER TO:
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APR 16 2008

Mr. Jimmy Palmer
U. S. Environmental Protection Agency
Region IV
61 Forsyth Street SW
Atlanta, GA 30303

Dear Mr. Palmer,

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

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MARINE CORPS IINSTALLATIONS EAST
PSC BOX 20005
CAMP LEJEUNE, NORTH CAROLINA 28542-0005

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IF&E

APR 16 2008

Dr. Roy Crabtree
Regional Administrator, Southeast
U. S. Department of Commerce
9721 Executive Center Drive North
St. Petersburg, FL 33702

Dear Dr. Crabtree,

The purpose of this letter is to inform you that the United States Marine Corps (USMC) is preparing an Environmental Impact Statement (EIS) to evaluate the potential environmental consequences that may result from the permanent assignment of approximately 9,900 additional Marines and support service personnel at three installations in North Carolina: Marine Corps Base Camp Lejeune (MCBCL) and Marine Corps Air Station New River (MCASNR) in Jacksonville and Marine Corps Air Station Cherry Point (MCASCP) in Havelock. This EIS will evaluate the environmental effects to numerous resources that include, but are not limited to: water resources (e.g., stormwater, coastal consistency, and wetlands); air quality; biological resources, including threatened and endangered marine and terrestrial species; land use; socioeconomic resources; infrastructure; and cultural resources.

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Sincerely,

F. E. Cone
By direction of
the Commanding General

Copy to: NAVFAC Mid-Atlantic (Attn: Mike Jones / Admin record)

KC 29 April 08
MHJ

NCDENR

North Carolina Department of Environment and Natural Resources

Division of Coastal Management

Michael F. Easley, Governor | **James H. Gregson, Director** | William G. Ross Jr., Secretary

April 25, 2008

Michael H. Jones
Naval Facilities Engineering Command, Mid-Atlantic
Code BMEV31 Building C, Room 3012
6506 Hampton Boulevard, Norfolk, VA 23508-1278

SUBJECT: Scoping Comments on the Proposed Preparation of an Environmental Impact Statement Regarding the Assignment of Additional Personnel to Camp Lejeune, New River Air Station, and Cherry Point Air Station; Onslow and Craven Counties, North Carolina (DCM#20080051)

Dear Mr. Jones:

The Marine Corps is proposing to prepare an environmental impact statement (EIS) to evaluate the environmental effects resulting from the assignment of approximately 9,900 additional Marines and support personal to Camp Lejeune, New River Air Station, and the Cherry Point Air Station. As part of the EIS preparation process the Marine Corps is soliciting comments from the public on the environmental and regulatory issues that the proposed EIS would be expected to consider and evaluate. The scoping solicitation correctly notes that the proposed EIS will need to evaluate the environmental effects of the proposed action to numerous resources such as water resources, air quality, biological resources, land use, socioeconomic resources, infrastructure, and cultural resources. Below are the comments of the North Carolina Division of Coastal Management (DCM) concerning the environmental and regulatory issues that should be considered by the Marine Corps in the preparation of the proposed EIS.

- The scoping notice correctly notes that the proposed action will require that the Marine Corps submit to DCM a consistency determination as required by the Federal Coastal Zone Management Act (CZMA). Pursuant to 15 CFR 930.37, the Marine Corps may use the proposed EIS "*as a vehicle*" for its consistency determination provided that the proposed EIS meets the requirements of 15 CFR 930.39. DCM recommends that the Marine Corps include in the proposed EIS a section devoted to analyzing the consistency of the proposed action with North Carolina's coastal management program.

- The proposed EIS must contain a cumulative impact analysis that meets the requirements of 40 CFR 1508.7 to evaluate "*the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.*" The Marine Corps and the Navy have been proposing a variety of activities such as, but not limited to, a) a proposed outlying landing field, b) an underwater sonar training range, and c) Atlantic Fleet active sonar training. Additionally, there is a potential for offshore oil and gas drilling activity off the Atlantic coast. We assume that all these potential activities, because they will "*compete*" for resources and space, will be interrelated in some manner. We request that the cumulative incremental impact of these anticipated military and non-military proposals be evaluated to determine if these proposed projects would result in a significant adverse effect to the environment.

- The proposed action may potentially use the resources of nearby non-military facilities in North Carolina such as the State Harbor located in Morehead City. The proposed increase in personnel could lead to increased use of state highways (such as US 17 and SR 24). As the scoping notice observed, the additional personnel will create additional demands for water, sewer, power, and community facilities. DCM recommends that the EIS evaluate the effect of the increased personnel on the infrastructure located within the project area.

- The proposed influx of personal, by implication, will mean increased training activity at these facilities to assure combat readiness. Increased levels of training activity raise the question of the impact of the training activities on the bases themselves and in areas proximal to the bases. For example State Route 172 was recently closed to public travel through Camp Lejeune, which is an adverse impact to public transportation. The proposed increase in population and increased training activity may result in the following potential public access effects: increases in restricted air space, the closure of public roads, and/or the closure of coastal waters to (recreational/commercial) public use.

  The increase in personnel will result in increased "urbanization" of the three bases affected by this proposal. Increased urbanization will result from the need to provide housing, workspace, roads, training areas, and other infrastructure for the additional personnel. This will mean the clearing of habitat, increased habitat fragmentation, increased impervious surfaces, and other activities that may be incompatible with ecosystem preservation. For example, the Marine Special Operations Command (MARSOC) consistency determination notes: "*When completed, the entire proposed MARSOC complex, including the fences area and community facilities will encompass approximately 500 acres, of which approximately 200 acres will be within a more intensely developed footprint.*" Increased urbanization, even if managed with the habitat in mind, can still result, over the long-term, in incremental cumulative environmental degradation. DCM recommends the EIS to evaluate how the effects of continued and increasing urbanization and habitat fragmentation can first be avoided and if not, how it can be mitigated.

- As part of the environmental analysis, DCM recommends that the proposed EIS contain graphics of the existing resources in the affected environment section. In the environmental consequences section of the proposed EIS DCM recommends that the graphics of the existing resources be overlain with the proposed development footprint. Specific graphics recommended by DCM, at a minimum, include the identification of Areas of Environmental Concern, Primary Nursery Areas, Outstanding Resource Waters, beds of submerged aquatic vegetation, designated natural resource area, shellfish areas (open/closed), sea turtle nesting areas, colonial bird nesting areas, and cultural resource areas. The preceding list is not meant to be an exhaustive listing of resources that need to be identified; there will be other resources that should be reviewed.

- Certain activities, such as dredging and construction, in some cases are constrained by moratorium periods. For example, the shorebird moratorium for dredging activity in the vicinity of North Topsail Beach is from April 1st through July 15th of any year. The nesting sea turtle moratorium is from May 1st through November 15th of any year. Additionally, migratory birds and nesting turtles are affected by artificial lighting. DCM recommends that the proposed EIS evaluate how the proposed activities at the bases would be affected by these moratorium periods and how to mitigate for the adverse effects of artificial lighting.

- In terms of potential mitigation options. The Navy recently discontinued the establishment of an outlying landing field (OLF) in Washington County North Carolina. It is our understanding that the Navy has already acquired some of the property that would have been necessary for this proposed facility. One of the issues of concern with this proposed OLF had been migratory waterfowl. The Marine Corps could use this "*surplus*" property or other potential properties as a possible mitigation bank to offset long-term cumulative incremental habitat losses (including habitat fragmentation) that may occur in the affected bases as a result of the influx of the increase personnel. Section 15A NCAC 07M .0701 of North Carolina's Administrative Code, a part of the State's coastal management program, states: "*Coastal ecosystems shall be protected and maintained as complete and functional systems by mitigating the adverse impacts of development as mush as feasible and enhancing, creating, or restoring areas with the goal of improving or maintaining ecosystem function.*" DCM recommends that the EIS evaluate a wide range of mitigation options to assure the maintenance of habitat values.

- The proposed increase in the number of personnel at the three bases may result in the disposal of a wide variety of training materials into the environment. Fore example, the Draft Overseas Environmental Impact Statement/Environmental Impact Statement for the "*Undersea Warfare Training Range*" (page S-8) noted that: "*Materials expended during the launch, operation, and recovery of exercised torpedoes (such as control wires, air launch accessories, flex hose, and ballast), expended devices (expendable bathythermographs [XBTs] sonobuoys, and acoustic device countermeasures [ADCs], and expendable mobile ASW training targets [EMATTS] will be left in place.*" The continual incremental accumulation of debris, from proposed training exercises along with other activities, could over the long term adversely affect terrestrial and marine habitat. In addition, uncollected debris could allow the release of toxins that may eventually find their way into the water column. DCM recommends that the proposed EIS contain measures for the retrieval of equipment and debris that may discharged into the environment

- DCM recommends that the EIS contain a specific section that summarizes all the mitigation measures proposed. Some environmental impact statements, in the past, have not centralized the mitigation proposals into one discrete section, which has made it difficult for the reader to know the full range of mitigation measures being proposed.

Our comments above are not exhaustive, we trust that the Marine Corps will carefully research the environmental concerns raised by this proposed action and include appropriate analysis in the EIS. Thank you for your consideration of the North Carolina Coastal Management Program

Sincerely,

Stephen Rynas, AICP
Federal Consistency Coordinator

cc: Jim Gregson, Division of Coastal Management
Doug Huggett, Division of Coastal Management
Anne Deaton, NC Division of Marine Fisheries
Molly Ellwood, NC Wildlife Resources Commission
Patti Fowler, NC Shellfish Sanitation & Recreational Water Quality

APPENDIX B
DRAFT EIS RECIPIENT LIST

Federal and State Agencies

Salut.	First & Mi.	Last	Title	Organization	Address2	City	State	Zip
Mr.	Horace	Greczmiel	Director of NEPA	CEQ	Old Executive Office Building	Washington	DC	20502
			Administrator	US EPA Region IV	61 Forsyth Street, SW	Atlanta	GA	30303
	District Engineer		Wilmington District	US Army Corps of Engineers	P.O. Box 1890	Wilmington	NC	28402
	District Conservationist	Soil Conservation District		Department of Agriculture	Donald Halsey Agricultural Bldg.	Jacksonville	NC	28540
Dr.	Willie R.	Taylor	Director	US Department of Interior	Office of Environmental Policy & Compliance	Washington	DC	20240
	Gregory	Hogue	Regional Environmental Officer	Office of Environmental Policy & Compliance	75 Spring St.	Atlanta	GA	30303
	Rollie	Schmitted	Director	NOAA Fisheries, Office of Habitat Conservation	1315 East West Highway	Silver Spring	MD	20910
	Laurie	Allen	Acting Director	NOAA Fisheries, Office of Habitat Conservation	1315 East West Highway	Silver Spring	MD	20910
Dr.	Roy	Crabtree	Regional Administrator, Southeast	Department of Commerce	756 28th St	St. Petersburg	FL	33712
Mr.	Tom	Augspurger	Ecologist	US Fish & Wildlife Service	P.O. Box 33726	Raleigh	NC	27636
	Clement	Lewsey	NOAA	Department of Commerce	1305 East West Highway	Silver Spring	MD	20910
State Offices								
	Chrys	Baggett	State Environmental Policy Act Coordinator		1302 Mail Service Center	Raleigh	NC	27699
Dr.	Jeffrey	Crow	State Historic Preservation Officer	State Historic Preservation Office	4610 Mail Service Center	Raleigh	NC	27699
	Peter	Sandbeck	Administrator, Deputy SHPO	State Historic Preservation Office	4617 Mail Service Center	Raleigh	NC	27699
			Office of the Secretary	NC Dept. of Environment and Natural Resources	1601 Mail Service Center	Raleigh	NC	27699
			Washington Regional Office	NC Dept. of Environment and Natural Resources	943 Washington Square Mall	Washington	NC	27889
			Wilmington Regional Office	NC Dept. of Environment and Natural Resources	127 Cardinal Drive Extension	Wilmington	NC	28405
			Division of Air Quality	NC Dept. of Environment and Natural Resources	1641 Mail Service Center	Raleigh	NC	27699
		Morehead City Office	Division of Coastal Management	NC Dept. of Environment and Natural Resources	400 Commerce Avenue	Morehead City	NC	28557
		District Manager	Regional Office, Division of Coastal Management	NC Dept. of Environment and Natural Resources	127 Cardinal Drive Ext.	Wilmington	NC	28405
Mr.	Steve	Underwood	Asst. Director, Policy & Planning, Division of Coastal Management	NC Dept. of Environment and Natural Resources	1638 Mail Service Center	Raleigh	NC	27699
Mr.	Randy	McElveen	Hazardous Waste Section	NC Dept. of Environment and Natural Resources	1646 Mail Service Center	Raleigh	NC	27699
Ms.	Annette	Hargett	Director	NC Eastern Office of the Governor	P.O. Box 985	New Bern	NC	28560
Ms.	Lauren	Hillman	District Ranger	US Forest Service Croatan National Forest	141 E. Fisher Ave.	New Bern	NC	28560
Ms.	Lori	Brill	Asst. County Manager, Onslow County		118 Old Bridge Street	Jacksonville	NC	28541
Ms.	Fannie	Coleman	City Council Member, Ward 4		103 Washington Drive	Jacksonville	NC	28546
Mr.	Norman	Bryson	Deputy Fire Marshall, Onslow County		1180 Common Drive North	Jacksonville	NC	28546

National, State, and Local Elected Officials

Salut.	First & Mi.	Last	Title	Organization	Address2	City	State	Zip
	John	Langdon	County Manager	Carteret County	Couthouse Square	Beaufort	NC	28516
	Pete	Allen	Commissioner	Carteret County Board of Commissions	Couthouse Square	Beaufort	NC	28516
	William H.	Faircloth, Jr.	Commissioner	Carteret County Board of Commissions	Couthouse Square	Beaufort	NC	28516
	Douglas W.	Harris	Commissioners	Carteret County Board of Commissions	Couthouse Square	Beaufort	NC	28516
	Greg	Lewis	Commissioner	Carteret County Board of Commissions	Couthouse Square	Beaufort	NC	28516
	Wade	Nelms	Commissioner	Carteret County Board of Commissions	Couthouse Square	Beaufort	NC	28516
	Jonathan	Robinson	Commissioner	Carteret County Board of Commissions	Couthouse Square	Beaufort	NC	28516
	Thomas L.	Steepy	Commissioner	Carteret County Board of Commissions	Couthouse Square	Beaufort	NC	28516
	Jim	Freeman	City Manager	City of Havelock	P.O. Box 368	Havelock	NC	28532
	Jimmy	Sanders	Mayor	City of Havelock	P.O. Box 368	Havelock	NC	28532
	Scott	Chase	City Planner	City of Havelock	P.O. Box 368	Havelock	NC	28532
	William L.	Lewis	Commissioners, Chair	City of Havelock Board of Commissioners	P.O. Box 368	Havelock	NC	28532
	George	Liner	Commissioner	City of Havelock Board of Commissioners	P.O. Box 368	Havelock	NC	28532
	Robert	Priesing	Commissioner	City of Havelock Board of Commissioners	P.O. Box 368	Havelock	NC	28532
	James L.	Stuart	Commissioner	City of Havelock Board of Commissioners	P.O. Box 368	Havelock	NC	28532
	Daniel	Walsh	Commissioner	City of Havelock Board of Commissioners	P.O. Box 368	Havelock	NC	28532
	Fannie	Coleman	Ward 4 City Council Member	City of Jacksonville	103 Washington Drive	Jacksonville	NC	28546
	Kristoff	Bauer	City Manager	City of Jacksonville	P.O. Box 128	Jacksonville	NC	28541
	Tom	Bayliss	Mayor	City of New Bern	300 Pollock St.	New Bern	NC	28560
	Walter B.	Hartman, Jr	City Manger	City of New Bern	300 Pollock St.	New Bern	NC	28563
Honorable	G.K.	Butterfield		Congressman 1st District	413 Cannon House Office Building	Washington	DC	20510
Honorable	G.K.	Butterfield		Congressman 1st District	Local Office	Wilson	NC	27893
Honorable	Walter B	Jones, Jr		Congressman 3rd District	422 Cannon House Office Building	Washington	DC	20510
Honorable	Walter B	Jones, Jr		Congressman 3rd District	Local Office	Greenville	NC	27858
Honorable	Mike	McIntyre		Congressman 7th District	2437 Rayburn House Office Building	Washington	DC	20510
Honorable	Mike	McIntyre		Congressman 7th District	Local Office	Lumberton	NC	28358
	Harold	Blizzard	County Manager	Craven County	406 Craven Street	New Bern	NC	28560
	Lee Kyle	Allen	Commissioner	Craven County Board of Commissioners	406 Craven Street	New Bern	NC	28560
	Jason R.	Jones, Jr	Commissioners, Chair	Craven County Board of Commissioners	406 Craven Street	New Bern	NC	28560
	Theron	McCabe	Commissioner	Craven County Board of Commissioners	406 Craven Street	New Bern	NC	28560
	Perry L.	Morris	Commissioner	Craven County Board of Commissioners	406 Craven Street	New Bern	NC	28560
	Jonnie	Sampson, Jr.	Commissioner	Craven County Board of Commissioners	406 Craven Street	New Bern	NC	28560
	M. Renee	Sisk	Commissioner	Craven County Board of Commissioners	406 Craven Street	New Bern	NC	28560
	Steve	Tyson	Commissioner	Craven County Board of Commissioners	406 Craven Street	New Bern	NC	28560
	Don	Baumgardner	Director	Craven County Office of Planning & Inspections	2828 Neuse Blvd.	New Bern	NC	28562
	Mike	Aldridge	County Manager	Duplin County	P.O. Box 910	Kenansville	NC	28349
			Commissioners	Duplin County Board of Commissioners	111 SW Center St	Faison	NC	28341
Representative	Carolyn H.	Justice		House 16th District	300 N. Salisbury St.	Raleigh	NC	27603
Representative	William L.	Wainwright		House 12th District	300 N. Salisbury St.	Raleigh	NC	27603
Representative	Pat	McElraft		House 13th District	300 N. Salisbury St.	Raleigh	NC	27603
Representative	George G.	Cleveland		House 14th District	300 N. Salisbury St.	Raleigh	NC	27603
Representative	W. Robert	Grady		House 15th District	300 N. Salisbury St.	Raleigh	NC	27603
Representative	Thomas E.	Wright		House 18th District	300 N. Salisbury St.	Raleigh	NC	27603
Representative	Alice Graham	Underhill		House 3rd District	16 W. Jones St.	Raleigh	NC	27601
Representative	Russell E.	Tucker		House 4th District	300 N. Salisbury St.	Raleigh	NC	27603
	Franky J.	Howard	County Manager	Jones County	P.O. Box 340	Trenton	NC	28585
			Commissioners	Jones County Board of Commissioners	P.O. Box 340	Trenton	NC	28585

	Randy	Martin	City Manager	Morehead City	706 Arendell St.	Morehead City	NC	28557
	Jerry	Jones	Mayor	Morehead City	706 Arendell St.	Morehead City	NC	28557
	Jeanne	Giblin	City Clerk	Morehead City	706 Arendell St.	Morehead City	NC	28557
	Demus L.	Thompson	Councilman	Morehead City	706 Arendell St.	Morehead City	NC	28557
	Paul W.	Cordova	Councilman	Morehead City	707 Arendell St.	Morehead City	NC	28557
	John F.	Nelson	Councilman	Morehead City	708 Arendell St.	Morehead City	NC	28557
	David	Horton	Councilman	Morehead City	709 Arendell St.	Morehead City	NC	28557
	George W.	Ballou	Councilman	Morehead City	710 Arendell St.	Morehead City	NC	28557
	Julius C.	Parham, Jr.	Alderman - Ward 1	New Bern Board of Aldermen	950 Hwy 55 W	New Bern	NC	28562
	Robert G.	Raynor, Jr.	Alderman - Ward 2	New Bern Board of Aldermen	950 Hwy 55 W	New Bern	NC	28562
	Mack L.	Freeze	Alderman - Ward 3	New Bern Board of Aldermen	950 Hwy 55 W	New Bern	NC	28562
	Joseph E.	Mattingly, Jr.	Alderman - Ward 4	New Bern Board of Aldermen	950 Hwy 55 W	New Bern	NC	28562
	Barbara H.	Lee	Alderman - Ward 5	New Bern Board of Aldermen	950 Hwy 55 W	New Bern	NC	28562
	Dana E.	Outlaw	Alderman - Ward 6	New Bern Board of Aldermen	950 Hwy 55 W	New Bern	NC	28562
	Lori	Brill	County Manager	Pender County	807 S. Walker St.	Burgaw	NC	28425
			Commissioners	Pender County Board of Commissioners	805 S. Walker St	Burgaw	NC	28425
Honorable	Richard	Burr		Senate	217 Russell Senate Office Building	Washington	DC	20510
Honorable	Richard	Burr		Senate	State Office	Winston-Salem	NC	27104
Honorable	Elizabeth	Dole		Senate	555 Dirksen Office Building	Washington	DC	20510
Honorable	Elizabeth	Dole		Senate	State Office	Raleigh	NC	27601
Honorable	Charles W.	Albertson		Senate 10th District	300 N. Salisbury St.	Raleigh	NC	27603
Honorable	Jean R.	Preston		Senate 2nd District	16 W. Jones St.	Raleigh	NC	27601
Honorable	Harry	Brown		Senate 6th District	300 Salisbury St.	Raleigh	NC	27603
Honorable	R.C.	Soles, Jr.		Senate 8th District	16 W. Jones St.	Raleigh	NC	27601
	Mark	Schulze	Town Manager	Town of Atlantic Beach	125 Macon Rd.	Atlantic Beach	NC	28512
	Tootsie	Vinson	Mayor	Town of Atlantic Beach	125 Macon Rd.	Atlantic Beach	NC	28512
	Kelly	Nash	Town Clerk	Town of Atlantic Beach	125 Macon Rd.	Atlantic Beach	NC	28512
	Paige	Ackiss	Mayor	Town of Bayboro	P.O. Box 557	Bayboro	NC	28515
	Joan Spain	Leary	Town Clerk	Town of Bayboro	P.O. Box 23	Bayboro	NC	28515
			Commissioners	Town of Bayboro Board of Commissioners		Bayboro	NC	28515
			Chairman	Town of Bayboro Zoning Board	P.O. Box 519	Bayboro	NC	28515
	Terri	Parker-Eakes	Town Manager	Town of Beaufort	200 Howard Blvd.	Beaufort	NC	28516
	Harvey C.	Ellis, Jr.	Mayor	Town of Cape Cateret	102 Dolphin St.	Cape Carteret	NC	28584
	Stewart	Pickett	Mayor	Town of Indian Beach	P.O. Box 148	Indian Beach	NC	28575
	Booker T.	Jones, Sr.	Mayor	Town of Mesic	Mesic Blvd.	Bayboro	NC	28515
	Derryl	Garner	Mayor	Town of Newport	P.O. Box 1869	Newport	NC	28570
	Eric	Lindblade	Councilmen	Town of Newport	P.O. Box 1869	Newport	NC	28570
	Ken	Davis	Councilmen	Town of Newport	P.O. Box 1870	Newport	NC	28570
	Frank	Blunt	Councilmen	Town of Newport	P.O. Box 1871	Newport	NC	28570
	Derryl	Garney	Councilmen	Town of Newport	P.O. Box 1872	Newport	NC	28570
	Richard	Kanuck	Councilmen	Town of Newport	P.O. Box 1873	Newport	NC	28570
	Homer	Blizzard	Councilmen	Town of Newport	P.O. Box 1874	Newport	NC	28570
	Wyatt	Cutler	Town Manager	Town of Oriental	P.O. Box 472	Oriental	NC	28571
	William	Sage	Mayor	Town of Oriental	P.O. Box 472	Oriental	NC	28571
	Sherrill	Styron	Commissioners	Town of Oriental	P.O. Box 472	Oriental	NC	28571
	Candy	Bohmert	Commissioners	Town of Oriental	P.O. Box 472	Oriental	NC	28571
	David	Cox	Commissioners	Town of Oriental	P.O. Box 472	Oriental	NC	28571
	Nancy	Inger	Commissioners	Town of Oriental	P.O. Box 472	Oriental	NC	28571
	Joan E.	Lamson	Mayor	Town of Pine Knoll Shores	100 Municpal Circle	Pine Knoll Shores	NC	28512
	Charles	Alexander	Mayor	Town of Stonewall	P.O. Box 472	Stonewall	NC	28583

	Fannie	Coleman	Ward 4 City Council Member	City of Jacksonville	103 Washington Drive	Jacksonville	NC	28546
	Art	Schools	Mayor	Emerald Isle	7500 Emerald Drive	Emerald Isle	NC	28594
	Tim	Buck	County Manager	Pamlico County	302 Main Street	Bayboro	NC	28515
	Alvin	Barrett	Interim County Manager	Onslow County	118 Old Bridge Street	Jacksonville	NC	28540

Non-Governmental Organziations/Groups

Salut.	First & Mi.	Last	Title	Organization	Address2	City	State	Zip
			President	Carteret County Chamber of Commerce	706 Arendell St.	Morehead City	NC	28557
	John	Wells	President	Carteret County Crossroads	P.O. Box 155	Beaufort	NC	28516
	Buster	Salter	President	Carteret County Fishermen's Assoc.	P.O. Box 152	Atlantic	NC	28511
			Executive Director	Havelock Chamber of Commerce	P.O. Box 21	Havelock	NC	28532
Mr.	Ted	Outwater		Clean Water Fund	P.O. Box 1008	Raleigh	NC	27612
Mr.	John	Runkle		Conservation Council of NC	P.O. Box 12671	Raleigh	NC	27605
			Executive Director	Craven County Economic Development Commission	406 Craven St.	New Bern	NC	28562
Ms.	Georgette	Shepard		Environmental Defense Fund	4000 Westchase Blvd	Raleigh	NC	27607
				Montford Point Marine Association	P.O. Box 928	Jacksonville	NC	28541
	Charles	Shaw	Sr. Regional Executive Director	National Wildlife Federation	P.O. Box 12081	Raleigh	NC	27605
	Barbara	Bain	Chairman	NC Chapter Sierra Club	1125 Blount St.	Raleigh	NC	27601
	Todd	Miller	Executive Director	NC Coastal Federation	3609 Highway 24	Newport	NC	28570
Mr.	Jerry	Schill		NC Fisheries Association	P.O. Box 12303	New Bern	NC	28561
	Katherine	Skinner	Executive Director	NC Nature Conservancy	4705 University Drive	Durham	NC	27707
				Neuse River Foundation	220 S. Front Street	New Bern	NC	28560
Ms.	Betty	Sanders-Seavy		New River Foundation	825 Gum Branch Road	Jacksonville	NC	28540
			Executive Director	North Carolina Coastal Federation	3609 Hwy 24	Ocean Newport	NC	28570
Mr.	Brian	Wheat		Riverkeeper	1 Dressler Drive	Jacksonville	NC	28540
Ms.	Derb	Carter		Southern Environmental Law Center	200 West Franklin St.	Chapel Hill	NC	27516
Pastor	Michael	Schwalm		Centerview Baptist Church	1165 Piney Green Rd.	Jacksonville	NC	28546
	Mona	Padrick	President	Jacksonville/Onslow Chamber of Commerce	P.O. Box 765	Jacksonville	NC	28541
Mrs.	Donna	Best-Klingel	Executive Director	Burgaw Chamber of Commerce (Pender Co)	P.O. Box 1096	Burgaw	NC	28425
Mr.	Allan W.	Libby	President	The Greater Topsail Area Chamber of Commerce & Tourism (Pender Co)	13775 Hwy 50, Suite 101	Surf City	NC	28445
Ms.	Natalie	Kosnick	President	Hampstead Chamber of Commerce (Pender Co)	P.O. Box 211	Hampstead	NC	28443
Mr.	Kevin	Roberts	President	New Bern Area Chamber of Commerce (Craven Co)	316 S. Front St	New Bern	NC	28560
	Curtis	Ormond	President	Pamlico County Chamber of Commerce	P.O. Box 23	Bayboro	NC	28515
Ms.	Barbara	Bell	President	Kenansville Chamber of Commerce (Duplin Co)	640 E. Hwy 24	Kenansville	NC	28349
Ms.	Cynthia	Watson	Executive Director	Georgetown Renaissance Community Assoc.	203 Conover Street	Jacksonville	NC	28540

Libraries and Repositories

Organization	Address2	City	State	Zip
Onslow County Public Library	58 Doris Ave. East	Jacksonville	NC	28540
Richlands Branch Library	299 S. Wilmington St.	Richlands	NC	28574
Sneads Ferry Branch Library	242 Sneads Ferry Rd.	Sneads Ferry	NC	28460
Law Library Branch	109 Old Bridge St.	Jacksonville	NC	28540
Havelock-Craven County Public Library	301 Cunningham Boulevard	Havelock	NC	28532

Media Points of Contact

Organization	Address2	Address3	City	State	Zip
New Bern Sun Journal	3200 Willons		New Bern	NC	28563
Jacksonville Daily News	724 Bell Fork Rd.		Jacksonville	NC	28548
Havelock News	P.O. Box 777		Havelock	NC	28532
The Free Press	2103 N. Queen St		Kinston	NC	28502
The Globe	Landmark Military Newspapers of North Carolina	1122 Henderson Drive	Jacksonville	NC	28540

Public Requests for EIS

First & Mi.	Last	City	State	Zip
Kim	Alcoke	New Bern	NC	28560
Travis	Barfield	Emerald Isle	NC	28540
LJ	Bayer	Emerald Isle	NC	28594
Danny	Bayer	Richlands	NC	28574
Don	Beasley	Sneads Ferry	NC	28460
Royce	Bennett	Jacksonville	NC	28540
Warren	Benton	Morehead City	NC	28557
Will	Breeden	Wilmington	NC	28411
Slade	Brewer	New Bern	NC	28562
Dean	Brown	Chinquopin	NC	28521
Bob	Bryant	Sneads Ferry	NC	28460
Ben	Bunn	New Bern	NC	28560
Carolyn	Bunting			
Tim	Burgess	New Bern	NC	28560
Michelle	Burroughs	New Bern	NC	28560
Angela	Cole	Jacksonville	NC	28540
Bob	Collins	Havelock	NC	28532
David M.	Crenshaw	Jacksonville	NC	28540
Andrew	Dand	Greenville	NC	27834
Anetta	Davenport	New Bern	NC	28562
Jim	Davis	Emerald Isle	NC	28594
Bill	Egen	Havelock	NC	28532
Kevin	Forayth	Hubert	NC	28539
Bob	Gaskins	Jacksonville	NC	
Gaye	Gillette			
Mark	Goodman			
Lisa Whitman	Grice	Rielands	NC	28574
Amelia	Grissett			
Jon C.	Harrison			
Alex	Hepler	Holly Ridge	NC	28445
Mark	Hibbs	Newport	NC	28570
Homer	Hobgood	Jacksonville	NC	28546
Jennifer	Holland	Swansboro	NC	28584
Jeff	Hudson	Jacksonville	NC	
Barbara	Irner	Sneads Ferry	NC	28460
William H	Jones	Holly Ridge	NC	28445
Bill	Jones	Holly Ridge	NC	28445
Frank	Kinlan	Havelock	NC	28532
Derita	Knox	Midway Park	NC	28544
Kert	Lang	Richlands	NC	28574
Michael	Lazzada	Jacksonville	NC	28540
George	Liper	Havelock	NC	
Chris	Lukasina	Jacksonville	NC	28541
Al	Mack	New Bern	NC	28563
George E.	Mainor	Jacksonville	NC	28540
Ron	Massey			
Charles D.	Mizelle	Havelock	NC	28532
Bill	Norris	Jacksonville	NC	
Kevin	O'Connor	Jacksonville	NC	

First & Mi.	Last	City	State	Zip
George	O'Daniel	Jacksonville	NC	28546
Elme	Padgett	Holly Ridge	NC	28445
Roger	Penrod			
James	Pifes	Moorehead City	NC	28557
Chuck	Quinn			
Chris	Rachley	Surf City	NC	28445
Herb	Rawls	New Bern	NC	28560
Jim	Reichardt	Jacksonville	NC	
Norma	Sanderson	Aropchoe	NC	28510
Garland	Sewell, Jr.	Swansboro	NC	28584
Col Mark	Shivers	Jacksonville	NC	28540
Connie	Sithens	New Bern	NC	28562
Harry	Smith	Jacksonville	NC	28540
Kathy	Spencer	Jacksonville	NC	28541
Richard	Spencer	Wilmington	NC	28402-1
Steve	Stevens	Jacksonville	NC	28546
Frank	Terwilliger	Jacksonville	NC	28540
Duane	Verner			
Maj. David E.	West			
Larry W.	Willaford	Holly Ridge	NC	28445

APPENDIX C
COASTAL CONSISTENCY DETERMINATIONS

UNITED STATES MARINE CORPS
MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE, NC 28542-0004

IN REPLY REFER TO:
5090.11.2
BEMD

SEP 18 2009

Mr. Stephen Rynas, Consistency Program Coordinator
North Carolina Department of Environment and Natural Resources
Division of Coastal Management
400 Commerce Ave.
Morehead City, NC 28557

Dear Mr. Rynas:

The United States Marine Corps proposes to construct permanent facilities required to accommodate an increases in Marine forces in support of the Marine Corps Grow the Force initiative and to satisfy the requirements to place incoming forces per the Presidential proposal authorized by Congress at Marine Corps Base Camp Lejeune, (MCB CamLej) North Carolina including Marine Corps Air Station, New River (MCASNR).

In accordance with Section 307 (c) (1) of the Federal Coastal Zone Management Act of 1972 as amended, MCB CamLej has determined that these activities are consistent with North Carolina's Coastal Management Program. This determination is based on the review of the enforceable policies of the State's coastal program, found in Chapter 7 of Title 15A of the North Carolina Administrative Code. MCB CamLej requests that the Division of Coastal Management concur with this consistency determination.

The point of contact for this project is Mr. Martin Korenek, Environmental Conservation Branch, Environment and Installations Department, at (910) 451-7235 or email martin.korenek@usmc.mil.

Sincerely,

John R. Townson

JOHN R. TOWNSON
Director, Environmental Management
By direction of the
Commanding Officer

Enclosure: 1. CONSISTENCY DETERMINATION FOR THE CONSTRUCTION OF FACILITIES AT MARINE CORPS BASE CAMP LEJEUNE

FEDERAL COASTAL CONSISTENCY DETERMINATION FOR CONSTRUCTION OF PERMANENT FACILITIES AT MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION NEW RIVER, NORTH CAROLINA

September 2009

The United States Marine Corps (USMC) has determined that implementing the Proposed Action would be consistent with the enforceable policies of North Carolina's approved Coastal Management Program.

1.0 FEDERAL AGENCY PURPOSE AND ACTION

The USMC proposes to construct permanent facilities and realign/relocate existing missions to on-Base sites to accommodate increases in Marine forces at Marine Corps Base (MCB) Camp Lejeune and Marine Corps Air Station (MCAS) New River, Onslow County, North Carolina associated with the Grow the Force initiative. MCAS New River is located entirely within the boundaries of MCB Camp Lejeune. For purposes of this determination, references to MCB Camp Lejeune management policies and project areas include MCAS New River. Specific information concerning MCAS New River is provided where appropriate.

All of the proposed facilities would be constructed within the Base's boundaries, and construction would occur at eight primary project areas at MCB Camp Lejeune. MCAS New River is considered its own planning area. The facilities would be built over a 5-year period beginning in 2010 (See Figure 1).

The USMC has proposed three Action Alternatives for support of the increased personnel associated with the Grow the Force initiative. All three of the Action Alternatives would include full implementation of the Grow the Force initiative with respect to personnel increases; however, the Alternatives vary in the degrees of construction that would take place to accommodate this increase. Alternative 2 (Preferred Alternative) requires the most extensive construction footprint and disturbance at MCB Camp Lejeune/MCAS New River. Alternative 3 requires substantially less construction, while Alternative 4 does not include any new construction projects, and would accommodate the personnel increases in existing or temporary/relocatable facilities. Because Alternative 2 would have the greatest impact to the coastal zone, the details of this Alternative are briefly described below. Alternatives 3 and 4 will not be discussed, since they are lesser versions of Alternative 2, and any impacts they would have on the coastal zone would be substantially less than that of the Preferred Alternative.

Alternative 2 (Preferred Alternative)

MCB Camp Lejeune proposes to build permanent facilities within the following planning areas: Hadnot Point, Wallace Creek, Courthouse Bay, French Creek, Stone Bay/Rifle Range, Camp Devil Dog, Camp Geiger, and Camp Johnson. Several projects are proposed that occur outside of or affect more than one of these main planning areas. These projects include: a new Base road, water treatment facility, Marston Pavilion Annex, Public/Private Venture (PPV) housing, and the Triangle Outpost Gate on MCB Camp Lejeune. Proposed facilities for MCAS New River would be constructed within the boundaries of the Station. New construction would include the following: headquarters, administrative, and educational facilities; operations and maintenance buildings; lodging accommodations (such as bachelors enlisted quarters and mess halls); and recreational assets like fitness centers, medical/dental clinics, and child development centers. In addition, facilities may need to be demolished and/or upgraded, and infrastructure such as roads, parking areas, wastewater/stormwater drainage systems, and power and communication lines may need new construction or upgrades.

Exact facility designs are still in the formative stages and specific sites for buildings/facilities construction have not been determined at MCB Camp Lejeune; rather, proposed development areas were identified to show the geographical area of consideration and to identify potential development constraints. Preliminary project locations are known at MCAS New River (see Figure 4). Facilities development under the Preferred Alternative at MCB Camp Lejeune and MCAS New River would result in a construction footprint of approximately 1,860 acres (1,700 acres at MCB Camp Lejeune and 160 acres at MCAS New River). Since the location for most of the facilities have not been determined at MCB Camp Lejeune, a worst case estimate of approximately 1,542 acres of forest clearing could occur at the Installation. Given current design estimates of proposed projects, approximately 40 acres of forest clearing could occur at MCAS New River.

2.0 NORTH CAROLINA COASTAL AREA MANAGEMENT ACT

In 1972, Congress passed the Coastal Zone Management Act, which encouraged states to keep the coasts healthy by establishing programs to manage, protect, and promote the country's fragile coastal resources. Two years later, the North Carolina General Assembly passed the landmark Coastal Area Management Act (CAMA). CAMA established the Coastal Resources Commission, required local land use planning in 20 coastal counties, and provided for a program for regulating development. The North Carolina Coastal Management Program was federally approved in 1978 by the National Oceanic and Atmospheric Administration.

2.1 Areas of Environmental Concern

North Carolina's coastal zone includes the 20 counties that are adjacent to, adjoining, intersected by or bounded by the Atlantic Ocean or any coastal sound, including Onslow County where the Proposed Action would occur. There are two tiers of regulatory review for projects within the coastal zone. The first tier is comprised of Areas of Environmental Concern (AECs) designated by the state. AECs have more thorough regulatory controls and include coastal wetlands, coastal estuarine waters, public trust areas, coastal estuarine shorelines, ocean beaches, frontal dunes, ocean erosion areas, inlet lands, small surface water supply watersheds, public water supply well fields, and fragile natural resource areas. The second tier includes land uses with the potential to affect coastal waters, even though they are not defined as AECs. The coastal zone extends seaward to the three nautical mile territorial sea.

An AEC is an area of natural importance and its classification protects the area from uncontrolled development. AECs include almost all coastal waters and about three percent of the land in the 20 coastal counties. The four categories of AECs are:

- The Estuarine and Ocean System, which includes public trust areas, estuarine coastal waters, coastal shorelines, and coastal wetlands;
- The Ocean Hazard System, which includes components of barrier island systems;
- Public Water Supplies, which include certain small surface water supply watersheds and public water supply well fields; and
- Natural and Cultural Resource Areas, which include coastal complex natural areas; areas providing habitat for federal or state designated rare, threatened or endangered species; unique coastal geologic formations; or significant coastal archaeological or historic resources.

MCB Camp Lejeune and MCAS New River include coastal resources designated as AECs, including estuarine coastal waters, coastal shorelines, and coastal wetlands of the Estuarine and Ocean System

AEC, as well as habitat for federal or state designated species and archaeological or historic resources of the Natural and Cultural Resource Area AEC (See Figures 1, 2, and 3). The New River is designated as coastal estuarine water. Furthermore, all land located within 75 feet of the normal high water level of coastal waters and within 30 feet of the normal high water level of inland water is also considered to be coastal shoreline within the Estuarine and Ocean System AEC. Coastal wetlands are located along much of MCB Camp Lejeune's estuarine waters and estuarine wetlands are present within the borders of the proposed development areas of Wallace Creek, Hadnot Point, Courthouse Bay, Stone Bay/Rifle Range, Camp Johnson, and PPV housing. Habitat that supports threatened and endangered species are considered a coastal resource under the Natural and Cultural Resource Area AEC. The proposed project area for the Triangle Outpost Gate contains 55 acres of red-cockaded woodpecker foraging habitat within active clusters (#72 and #90); however, actual forest clearance would only be approximately 2.5 acres, and would only disturb one acre of foraging habitat. MCB Camp Lejeune does not expect this loss to jeopardize the Base's ability to maintain sufficient foraging habitat (See Figure 3). Camp Devil Dog, Courthouse Bay, and Stone Bay/Rifle Range are located within areas designated by MCB Camp Lejeune as future red-cockaded woodpecker habitat, but the area currently does not support any red-cockaded woodpeckers. Informal consultation with the U.S. Fish and Wildlife Service would occur for project areas containing red-cockaded woodpeckers and/or foraging habitat prior to construction to ensure protection of this species.

Other coastal resources not designated as AECs in the vicinity of the proposed development areas include primary nursery areas and special secondary nursery areas. Primary nursery areas are located within the borders of Camp Johnson, Courthouse Bay, PPV housing area, Stone Bay/Rifle Range, and the new Base road (See Figure 3). Special secondary nursery areas are located within the borders of French Creek, Hadnot Point, and Stone Bay/Rifle Range and along the border of Camp Johnson and MCAS New River (See Figure 3).

Following is an analysis of the applicability of policies designed to protect AECs and the USMC's determination of no impact to North Carolina's coastal zone.

2.1.1 15A NCAC 07H .0200 (Estuarine and Ocean Systems)

15A NCAC 07H .0205 defines and establishes management objectives for coastal wetlands "to conserve and manage coastal wetlands so as to safeguard and perpetuate their biological, social, and economic and aesthetic values; to coordinate and establish a management system capable of conserving and utilizing coastal wetlands as a natural resource essential to the functioning of the entire estuarine system." Estuarine wetlands are located within the borders of the proposed development areas of Wallace Creek, Hadnot Point, Courthouse Bay, Stone Bay/Rifle Range, Camp Johnson, PPV housing area, Marston Pavilion Annex, and the new Base road. Additionally, palustrine wetlands are located in each of the proposed development areas. Since project designs are not final, exact acreages of wetland impact are unknown at this time. However, as described in detail in Section 2.2.6 and 3.15.2.1, wetlands would be avoided by proper site planning to the maximum extent practicable, and if wetlands could not be avoided, mitigation would be implemented as required by wetland permit requirements. It has been estimated that the proposed projects under Alternative 2 could potentially impact up to 125 acres of wetlands. The Greater Sandy Run Mitigation Bank would be used to mitigate for loss of wetlands where possible. Other mitigation measures would be site-specific and developed in conjunction with the U.S. Army Corps of Engineers during the permitting process once project details mature. The overall function of the wetlands in the vicinity of the proposed development areas would not be affected and all required mitigation measures would be implemented prior to construction; therefore the Preferred Alternative is consistent with policies to protect coastal wetlands.

15A NCAC 07H .0206 defines and establishes management objectives for estuarine waters in order "to conserve and manage the important features of estuarine waters so as to safeguard and perpetuate their biological, social, aesthetic, and economic values; to coordinate and establish a management system capable of conserving and utilizing estuarine waters so as to maximize their benefits to man and the estuarine and ocean system." The majority of the proposed development areas border estuarine systems but none are located within an ocean system. The Proposed Action would not impact coastal water quality in the long term, and is further discussed in Section 2.2.7. Efforts to minimize impacts to the estuarine system would be taken during the planning of the exact location and implementation of the Proposed Action. Stormwater management plans, including the use of best management practices during construction, would control surface water runoff from entering into the adjacent waterways; therefore, no adverse impact would occur as the Proposed Action is not expected to cause any runoff that might enter estuarine waters.

15A NCAC 07H .0207 defines and establishes management objectives for public trust areas, in order "to protect public rights for navigation, recreation, and to conserve and manage public trust areas in a manner that safeguards and perpetuates their biological, economic, and aesthetic values." Bridge construction would be required for the new Base road's crossing of Northeast Creek, Wallace Creek, smaller tributaries and associated wetlands. Bridge planning would take into account public rights for navigation and recreation of public trust waters, and planning would ensure these rights were protected. Consultation and permitting is required from the U.S. Coast Guard and the U.S. Army Corps of Engineers to ensure protection of these rights, minimization of environmental impact, and safety related to navigation and use of the waterway. Construction of these projects would not impact coastal resources or prohibit access to coastal resources by the public.

2.1.2 15A NCAC 07H .0300 (Ocean Hazard Areas)

15A NCAC 07H .0303 defines and establishes management objectives for ocean hazard areas "to eliminate unreasonable danger to life and property and achieve a balance between the financial, safety, and social factors that are involved in hazard area development." The proposed development areas are not within an ocean hazard area; therefore, policies on ocean hazard areas are not applicable.

2.1.3 15A NCAC 07H .0400 (Public Water Supplies)

15A NCAC 07H .0403 defines and establishes management objectives for public water supplies. The objective in regulating development within critical water supply areas is the "protection and preservation of public water supply well fields and A-II streams and to coordinate and establish a management system capable of maintaining public water supplies so as to perpetuate their values to the public health, safety, and welfare." Demands on potable water from population increases associated with Grow the Force are well within the potable water capacity of MCB Camp Lejeune/MCAS New River, and the surrounding counties. On-Base, potable water wells are located within the proposed development areas as follows: within the Camp Geiger project area are two inactive potable water wells; within the Courthouse Bay project area there are four active potable water wells; within the French Creek project area is one active potable water well; within Hadnot Point is one active potable water well; and within the Stone Bay/Rifle Range project area are three inactive potable water wells, pending abandonment and on the demolition list. All facilities would be constructed at least 75 ft from drinking water wells; therefore, the Proposed Action is consistent with policies on protecting public water supplies.

2.1.4 15A NCAC 07H .0500 (Natural and Cultural Resource Areas)

15A NCAC 07H .0501 defines fragile coastal natural and cultural resource areas as "areas containing environmental, natural, or cultural resources of more than local significance in which uncontrolled or incompatible development could result in major or irreversible damage to natural systems or cultural resources, scientific, educational, or associative values, or aesthetic qualities." The AECs within this category are coastal complex natural areas, coastal areas that sustain remnant species, unique coastal geologic formations, significant coastal archaeological resources, and significant coastal historic architectural resources.

NCAC 07H .0505 defines and establishes management objectives "to protect unique habitat conditions that are necessary to the continued survival of threatened and endangered native plants and animals and to minimize land use impacts that might jeopardize these conditions." The proposed development area for the Triangle Outpost Gate would result, at the most, in the loss of one acre of red-cockaded woodpecker foraging habitat within active clusters (#72 and #90); however, MCB Camp Lejeune does not expect this loss to jeopardize the Base's ability to maintain sufficient foraging habitat. Camp Devil Dog, Courthouse Bay, and Stone Bay/Rifle Range are located within areas designated by MCB Camp Lejeune as future red-cockaded woodpecker habitat, but the area currently does not support any red-cockaded woodpeckers. In addition, the adverse impacts to wildlife would not be expected to affect the stability of wildlife populations on-Base or migratory bird populations and coordination with the U.S. Fish and Wildlife Service would take place prior to implementing the Proposed Action as appropriate. In addition, other special status species may also be in proposed development areas, such as golden sedge, rough-leaved loosestrife, Cooley's meadowrue, shortnose sturgeon, manatee, American alligator, dolphins, and sea turtles. The Proposed Action would not affect terrestrial species and is unlikely to adversely affect marine species. Informal consultation with U.S. Fish and Wildlife Service and National Marine Fishery Service would occur prior to construction; therefore, the Proposed Action would be consistent with policies designed to protect unique habitat conditions.

15A NCAC 07H .0506 defines and establishes management objectives "to protect the features of a designated coastal complex natural area in order to safeguard its biological relationships, educational and scientific values, and aesthetic qualities." MCB Camp Lejeune has two designated natural areas that have been registered by the North Carolina Natural Heritage Program: the CF Russell Longleaf Pine Natural Area and the Wallace Creek Natural Area. Both natural areas are located well beyond the proposed development area boundaries; therefore, this policy is not applicable.

15A NCAC 07H .0507 defines and establishes management objectives "to preserve unique resources of more than local significance that function as key physical components of natural systems, as important scientific and educational sites, or as valuable scenic resource." This policy is not applicable as no unique geological formations are designated on MCB Camp Lejeune.

15A NCAC 07H .0508 defines and establishes use standards for development in designated fragile coastal natural or cultural areas. The proposed development areas are not within a designated fragile coastal natural or cultural resource area. Implementing the Proposed Action would not cause irreversible damage to natural systems or cultural resources, scientific, educational, or associative values, or aesthetic qualities; therefore, this policy is not applicable.

15A NCAC 07H .0509 defines and establishes management objectives "to conserve coastal archaeological resources of more than local significance to history or prehistory that constitute important scientific sites, or are valuable educational, associative, or aesthetic resources." Cultural resources surveys (phase I and/or II) have been conducted in all proposed development areas. There are three

National Register of Historic Places (NRHP) eligible archaeological sites within the proposed project areas. Site 310N536 is within the proposed development area of the new Base road. Within Courthouse Bay are sites 31ON308/308** and 31ON379. Site 31ON308/308** would be affected during proposed utility upgrades, however, these impacts would not be expected to have an adverse effect on this site. Site 31ON379 would not be affected. Site 310N536 could not be avoided with the new Base road, but the impacts are expected to occur on less than 100 feet of the site in an area that no longer has intact resources. The North Carolina SHPO would be consulted prior to disturbance at any site; therefore the Proposed Action is consistent with the policy.

15A NCAC 07H .0510 defines and establishes management objectives "to conserve coastal historic architectural resources of more than local significance which are valuable educational, scientific, associative or aesthetic resources." Six NRHP eligible historic districts are located within the proposed construction areas. These historic districts include Camp Johnson, Camp Geiger, Hadnot Point, Wallace Creek, Courthouse Bay, and Stone Bay. No new building construction is proposed to occur in the Montford Point Camp 1, 2, or 2A Historic Districts (Camp Johnson), the Camp Geiger Historic District, the Hadnot Point Historic District, or the Assault Amphibious Historic District (Courthouse Bay), but utility improvements and upgrades within these districts are proposed. However, these improvements would not be expected to have an adverse effect on the district. The Preferred Alternative includes the demolition of PT-4 and PT-5 in the Parachute Training Historic District (Wallace Creek) and Rifle Range 9 in the Stone Bay Rifle Range Historic District. In accordance with 36 CFR 800, the Marine Corps would consult with the North Carolina SHPO on the Proposed Action and its potential effects to these historic properties. As appropriate, the Marine Corps would utilize an existing or develop a new Memorandum of Agreement with the North Carolina SHPO to mitigate adverse impacts to the historic districts.

2.2 General Policy Guidelines

The North Carolina CAMA sets forth 11 General Policy Guidelines, addressing:

- Shoreline erosion policies;
- Shorefront access policies;
- Coastal energy policies;
- Post-disaster policies;
- Floating structure policies;
- Mitigation policies;
- Coastal water quality policies;
- Policies on use of coastal airspace;
- Policies on water- and wetland-based target areas for military training areas;
- Policies on beneficial use and availability of materials resulting from the excavation or maintenance of navigational channels; and
- Policies on ocean mining.

The purpose of these rules is to establish generally applicable objectives and policies to be followed in the public and private use of land and water areas within the coastal area of North Carolina. Following is an analysis of the applicability of these policies to the Proposed Action and the project's lack of impact on North Carolina's coastal zone.

2.2.1 15A NCAC 7M .0200 (Shoreline Erosion Policies)

Although estuarine shorelines are along some of the proposed development areas, no facilities would be constructed within the shoreline (see Figure 1). Within the New River Basin, all land located within 75 feet of the normal high water level of coastal waters, and within 30 feet of the normal high water level of inland waters is considered to be coastal shoreline within the Estuarine and Ocean System. The proposed new Base road includes bridge crossings at Northeast Creek, Wallace Creek, and smaller tributaries and associated wetlands and impacts to those shorelines would occur. The extent of these impacts is unknown at this time, because the final designs for these crossings have not occurred. However, to the extent practicable, construction designs and techniques would avoid impacts to and erosion of shoreline; therefore, the Proposed Action is consistent with these policies.

2.2.2 15A NCAC 7M .0300 (Shorefront Access Policies)

MCB Camp Lejeune is a military base where the public has not historically had beach access or uncontrolled water access (boat launches). Additionally the Proposed Action does not involve any activities which would change the public's ability to access the beach or water; therefore, these policies are not applicable.

2.2.3 15A NCAC 7M .0400 (Coastal Energy Policies)

The Proposed Action does not involve the development of any major energy facilities; therefore, these policies are not applicable.

2.2.4 15A NCAC 7M .0500 (Post-disaster Policies)

These policies require that all state agencies prepare for disasters and to coordinate their activities in the event of a coastal disaster. MCB Camp Lejeune Base Order P3440.6E Destructive Weather Manual addresses how MCB Camp Lejeune would prepare for and respond to a potential disaster which includes: assigning responsibilities, and providing guidance by which the Department of Defense responds to all hazards in accordance with 42 United States Code (U.S.C.) 5121, the Civil Defense Act of 1950, 50 U.S.C., National civil defense policy, and federal and state civil defense programs in cooperation with the Federal Emergency Management Agency; prescribing the basic warnings and conditions of readiness for destructive weather, and providing the capstone doctrine for United States Army and USMC domestic support operations, and provides general information for planning and conducting such operations, and identifies relationships between federal, state, and local organizations, and military services. However, these policies are not applicable as no pre-disaster planning or post-disaster recovery would be needed for the Proposed Action.

2.2.5 15A NCAC 7M .0600 (Floating Structure Policies)

No floating structures are included in the Proposed Action; therefore, these policies are not applicable.

2.2.6 15A NCAC 7M .0700 (Mitigation Policy)

North Carolina's mitigation policy states that "Coastal ecosystems shall be protected and maintained as complete and functional systems by mitigating the adverse impacts of development as much as feasible, by enhancing, creating, or restoring areas with the goal of improving or maintaining ecosystem function and areal proportion." Impacts would be minimized through 1) proper site planning, 2) site selection, and 3) compliance with development standards.

There would be no specific mitigation for upland forest habitat and wildlife losses due to development of the permanent facilities. The exact amount of disturbance (forest clearing) is unknown as facility designs are still in the formative stages and specific sites for buildings/facilities construction have not been determined on MCB Camp Lejeune; however the maximum amount that could be cleared based on facility footprints is 1,542 acres. The loss of upland forest habitat is recognized as a locally important impact; however, in an ecosystem context MCB Camp Lejeune is actively working to maintain complete and functional ecosystems within the state's coastal zone.

The proposed project area for the Triangle Outpost would result, at the most, in the loss of one acre of red-cockaded woodpecker foraging habitat within active clusters (#72 and #90).; however, MCB Camp Lejeune does not expect this loss to jeopardize the Base's ability to maintain sufficient red-cockaded woodpecker foraging habitat. Camp Devil Dog, Courthouse Bay, and Stone Bay/Rifle Range are located within areas designated by MCB Camp Lejeune as future red-cockaded woodpecker habitat, but the area currently does not support any red-cockaded woodpeckers. The new Base road's crossing of Northeast, Wallace, and Bearhead Creeks has potential to affect special status species, but, as stated in Section 2.1.4, the adverse impacts to wildlife would not be expected to affect the stability of wildlife populations on-Base or migratory bird populations. Any fencing that would be constructed around the facilities would be designed so as to not impede wildlife movement. MCB Camp Lejeune would coordinate with the United States Fish and Wildlife Service prior to implementing the Proposed Action to obtain concurrence that the Proposed Action is not likely to adversely affect any threatened and endangered species. State protected species may also occur in the proposed development areas and less mobile species would experience direct mortality.

Although palustrine wetlands are present within all of the proposed development areas and estuarine wetlands are present within Wallace Creek, Hadnot Point, Courthouse Bay, Stone Bay/Rifle Range, Camp Johnson, and Marston Pavilion Annex, conceptual designs for the actual facility layouts would avoid these wetlands to the maximum extent practicable. Based on preliminary designs and master planning concepts, the Preferred Alternative has the potential to affect up to 125 acres of wetlands within the proposed development areas. The exact acreage of wetlands to be impacted will not be known until the 100 percent design phase. USMC would continue to work with the U.S. Army Corps of Engineers in the design and permitting process to develop alternative facility siting and specific mitigation measures to reduce the potential impact to wetlands. Wetlands outside the proposed development areas would be protected from direct and indirect impacts. These areas would remain undeveloped and be managed in accordance with the installation's state and federal agency approved Integrated Natural Resources Management Plan. As stated in Section 2.2.7, stormwater runoff would be managed and controlled, thereby preventing siltation of nearby wetlands.

The Proposed Action would be designed to avoid impacts to wetlands and waters of the United States to the maximum extent practicable. Construction of all structures and related amenities would avoid, to the maximum degree feasible, wetlands destruction or degradation regardless of wetland size or legal necessity for a permit. Any facility that cannot be sited to avoid wetlands would be designed to minimize wetlands degradation and would include compensatory mitigation as required by wetland regulatory agencies. The use of Department of Defense lands (including the Greater Sandy Run Wetland Mitigation Bank on MCB Camp Lejeune) and lands of other entities would be considered for mitigation purposes when consistent with Environmental Protection Agency, United States Army Corps of Engineers, North Carolina Division of Water Quality guidelines, and/or permit provisions.

The USMC would obtain the appropriate wetland permits prior to construction, and would implement mitigation as required by wetland permit conditions. These permits would include the Clean Water Act, Section 404 wetland permit from the U.S. Army Corps of Engineers (Nationwide or Individual Permit depending on the quantity of wetlands and waters of the United States affected) and the Clean Water Act, Section 401 Water Quality Certification from the North Carolina Department of Environment and Natural Resources, Division of Water Quality.

Other permits and approvals for the Proposed Action include:

- Erosion and Sedimentation Control Plan approval by North Carolina Department of the Environment and Natural Resources, Division of Land Resources, Land Quality Section; and
- Stormwater Management Permit from the North Carolina Department of Environment and Natural Resources, Division of Water Quality.

If any cultural resources are discovered during construction and site grading within any of the proposed development areas, work would immediately cease and the Base Archeologist would be notified.

Best management practices would be used to avoid and minimize the release of sediments into stormwater. Mitigation plans would include both short-term (construction phase) and long-term (project life) features. MCB Camp Lejeune, Base Order P5090.2A, Chapter 11, requires the use of native plants in landscaping. Native plant species would be used for landscaping to the extent practicable. No non-native, invasive vegetation would be used in any temporary or permanent landscaping.

With the above mitigation and minimization measures in place, the Proposed Action would be consistent with this policy.

2.2.7 15A NCAC 7M .0800 (Coastal Water Quality Policies)

The proposed construction activities would not result in permanent adverse impacts to coastal water quality. Stormwater runoff would be managed and controlled in accordance with the Proposed Action's state approved Erosion and Sedimentation Control Plan, state issued Stormwater Management Permit for Construction, and effective MCB Camp Lejeune's National Pollutant Discharge Elimination System permit requirements. MCB Camp Lejeune is currently operating under a National Pollutant Discharge Elimination Phase I permit. A National Pollutant Discharge Elimination System Phase II permit is pending.

Best management practices would be used to avoid contamination of stormwater and mitigate for both short-term (construction phase) and long-term (project life) impacts. Short-term practices would include erosion and sedimentation controls. Prior to construction, approval would be obtained from the North Carolina Department of Environment and Natural Resources on all plans. Erosion and sedimentation control devices could include sediment fences, dust suppressors, and temporary seeding and matting. Long-term measures would include planting grass on bare areas, landscaping in select areas with native species to the maximum extent practicable, and building stormwater retention ponds. This vegetation and structural stormwater control devices would aid in the control of stormwater runoff and ensure effective and continuous control of erosion and pollution. Temporary impacts to water quality may occur due to the bridge construction associated with the new Base road project. Bridge construction techniques would be used, to the extent practicable that would not limit the flow through the Northeast Creek, Wallace

Creek, and smaller tributaries spanned to help decrease impacts to water quality. In addition, construction would be designed such that it does not cause any further stress on the creek system. Impacts to water quality would be further avoided by adherence to standard procedures governing hazardous materials during the construction phase and for the duration of the project.

The New River is considered coastal water and runs through MCB Camp Lejeune. The New River or one of its tributaries borders the proposed development areas of Courthouse Bay, Camp Johnson, French Creek, Hadnot Point, MCAS New River, and Stone Bay/Rifle Range. All waters draining to the New River north of Grey Point are considered nutrient sensitive waters. The New River and most tributary streams of the New River south of the city of Jacksonville have the additional designation of high quality water (15A NCAC 3N.0002) and primary nursery areas (15A NCAC 3N.0002). Primary nursery areas border and are located within the proposed development areas of Camp Johnson, Courthouse Bay, Stone Bay/Rifle Range, PPV housing area, and new Base road. Special secondary nursery areas border and are located within the proposed development area of Camp Johnson, Stone Bay/Rifle Range, French Creek, and Hadnot Point. Inland waters border the proposed development area of Wallace Creek, Hadnot Point and French Creek. The coastal and inland waters, and primary and special secondary nursery areas would not be affected by construction within the proposed development areas as proper erosion and sedimentation control devices would be implemented.

As a result, the Proposed Action would be consistent with policies protecting coastal water quality.

2.2.8 15A NCAC 7M .0900 (Policies on Use of Coastal Airspace)

No use of coastal airspace would be part of the Proposed Action; therefore, these policies are not applicable.

2.2.9 15A NCAC 7M .1000 (Policies on Water- and Wetland-Based Target Areas for Military Training Areas)

No water-based or wetland-based target areas or military training areas would be part of the Proposed Action; therefore, these policies are not applicable.

2.2.10 15A NCAC 7M.1200 (Policies on Ocean Mining)

No ocean mining would be part of the Proposed Action; therefore, these policies are not applicable.

3.0 ONSLOW COUNTY COASTAL MANAGEMENT POLICIES

The CAMA required local governments in each of the 20 coastal counties in the state to prepare and implement a land use plan and ordinances for its enforcement consistent with established federal and state policies. Specifically, policy statements are required on resource protection; resource production and management; economic and community development; continuing public participation; and storm hazard mitigation, post-disaster recovery, and evacuation plans. Upon approval by the North Carolina Coastal Resources Commission, the plan becomes part of the *North Carolina Coastal Management Plan*.

Onslow County's *Citizens' Comprehensive Plan for Onslow County*, adopted in 2003, addresses land use planning in relation to the CAMA. Table 1 contains a list of Onslow County's comprehensive plan policies and their applicability to this project. The Proposed Action at MCB Camp Lejeune/MCAS New River would be consistent with the applicable policies of the North Carolina Coastal Management Program and Onslow County's comprehensive plan policies for the reasons described throughout this Coastal Consistency Determination.

Table 1: Onslow County Comprehensive Plan Policies

Land Use and Development Policies	Applicability
Preferred Development Pattern	Not Applicable
Housing and Neighborhood Development	Not Applicable
Commercial and Office Development	Not Applicable
Industrial Development	Not Applicable
Agricultural and Rural Area Preservation	Not Applicable
Waterfront and Waterborne Development	Not Applicable
Infrastructure and Service Policies	**Applicability**
Transportation	Consistent
Water and Sewer Services	Consistent
Stormwater Management, Drainage and Flooding	Consistent
Solid Waste Management	Consistent
Natural Resources Management and Use Policies	**Applicability**
Areas of Environmental Concern	Consistent
Estuarine and Ocean Resources	Consistent
Ocean Hazard System Areas of Environmental Concern	Not Applicable
Public Water Supply Areas of Environmental Concern	Not Applicable
Natural and Cultural Resource Areas	Consistent
Other Important Natural Resource Areas	Consistent
Water Resources, Surface and Ground	Consistent
Wetlands and Hydric Soils	Consistent
Economy and Culture Policies	**Applicability**
Economic Development	Not Applicable
The Military and the Community	Consistent
Educational Facilities	Not Applicable
Parks and Recreation Facilities	Not Applicable
Cultural History, Historic Preservation/Revitalization	Not Applicable
Community Appearance	Not Applicable

4.0 CONCLUSION

In conclusion, after careful consideration of the Proposed Action, the USMC has determined that implementation of the Proposed Action in conjunction with proposed mitigation would be fully consistent with the relevant enforceable policies of protecting North Carolina's coastal zone. This was based on the review of the proposed projects against the relevant National Oceanographic Atmospheric

Administration-approved enforceable policies of North Carolina's Coastal Management Program and Onslow County's comprehensive plan policies.

Figure 1 Coastal Resources at MCB Camp Lejeune

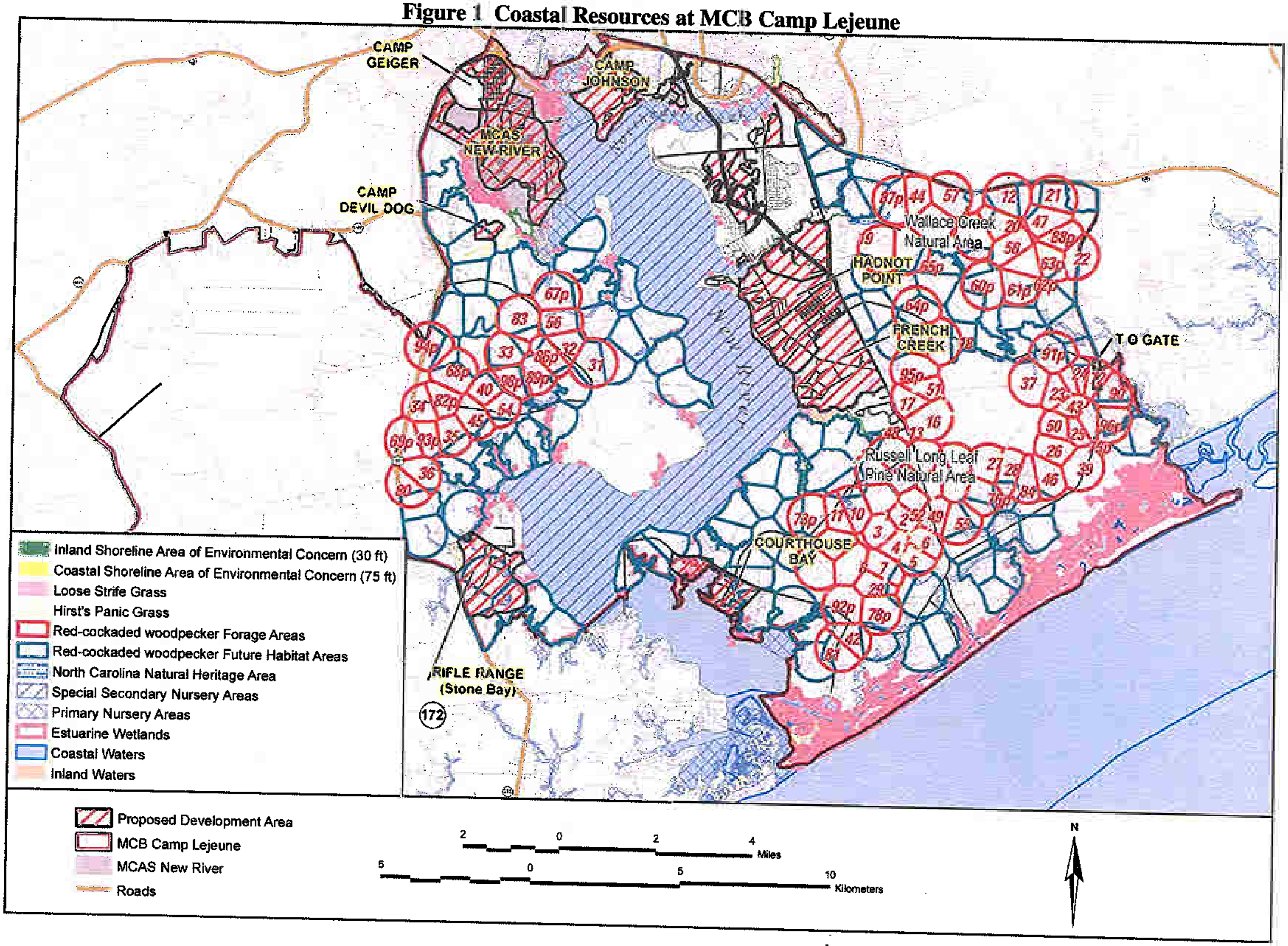
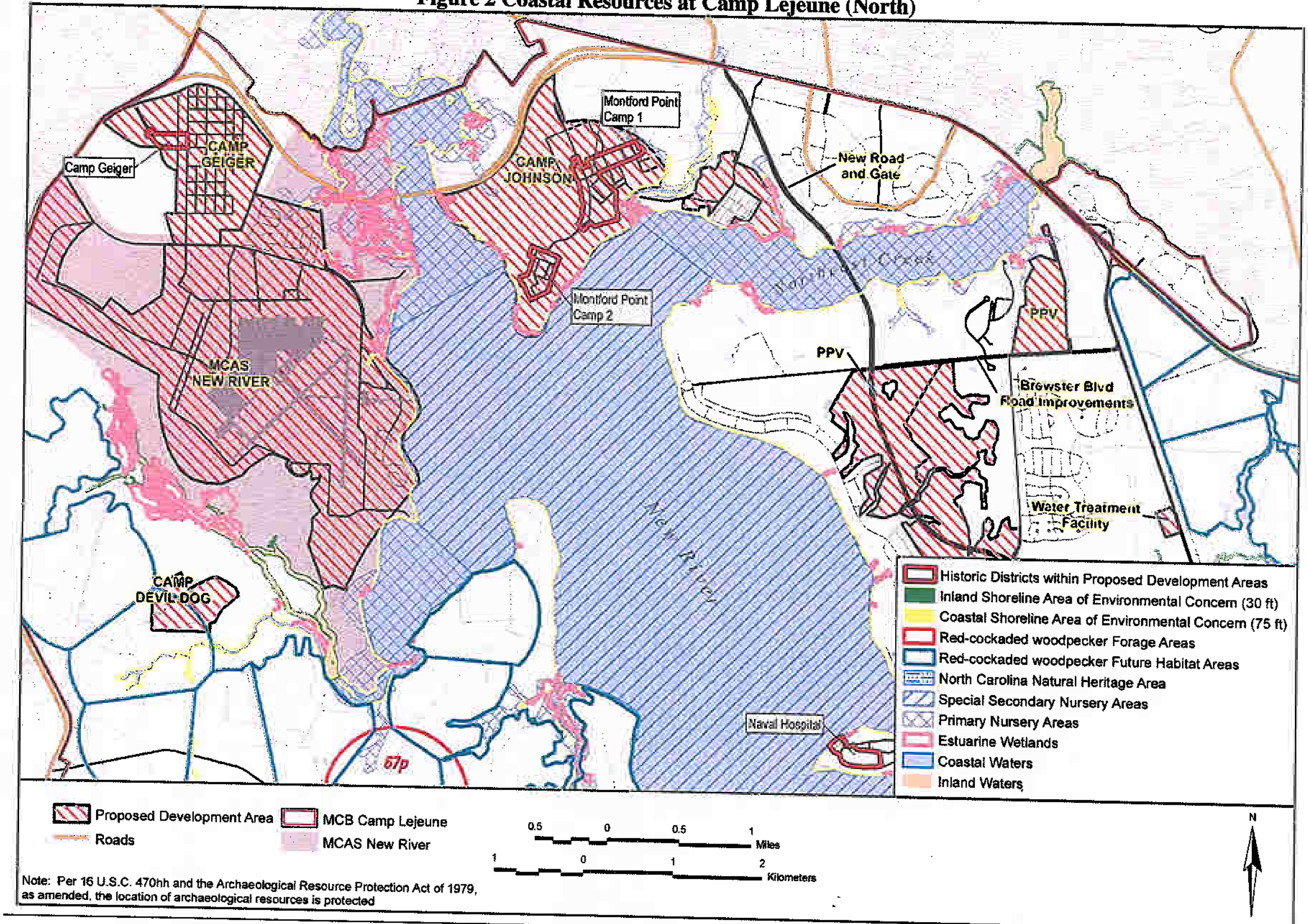


Figure 2 Coastal Resources at Camp Lejeune (North)



Note: Per 16 U.S.C. 470hh and the Archaeological Resource Protection Act of 1979, as amended, the location of archaeological resources is protected

Figure 3 Coastal Resources at MCB Camp Lejeune (South)

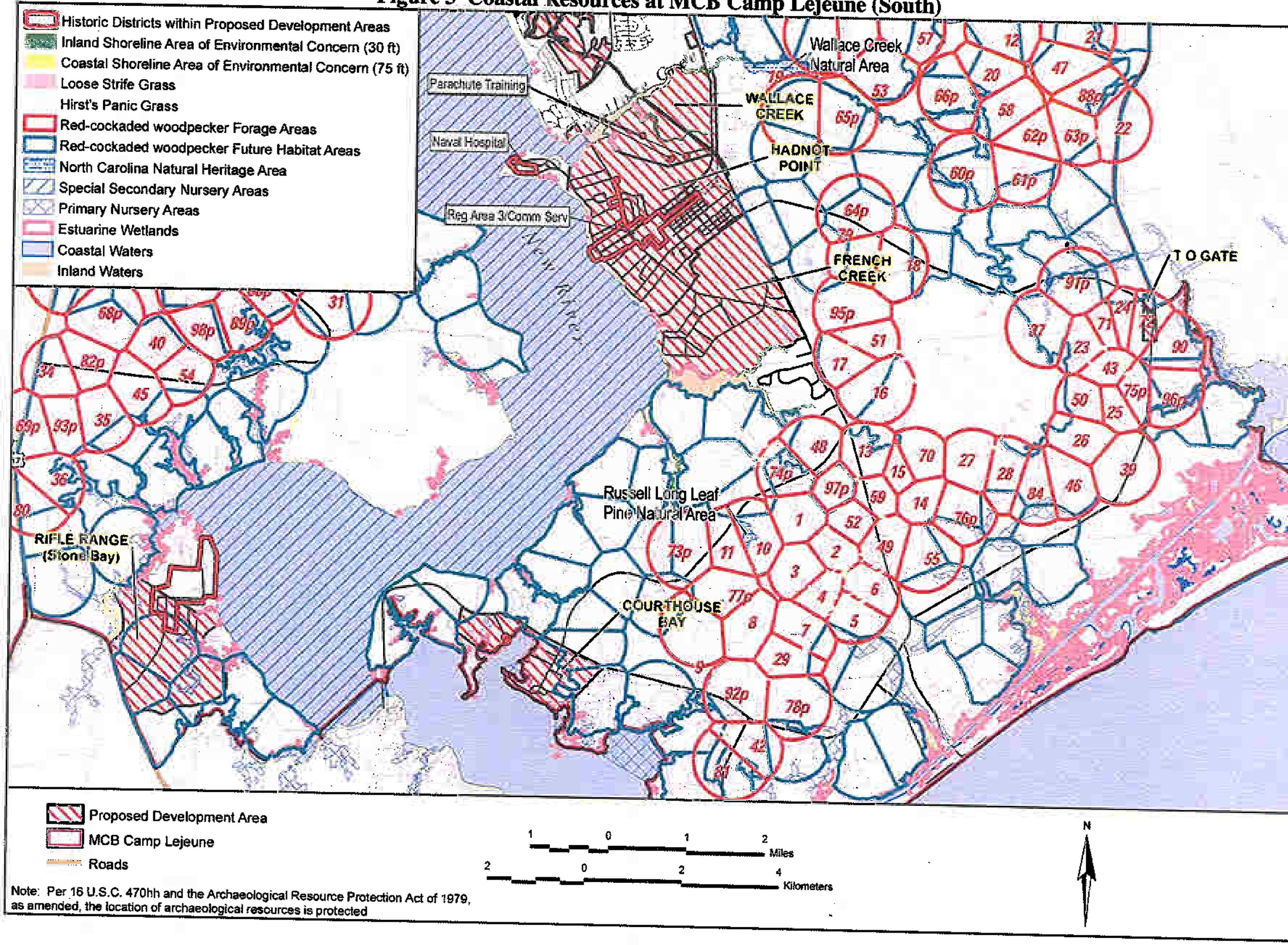
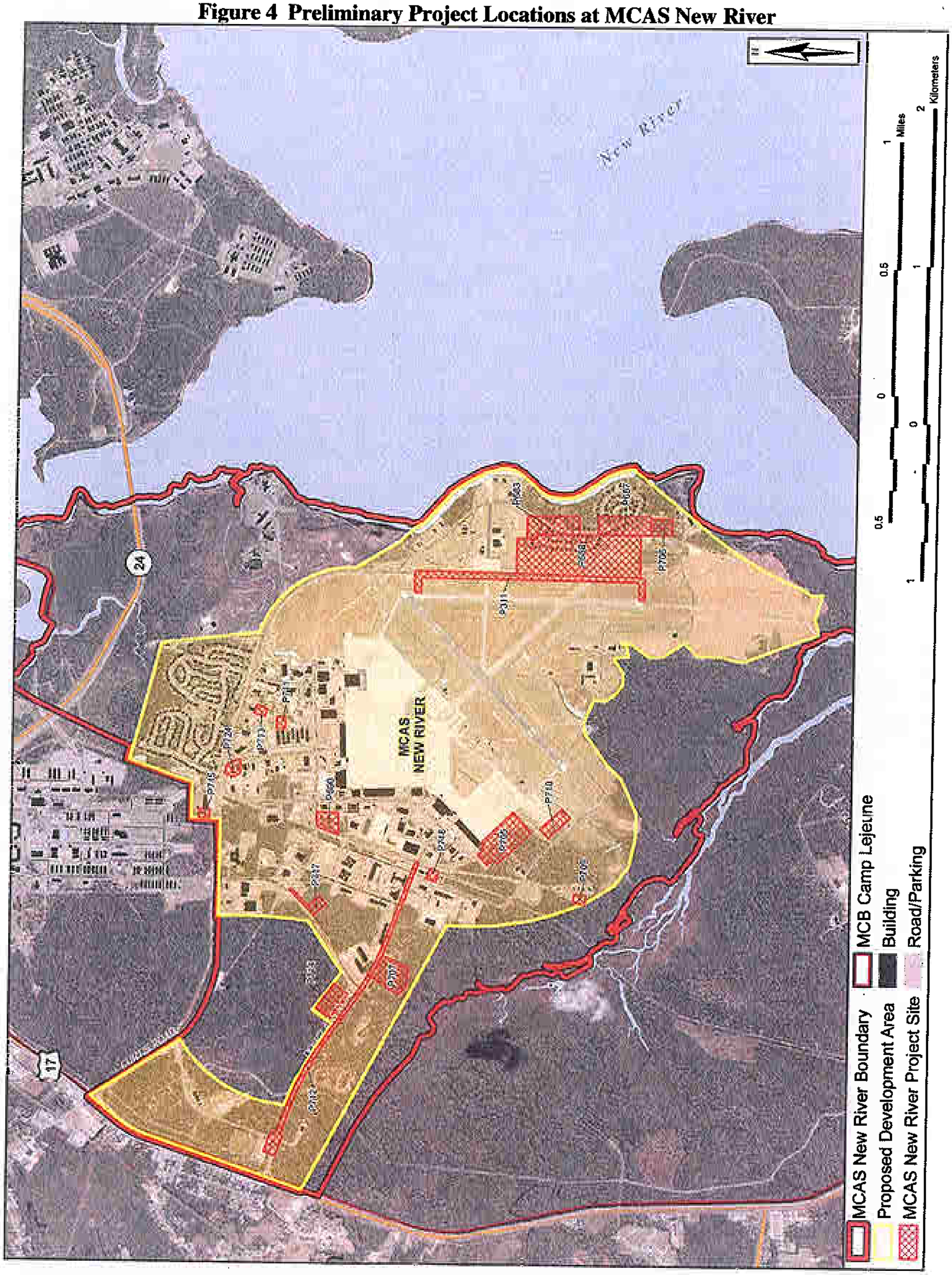


Figure 4 Preliminary Project Locations at MCAS New River



UNITED STATES MARINE CORPS
MARINE CORPS AIR STATION
POSTAL SERVICE CENTER BOX 8003
CHERRY POINT, NORTH CAROLINA 28533-0003

IN REPLY REFER TO:
5090/18520
FAC
September 21, 2009

Mr. Stephen Rynas
Consistency Program Coordinator
North Carolina Department of
Environment and Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, North Carolina 28557-3421

SUBJECT: COASTAL CONSISTENCY DETERMINATION FOR THE CONSTRUCTION OF PERMANENT FACILITIES AT MARINE CORPS AIR STATION CHERRY POINT

In accordance with Section 307 (c) (1) of the Coastal Zone Management Act (CZMA) of 1972 as amended, the United States Marine Corps (USMC) has determined that the proposed construction of permanent facilities at Marine Corps Air Station (MCAS) Cherry Point would be consistent with North Carolina's Coastal Management Program.

The proposed construction of permanent facilities is required to accommodate the increases in Marine forces in support of the Marine Corps Grow the Force initiative and satisfy the requirements to place incoming forces per the Presidential proposal authorized by Congress.

USMC has proposed three Action Alternatives for the construction associated with the Grow the Force initiative. Alternative 2 (Preferred Alternative) will require the largest construction footprint and disturbance to MCAS Cherry Point. Alternatives 3 and 4 are lesser versions of the Preferred Alternative, requiring less construction, and no construction, respectively. Because Alternative 2 would have the greatest impact to the coastal zone, the details of this Alternative are briefly described below. Alternatives 3 and 4 will not be discussed, since they are lesser versions of Alternative 2, and any impacts they would have on the coastal zone would be substantially less than that of the Preferred Alternative.

In Action Alternative 2, MCAS Cherry Point proposes to build facilities within four general areas and make road improvements to Roosevelt Boulevard and Slocum Road. New construction would include the following: headquarters, administrative, and educational facilities; operations and maintenance buildings;

lodging accommodations (such as bachelors enlisted quarters and mess halls); and recreational assets like fitness centers, medical/dental clinics, and child development centers. In addition, facilities may need to be demolished and/or upgraded, and infrastructure such as roads, parking areas, wastewater/stormwater drainage systems, and power and communication lines may need new construction or upgrades.

As required by CZMA, and in accordance with Marine Corps instructions, the USMC has prepared a Coastal Consistency Determination for this action. The attached Coastal Consistency Determination demonstrates that the proposed construction of permanent facilities complies with the enforceable policies of North Carolina's approved Coastal Management Program and will be conducted in a manner consistent with the program.

The USMC respectively requests that the Division of Coastal Management concur with this Coastal Consistency Determination. Please provide your concurrence to Mr. Carmen Lombardo, Natural Resources Manager, Environmental Affairs Department. Should you have any questions, please call Mr. Lombardo at 252-466-5870 or e-mail at carmen.lombardo@usmc.mil.

Sincerely,

G. W. RADFORD
Environmental Affairs Officer
By direction of the Commanding Officer

Enclosures:

1. 15 copies of the Coastal Consistency Determination for the construction of permanent facilities at MCAS Cherry Point and Figures.
2. 15 CDs containing Draft EIS for US Marine Corps Grow the Force at MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point, NC.

FEDERAL COASTAL CONSISTENCY DETERMINATION
FOR CONSTRUCTION OF PERMANENT FACILITIES AT MARINE CORPS AIR STATION CHERRY POINT, NORTH CAROLINA

The United States Marine Corps (USMC) has determined that implementing the Proposed Action is consistent with the enforceable policies of North Carolina's approved Coastal Management Program to the maximum extent practicable.

1.0 PROPOSED FEDERAL AGENCY PURPOSE AND ACTION

The USMC proposes to construct permanent facilities and realign/relocate existing missions to on-base sites to accommodate increases in Marine forces at Marine Corps Air Station (MCAS) Cherry Point, Craven County, North Carolina under the Grow the Force initiative.

The USMC has proposed three Action Alternatives for support of the increased personnel associated with the Grow the Force initiative. All three of the Action Alternatives would include full implementation of the Grow the Force initiative with respect to personnel increases; however, the Alternatives vary in the degrees of construction that would take place to accommodate this increase. Alternative 2 (Preferred Alternative) requires the most extensive construction footprint and disturbance at MCAS Cherry Point. Alternative 3 requires substantially less construction, while Alternative 4 does not include any new construction projects, and would house the personnel increases in existing facilities. Because Alternative 2 would have the greatest impact to the coastal zone, the details of this alternative are briefly described below. Alternatives 3 and 4 will not be discussed, since they are essentially lesser versions of Alternative 2, and any impacts they would have on the coastal zone would be substantially less than that the Preferred Alternative.

Alternative 2 (Preferred Alternative)

All of the proposed facilities would be constructed within the Station's boundaries and would occur within four planning areas including the Ordnance Area, West Quadrant, North Quadrant, and the MACS-2 Compound (Figure 1). Most construction would occur in areas already designated either for development or industrial activities; however some of the Ordnance Area (with the realignment of Slocum Road), a small forested area within the North Quadrant, and forested areas adjacent to Roosevelt Boulevard have the potential to be cleared. The facilities would be built over a 6-year period beginning in 2010. New construction would include the following: headquarters, administrative, and educational facilities; operations and maintenance buildings; lodging accommodations (such as bachelors enlisted quarters and mess halls); and family service centers, including child development centers. In addition, facilities may need to be demolished and/or upgraded, and infrastructure such as roads, parking areas, wastewater/stormwater drainage systems, and power and communication lines may need new construction or upgrades.

Exact facility designs are still in the formative stages and specific sites for buildings/facilities construction have not been determined; rather project areas for development were identified to show the geographical area of consideration and to analyze potential development constraints. Facilities development under the Proposed Action at MCAS Cherry Point would have a construction footprint of 117 acres, of which approximately 70 acres would be the maximum cleared area.

2.0 NORTH CAROLINA COASTAL AREA MANAGEMENT ACT

In 1972, Congress passed the Coastal Zone Management Act, which encouraged states to keep the coasts healthy by establishing programs to manage, protect, and promote the country's fragile coastal resources. Two years later, the North Carolina General Assembly passed the landmark Coastal Area Management Act (CAMA). CAMA established the Coastal Resources Commission, required local land use planning in 20 coastal counties, and provided for a program for regulating development. The North Carolina Coastal Management Program was federally approved in 1978 by the National Oceanic and Atmospheric Administration.

2.1 Areas of Environmental Concern

North Carolina's coastal zone includes the 20 counties that are adjacent to, adjoining, intersected by or bounded by the Atlantic Ocean or any coastal sound, including Craven County. There are two tiers of regulatory review for projects within the coastal zone. The first tier is comprised of Areas of Environmental Concern (AECs) designated by the state. AECs have more thorough regulatory controls and include coastal wetlands, coastal estuarine waters, public trust areas, coastal estuarine shorelines, ocean beaches, frontal dunes, ocean erosion areas, inlet lands, small surface water supply watersheds, public water supply well fields, and fragile natural resource areas. The second tier includes land uses with the potential to affect coastal waters, even though they are not defined as AECs. The coastal zone extends seaward to the three nautical mile territorial sea.

An AEC is an area of natural importance and its classification protects the area from uncontrolled development. AECs include almost all coastal waters and about three percent of the land in the 20 coastal counties. The four categories of AECs are:

- The Estuarine and Ocean System, which includes public trust areas, estuarine coastal waters, coastal shorelines, and coastal wetlands;
- The Ocean Hazard System, which includes components of barrier island systems;
- Public Water Supplies, which include certain small surface water supply watersheds and public water supply well fields; and
- Natural and Cultural Resource Areas, which include coastal complex natural areas; areas providing habitat for federal or state designated rare, threatened or endangered species; unique coastal geologic formations; or significant coastal archaeological or historic resources.

MCAS Cherry Point includes coastal resources designated as AECs, including estuarine coastal waters, coastal shorelines, and coastal wetlands of the Estuarine and Ocean System AEC, as well as habitat for federal or state designated species and archaeological or historic resources of the Natural and Cultural Resource Area AEC. MCAS Cherry Point has designated resources as AECs. Although estuarine wetlands are present within the Ordnance Area, no construction would occur within estuarine wetlands (see Figure 2).

Following is an analysis of the applicability of policies designed to protect AECs and the project's consistency with those policies, when applicable.

2.1.1 15A NCAC 07H .0200 (Estuarine and Ocean Systems)

15A NCAC 07H .0205 defines and establishes management objectives for coastal wetlands "to conserve and manage coastal wetlands so as to safeguard and perpetuate their biological, social, and economic and aesthetic values; to coordinate and establish a management system capable of conserving and utilizing coastal wetlands as a natural resource essential to the functioning of the entire estuarine system." Palustrine wetlands are present within the North Quadrant, West Quadrant, and Ordnance Area, and estuarine wetlands are present within the Ordnance Area. If wetlands would be affected, mitigation would occur as described in Section 2.2.6. Construction would not occur within estuarine wetlands.

15A NCAC 07H .0206 defines and establishes management objectives for estuarine waters in order "to conserve and manage the important features of estuarine waters so as to safeguard and perpetuate their biological, social, aesthetic, and economic values; to coordinate and establish a management system capable of conserving and utilizing estuarine waters so as to maximize their benefits to man and the estuarine and ocean system." The location, use and design of these projects are in accordance with the general and specific use standards for coastal wetlands, estuarine waters, and public trust areas per 15A NCAC 07H .0208 Use Standards. The construction of the bridges and/or culverts would have direct, short-term effects on the water quality. Increases in turbidity and total suspended solids are anticipated as a result of any necessary pile driving activities, and operation of barges or other watercraft supporting construction. A permit from the U.S. Coast Guard may be required for all new or renovated bridges. Through the permit application process, the U.S. Coast Guard ensures that environmental issues are given careful consideration and imposes any necessary conditions relating to the construction, maintenance, and operation of these bridges in the interest of public navigation. The U.S. Coast Guard is obligated to consult with federal agencies with legal jurisdiction or special interest concerning any environmental issues associated with bridge construction. If necessary, specific mitigation measures for constructing the bridge would be developed in coordination with the U.S. Coast Guard, U.S. Army Corps of Engineers (USACE), and North Carolina Department of Environmental and Natural Resources (NCDENR) to minimize the potential impacts to surface waters and associated wetlands.

Stormwater management plans, including the use of best management practices during construction, would control surface water runoff from entering into adjacent waterways; therefore, the Proposed Action is not expected to cause any adverse runoff that might enter estuarine waters. Project plans would ensure that impacts to coastal resources would be minimized, and mitigation would take place where necessary.

15A NCAC 07H .0207 defines and establishes management objectives for public trust areas in order "to protect public rights for navigation, recreation, and to conserve and manage public trust areas in a manner that safeguards and perpetuates their biological, economic, and aesthetic values." Public rights for navigation and recreation of public trust waters would be protected as no loss of public trust waters would result from the Proposed Action. The expanded crossing of Slocum Creek may require permitting from U.S. Coast Guard and will require permitting from the USACE, as stated above. These agencies would ensure minimization of environmental impact, mitigation if required, and that rights to public access and navigation are not limited. Construction of these projects would not prohibit access to coastal resources by the public.

The Proposed Action would be consistent with policies intended to protect estuarine and ocean systems.

2.1.2 15A NCAC 07H .0300 (Ocean Hazard Areas)

15A NCAC 07H .0303 defines and establishes management objectives for ocean hazard areas "to eliminate unreasonable danger to life and property and achieve a balance between the financial, safety, and social factors that are involved in hazard area development." The proposed project areas are not within an ocean hazard area; therefore, policies on ocean hazard areas are not applicable.

2.1.3 15A NCAC 07H .0400 (Public Water Supplies)

15A NCAC 07H .0403 defines and establishes management objectives for public water supplies. The objective in regulating development within critical water supply areas is the "protection and preservation of public water supply well fields and A-II streams and to coordinate and establish a management system capable of maintaining public water supplies so as to perpetuate their values to the public health, safety, and welfare." There are five water supply wells currently active within the West Quadrant project area. Specific project plans will take into account the importance of these wells, and proper setbacks would occur; therefore, the Proposed Action would not impact any groundwater or public water supplies.

2.1.4 15A NCAC 07H .0500 (Natural and Cultural Resource Areas)

15A NCAC 07H .0505 defines and establishes management objectives "to protect unique habitat conditions that are necessary to the continued survival of threatened and endangered native plants and animals and to minimize land use impacts that might jeopardize these conditions." The Proposed Action may affect, but is not likely to adversely affect any federally listed threatened or endangered species. The only federally listed species that could occur within the proposed project areas (in the vicinity of Slocum Creek) are the American Alligator, Manatee, and the Rough-leaved Loosestrife. MCAS Cherry Point would consult with U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS) under Endangered Species Act (ESA), as appropriate. MCAS Cherry Point will make every effort to ensure that all impacts to natural and cultural resources are not significant.

15A NCAC 07H .0506 defines and establishes management objectives "to protect the features of a designated coastal complex natural area in order to safeguard its biological relationships, educational and scientific values, and aesthetic qualities." MCAS Cherry Point has one designated natural area; the Tucker Creek Natural Area. A small section of this natural area is located within the Ordnance Area. However, no construction would occur in or near the natural area; therefore, this policy is not applicable.

15A NCAC 07H .0507 defines and establishes management objectives "to preserve unique resources of more than local significance that function as key physical components of natural systems, as important scientific and educational sites, or as valuable scenic resource." This policy is not applicable as no unique geological formations are designated on MCAS Cherry Point.

15A NCAC 07H .0508 defines and establishes use standards for development in designated fragile coastal natural or cultural areas. The proposed project areas are not within a designated fragile coastal natural or cultural resource area. Implementing the Proposed Action would not cause irreversible damage to natural systems or cultural resources, scientific, educational, or associative values, or aesthetic qualities; therefore, this policy is not applicable.

NCAC 07H .0509 defines and establishes management objectives “to conserve coastal archaeological resources of more than local significance to history or prehistory that constitute important scientific sites, or are valuable educational, associative, or aesthetic resources.” Based on predictive modeling and previous field surveys, MCAS Cherry Point, in consultation with the North Carolina State Historic Preservation Office, has identified all the areas within the installation boundary with high probability archaeological soils. The proposed permanent facilities are all located in low probability areas. Considering there are no known cultural resources located within the proposed project areas and for the reasons discussed above, this policy is not applicable.

15A NCAC 07H .0510 defines and establishes management objectives “to conserve coastal historic architectural resources of more than local significance which are valuable educational, scientific, associative or aesthetic resources.” No significant coastal historic architectural resources are located within the project areas; therefore, this policy is not applicable.

2.2 GENERAL POLICY GUIDELINES

The North Carolina CAMA sets forth 11 General Policy Guidelines, addressing:

- Shoreline erosion policies;
- Shorefront access policies;
- Coastal energy policies;
- Post-disaster policies;
- Floating structure policies;
- Mitigation policies;
- Coastal water quality policies;
- Policies on use of coastal airspace;
- Policies on water- and wetland-based target areas for military training areas;
- Policies on beneficial use and availability of materials resulting from the excavation or maintenance of navigational channels; and
- Policies on ocean mining.

The purpose of these rules is to establish generally applicable objectives and policies to be followed in the public and private use of land and water areas within the coastal area of North Carolina. Following is an analysis of the applicability and consistency of these policies to the Proposed Action.

2.2.1 15A NCAC 7M .0200 (Shoreline Erosion Policies)

The road improvements for Roosevelt Boulevard and Slocum Road would occur in the vicinity of inland shorelines (Figure 1). Proper setbacks and shoreline erosion control measures would be implemented to minimize impacts to the shoreline; therefore the Proposed Action is consistent with this policy.

2.2.2 15A NCAC 7M .0300 (Shorefront Access Policies)

MCAS Cherry Point is a military air station where the public has not historically had beach access or uncontrolled water access (boat launches). Additionally, the Proposed Action does not involve any activities which would change the public’s ability to access the beach or water; therefore, these policies are not applicable.

2.2.3 15A NCAC 7M .0400 (Coastal Energy Policies)

The Proposed Action does not involve the development of any major energy facilities; therefore, these policies are not applicable.

2.2.4 15A NCAC 7M .0500 (Post-disaster Policies)

These policies require that all state agencies prepare for disasters and to coordinate their activities in the event of a coastal disaster. MCAS Cherry Point Air Station Order P3140.2M Destructive Weather Operations provides guidance, information, and procedures for use in the event of destructive weather events requiring the activation of an air station emergency operations center; and provides policy, planning guidance and assignment of responsibilities in response to requests for assistance from civil authorities during presidential declared or undeclared disasters and domestic emergencies; however, these policies are not applicable as no pre-disaster planning or post-disaster recovery would be needed for the Proposed Action.

2.2.5 15A NCAC 7M .0600 (Floating Structure Policies)

No floating structures are included in the Proposed Action; therefore, these policies are not applicable.

2.2.6 15A NCAC 7M .0700 (Mitigation Policy)

North Carolina's mitigation policy states that, "Coastal ecosystems shall be protected and maintained as complete and functional systems by mitigating the adverse impacts of development as much as feasible, by enhancing, creating, or restoring areas with the goal of improving or maintaining ecosystem function and areal proportion." Impacts would be minimized through 1) proper site planning, 2) site selection, and 3) compliance with development standards.

As stated previously, the proposed facilities would be constructed within the Station's boundaries, and most construction would occur in areas already designated either for development or industrial activities; however some of the Ordnance Area (with the realignment of Slocum Road), a small forested area within the North Quadrant, and forested areas adjacent to Roosevelt Boulevard have the potential to be cleared. MCAS Cherry Point is a voluntary member of the North Carolina Onslow Bight Conservation Forum. Also referred to as the Encroachment Partnering Program by the Installation, it consists of a diverse group of organizations and agencies dedicated to sustainable natural resource management, providing for human needs while retaining natural heritage. The voluntary commitment of MCAS Cherry Point to this partnership has resulted in the protection of lands outside of the Installation that would otherwise have been developed. Protection of these areas has resulted not only in natural resource benefits but has also helped to limit encroachment. An Erosion and Sedimentation Control Plan for the projects will be submitted to the NCDENR and a Storm Water Management Permit Application will be submitted to the North Carolina Division of Water Quality. Best management practices would be used to avoid and minimize the release of sediments into stormwater. Mitigation plans would include both short-term (construction phase) and long-term (project life) features. Prior to construction, approval would be obtained by NCDENR on all erosion and sedimentation controls (ESC). ESC devices could include silt fences, dust suppressors, temporary seeding and matting, as well as long-term revegetation of disturbed areas with native plants and shrubs.

Facilities within the four proposed project areas would be designed to avoid and minimize impacts to wetlands to the extent practicable. Wetlands outside the project areas would be protected from direct and indirect impacts. These areas would remain undeveloped and be managed in accordance with the installation's state and federal agency approved Integrated Natural Resources Management Plan. As stated in Section 2.2.7, stormwater runoff would be managed and controlled, thereby preventing siltation of nearby wetlands.

The Proposed Action would be designed to avoid impacts to wetlands and waters of the United States. Construction of all structures and related amenities would avoid, to the maximum degree feasible, wetlands destruction or degradation regardless of wetland size or legal necessity for a permit. Any facility that cannot be sited to avoid wetlands would be designed to minimize wetlands degradation and would include compensatory mitigation as required by wetland regulatory agencies. Mitigation may include but is not limited to evaluating land within the project area or elsewhere on the installation suitable for establishment of wetlands mitigation and used for mitigation where compatible with mission requirements. The use of Department of Defense lands and lands of other entities would be considered for mitigation purposes when consistent with Environmental Protection Agency, USACE, North Carolina Division of Water Quality guidelines, and/or permit provisions.

The USMC will obtain the appropriate wetland permits prior to construction, and will implement mitigation as required by wetland permit conditions. These permits would include the Clean Water Act, Section 404 wetland permit from the USACE (Nationwide or Individual Permit depending on the quantity of wetlands and waters of the United States affected) and the Clean Water Act, Section 401 Water quality Certification from the NCDENR, Division of Water quality. Other permits and approvals for the Proposed Action include:

- Erosion and Sedimentation Control Plan approval by North Carolina Department of the Environment and Natural Resources, Division of Land Resources, Land Quality Section; and
- Stormwater Management Permit from the North Carolina Department of Environment and Natural Resources, Division of Water Quality.

If during construction and site grading any site of potential historical or archaeological significance or any threatened and/or endangered species is discovered, work would immediately cease, the area would be marked, and the Head, Environmental Affairs Department would be notified. The Head, Environmental Affairs Department would immediately notify the Natural Resources Manager.

With the above mitigation and minimization measures in place, the Proposed Action would be consistent with this policy.

2.2.7 15A NCAC 7M .0800 (Coastal Water Quality Policies)

The proposed construction activities include a variety of facility constructions, road expansions, and a new bridge crossing Slocum Creek. A NPDES Phase II permit has not yet been awarded to MCAS Cherry Point, however once received guidance described in this document will decrease potential impacts to surrounding water quality. Slocum Creek should be taken into special consideration as its already degraded water quality would be further setback by elicit discharges. Neuse River stream buffer variances are set at 50 feet.

Stormwater runoff would be managed and controlled in accordance with the Proposed Action's state approved Erosion and Sedimentation Control Plan, state issued Stormwater Management Permit, and the Station's National Pollutant Discharge Elimination System Phase I, and possible future Phase II, permit requirements.

Best management practices would be used to avoid contamination of stormwater and mitigate for both short-term (construction phase) and long-term (project life) impacts. Short-term practices would include erosion and sedimentation controls. Prior to construction, approval would be obtained from the North Carolina Department of Environment and Natural Resources on all construction site Erosion and Sedimentation Control Plans. Erosion and sedimentation control devices could include sediment fences, silt fences, dust suppressors, and temporary seeding and matting. Long-term measures would include planting grass on bare areas, landscaping with native plants in select areas, and building stormwater retention ponds. These vegetation and structural stormwater control devices would aid in the control of stormwater runoff and ensure effective and continuous control of erosion and pollution. Impacts to water quality would be further avoided by adherence to standard procedures governing hazardous materials during the construction phase and for duration of the project. Should all guidance, future or present, be applied to construction considered under the Proposed Action, then appreciable impacts on surface water resources would not occur.

2.2.8 15A NCAC 7M .0900 (Policies on Use of Coastal Airspace)

No use of coastal airspace would be part of the Proposed Action; therefore, these policies are not applicable.

2.2.9 15A NCAC 7M .1000 (Policies on Water-Based and Wetland-Based Target Areas for Military Training Areas)

No water-based or wetland-based target areas or military training areas would be part of the Proposed Action; therefore, these policies are not applicable.

2.2.10 15A NCAC 7M .1200 (Policies on Ocean Mining)

No ocean mining would be part of the Proposed Action; therefore, these policies are not applicable.

3.0 CRAVEN COUNTY COASTAL MANAGEMENT POLICIES

The CAMA required local governments in each of the 20 coastal counties in the state to prepare and implement a land use plan and ordinances for its enforcement consistent with established federal and state policies. Specifically, policy statements are required on resource protection; resource production and management; economic and community development; continuing public participation; and storm hazard mitigation, post-disaster recovery, and evacuation plans. Upon approval by the North Carolina Coastal Resources Commission, the plan becomes part of the *North Carolina Coastal Management Plan*.

Craven County's *CAMA Land Use Plan*, adopted in 1996, addresses land use planning in relation to the CAMA. Table 1 contains a list of Craven County's land use plan policies and their applicability to this project. The Proposed Action at MCAS Cherry Point would be consistent with the applicable policies of the North Carolina Coastal Management Program and Craven County's land use plan policies for the reasons described throughout this Coastal Consistency Determination.

4.0 CONCLUSION

In conclusion, after careful consideration of the Proposed Action, the USMC has determined that implementation of the Proposed Action in conjunction with proposed mitigation would be fully consistent with the relevant enforceable policies protecting North Carolina's coastal zone. This was based on the review of the proposed projects against the enforceable policies of the State's Coastal Management Program which are principally found in Chapter 7 of Title 15A of North Carolina's Administrative Code.

Table 1: Craven County Land Use Plan Policies

Land use and Development Policies	Applicability
Increased Affordable Housing	Not Applicable
Countywide Water and Sewer Service	Not Applicable
Reduced Substandard Housing	Not Applicable
Industrial/Business Diversification	Not Applicable
Increased Military Presence	Consistent
US 70 Corridor Development	Not Applicable
Infrastructure and Services	Applicability
Educational Facilities	Consistent
Water System	Consistent
Wastewater Treatment and Disposal	Consistent
Storm Drainage	Consistent
Solid Waste Management	Consistent
Other County Facilities	Consistent
Resources Protection Policies	Applicability
Mooring Fields	Not Applicable
Beautification	Consistent
Stormwater Runoff	Consistent
Water Quality Management	Consistent
Economic and Community Development Policies	Applicability
Economic Development	Not Applicable
Interstate Waterways	Not Applicable
Transportation	Consistent

Figure 1 Coastal Resources at MCAS Cherry Point

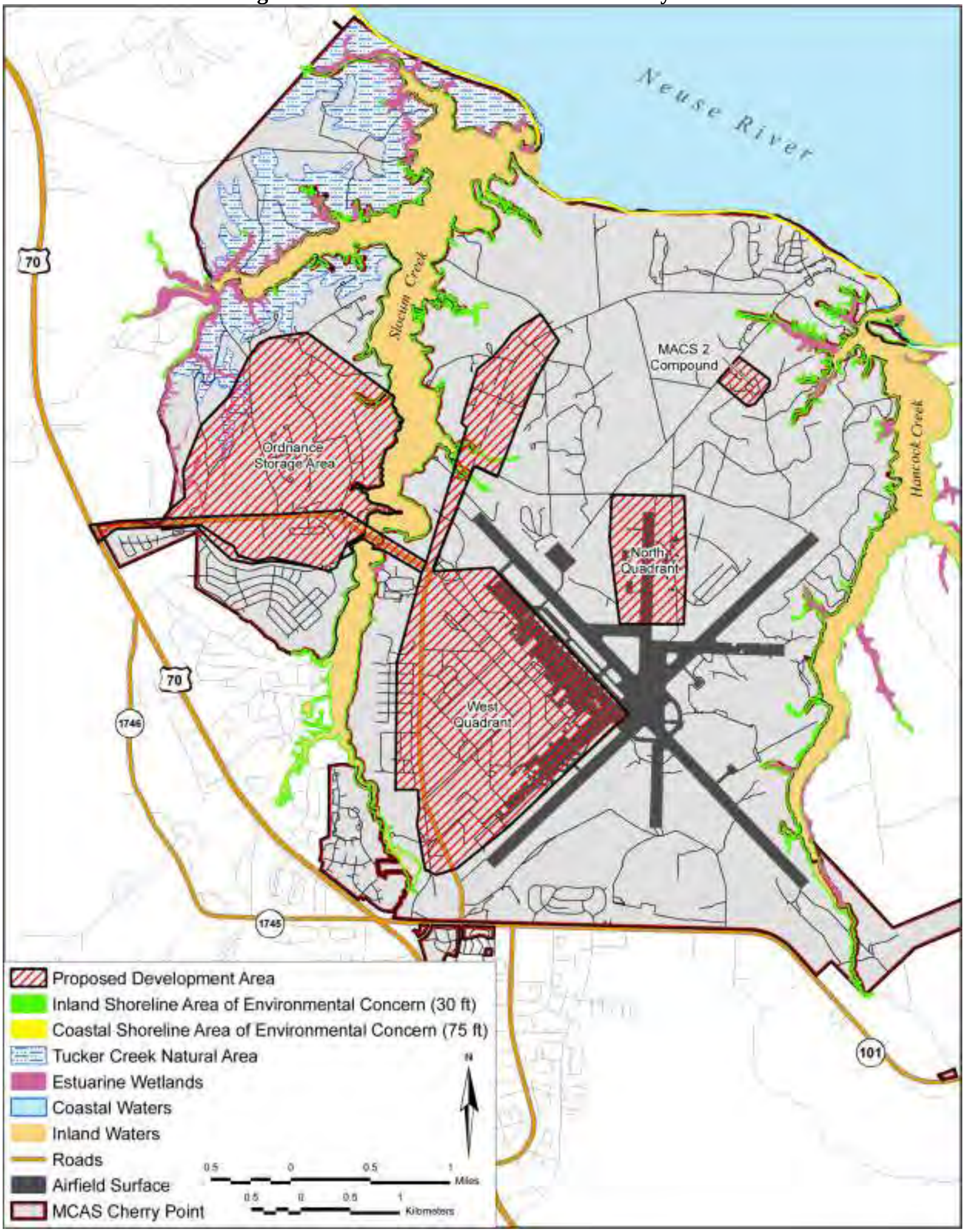
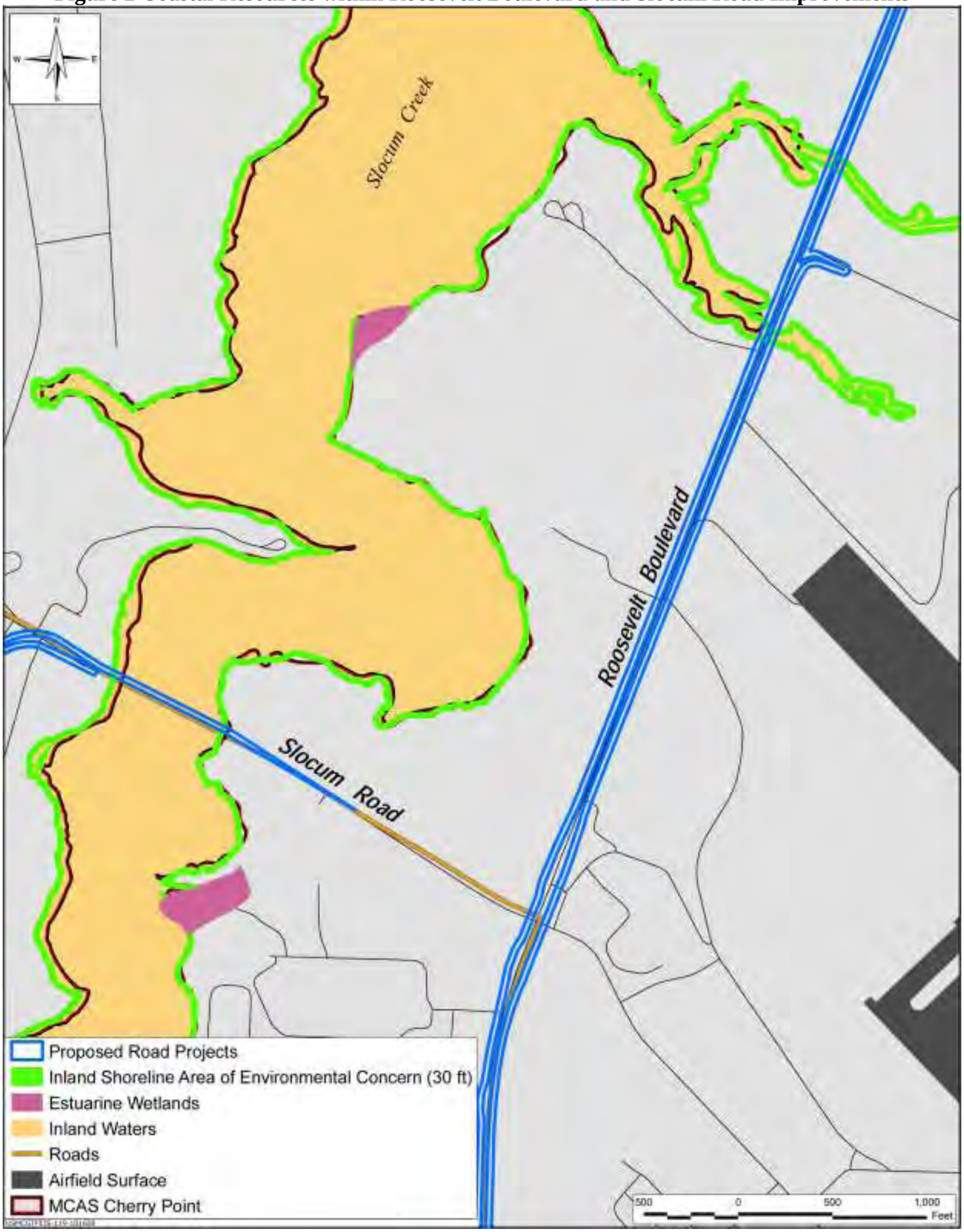


Figure 2 Coastal Resources within Roosevelt Boulevard and Slocum Road Improvements



APPENDIX D
SOCIOECONOMIC MODELING

Appendix D

Socioeconomic Modeling

Input-output analysis examines the inter-industry spending patterns of a regional economy – what and how many inputs each industry must purchase from other industries and labor to produce its output. Economic theory shows that such inter-industry transactions serve to multiply the effects of changes to final demands in a region. Final demands are sales to ultimate consumers, including households, governments, and sales to other regions.

IMPLAN is an automated modeling system that includes tables of inter-industry transactions for the United States as a whole, and ways to localize these tables to particular regions by reference to state and local economic statistics (Minnesota IMPLAN Group 2004). The system also calculates multipliers specific to a region's economy, and provides ways for an analyst to use these multipliers to estimate the overall economic impacts of final demand changes in the region. These impacts include:

- Direct effects – the economic sectors experiencing the initial final demand changes would expand, as some establishments increase production and new establishments open. To support their increased output, these sectors would purchase more materials, services, and labor.
- Indirect effects – additional economic sectors would then expand in response to those direct effects. Moreover, these indirectly-affected sectors would make additional purchases, and the industries supporting them would expand to make more purchases, and so on.
- Induced effects – the households gaining income from those direct and indirect effects would spend money too. And much like the initial spending effects of the new personnel, the personal consumption expenditures of these households multiply through the regional economy.

The three North Carolina counties defined the IMPLAN region used for this analysis: Carteret, Craven, and Onslow counties. The analysis base year is 2006, presently the most recent year for which IMPLAN data are available. The modeling system aggregates these data before it creates a regional model. Therefore, all final demand changes as well as impact results pertain to the entire region, not specifically to individual counties.

Three sources of final demand changes are considered in this analysis: personal consumption expenditures of the new personnel, increases to general installation operation expenditures in support of these new personnel, and new construction expenditures.

Personal Consumption Expenditures

Payrolls of the new military and civilian personnel lead to this category of final demand changes. For the military personnel, this analysis uses a tabulation of 2007 basic pay plus allowances (housing and subsistence) by pay grade (Department of Defense 2007). For civilian personnel, pay estimates by grade are calculated from the 2007 base general schedule pay scale values – specifically for step 5, plus 12.64 percent, the locality adjustment for this region (Federal Research Service 2008). These figures are multiplied times the personnel breakdowns by grade presented in Chapter 2 to estimate total payroll impacts by pay level (Table D-1).

IMPLAN provides spending profiles – covering final demand changes in almost 300 industries – for several standard household income levels. To use these spending profiles, this analysis aggregates payrolls proportionately to the five relevant income categories:

- 31.5 percent of payrolls are allocated to the $25,000 – $35,000 category
- 39.8 percent to $35,000 - $50,000
- 22.9 percent to $50,000 - $75,000
- 4.7 percent to $75,000 - $100,000
- 1.1 percent to $100,000 - $150,000

As a final correction before input to IMPLAN as final demand changes, the payrolls are reduced by 30 percent to account for taxes, savings, and other payroll amounts that would not be available for personal consumption in the region.

Operation Expenditures

IMPLAN also provides a spending profile for the Federal Defense sector that allocates final demand changes to nearly 100 industries. According to this profile, almost 89 percent of the sector’s spending is allocated to the Federal Defense sector itself. This analysis assumes the remaining 11.2 percent of this sector’s output would represent final demand changes to the other 97 sectors included in the profile.

The 2006 IMPLAN data for Onslow and Craven counties are used to calculate output-per-job estimates for the Federal Defense sector. These values – $79,880 for Onslow County and $84,819 for Craven County – are multiplied by the personnel increases to estimate related changes in the defense sector’s output. The Onslow County value is used for Marine Corps Base (MCB) Camp Lejeune and Marine Corps Air Station (MCAS) New River, and the Craven County value is used for MCAS Cherry Point.

Table D-1 Payroll Impacts of Proposed Increases, by Grade (in millions of 2007 dollars)

	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	North Carolina Totals
Military				
E-2	28.584	5.826	2.599	37.008
E-3	53.859	10.975	4.895	69.729
E-4	51.096	10.411	4.645	66.152
E-5	44.395	9.046	4.036	57.477
E-6	21.962	4.475	1.998	28.435
E-7	11.082	2.258	1.010	14.350
E-8	4.248	0.867	0.389	5.504
O-1	2.732	0.558	0.250	3.540
O-2	7.156	1.455	0.650	9.261
O-3	9.283	1.888	0.843	12.014
O-4	11.132	2.264	1.011	14.407
Total Military	245.528	50.023	22.327	317.879
Civilian				
GS-3	0.250	0.036	0.057	0.344
GS-4	3.365	0.506	0.769	4.640
GS-5	5.646	0.847	1.289	7.782
GS-6	1.750	0.263	0.401	2.414
GS-7	7.772	1.167	1.775	10.713
GS-8	2.154	0.323	0.494	2.971
GS-9	4.753	0.714	1.085	6.552
GS-10	1.572	0.235	0.360	2.167
GS-11	7.478	1.121	1.709	10.308
GS-12	3.450	0.517	0.791	4.758
GS-13	2.462	0.368	0.564	3.393
GS-14	1.939	0.293	0.444	2.676
GS-15	1.141	0.166	0.261	1.568
Contractors	0.958	0.145	0.220	1.322
Total Civilian	44.688	6.701	10.219	61.608

Source: Estimated for this study.

Construction Expenditures

Costs for each of the construction projects were allocated to IMPLAN construction sectors (using all Grow the Force and core projects for Alternative 2 and just core projects for Alternative 3). These allocations were made to six sectors for projects at MCB Camp Lejeune, four sectors for projects at MCAS New River, and five sectors for MCAS Cherry Point. It was assumed that all of these construction costs will be final demand changes to the region. In the event that some projects are awarded to firms outside the region, the estimated impacts would be reduced. This reduction would not be proportional to reductions in regional expenditures, however, as outside firms are still likely to hire regional workers and make regional purchases to accomplish the work.

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APPENDIX E
AIR QUALITY MODELING

APPENDIX E—AIR QUALITY MODELING

Air quality impacts were estimated for the two primary elements associated with the Grow the Force proposed action: construction and operations. The following is a discussion of the assumptions, references, and methods used to perform the air emission estimate calculations.

CONSTRUCTION

Air quality impacts from proposed construction activities were estimated from (1) combustion emissions due to the use of fossil fuel-powered equipment; (2) fugitive dust emissions (PM_{10} and $PM_{2.5}$) during demolition activities, earth-moving activities, and the operation of equipment on bare soil; and (3) VOC emissions from application of asphalt materials during paving operations.

Factors needed to derive the construction source emission rates were obtained from *Compilation of Air Pollution Emission Factors, AP-42, Volume I* (USEPA 1995); *Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling* (USEPA 2004a); *Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling—Compression-Ignition* (USEPA 2004b); *Nonroad Engine and Vehicle Emission Study—Report* (USEPA 1991); *Exhaust Emission Factors for Nonroad Engine Modeling—Spark-Ignition* (USEPA 2004c); *Conversion Factors for Hydrocarbon Emission Components* (USEPA 2004d); *Comparison of Asphalt Paving Emission Factors* (CARB 2005); *WRAP Fugitive Dust Handbook* (WRAP 2004); *Analysis of the Fine Fraction of Particulate Matter in Fugitive Dust* (MRI 2005) and *Mobile 6.2.03* (EPA 2003).

The analysis assumed that all construction equipment was manufactured before 2000. This approach is based on the well-known longevity of diesel engines, although use of 100% Tier 0 equipment may be somewhat conservative. The analysis also inherently reduced PM_{10} fugitive dust emissions from earth-moving activities by 50 percent as this control level is included in the emission factor itself.

Off-Road Equipment Emissions. The NONROAD model (EPA 2005) is the EPA standard method for preparing emission inventories for mobile sources that are not classified as being related to on-road traffic, railroads, air traffic, or water-going vessels. As such, it is the starting place for quantifying emissions from construction-related equipment. The NONROAD model uses the following general equation to estimate emissions separately for CO, NOx, PM (essentially all of which is PM2.5 from construction sources), and total hydrocarbons (THC), nearly all of which are NMHC1:

EMS = EF * HP * LF * Act * DF

Where:

EMS = estimated emissions

EF = emissions factor in grams per horsepower hours

HP = peak horsepower

LF = load factor (assumed percentage of peak horsepower)

Act = activity in hours of operation per period of operation

DF = deterioration factor

The emissions factor is specific to the equipment type, engine size, and technology type. The technology type for diesel equipment can be "base" (before 1988), "tier 0" (1988 to 1999), or "tier 1" (2000 to 2005). Tier 2 emissions factors could be applied to equipment that satisfies 2006 national standards (or slightly earlier California standards). The technology type for two-stroke gasoline equipment can be "base" (before 1997), "phase 1" (1997 to 2001), or "phase 2" (2002 to 2007). Equipment for phases 1 and 2 can have catalytic converters. For this study, all diesel equipment was assumed to be either tier 0 or tier 1 and all two-stroke diesel equipment was assumed to be phase 1 without catalytic converters.

The load factor is specific to the equipment type in the NONROAD model regardless of engine size or technology type, and it represents the average fraction of peak horsepower at which the engine is assumed to operate. NONROAD model default values were used in all cases. Because Tier 0 equipment was conservatively used throughout the analysis period (2009 to 2014), deterioration factors were not used to estimate increased emissions due to engine age. Based on the methodology described, it is possible to make a conservative estimate of emissions from off-road equipment if the types of equipment and durations of use are known.

Construction calculations were performed for each year when construction is proposed, 2009 to 2016. Information from supplied Form 1391s, *Military Construction Project Data*, and timeline information provided by Installation personnel were used to identify periods of construction for large, multi-year projects, as well as detailed information on acreages to be cleared, building square footages, excavation/demolition/cut and fill, grading, trenching, gravel work, concrete work, and paving.

Fugitive Dust. Emission rates for fugitive dust were estimated using guidelines outlined in the Western Regional Air Partnership (WRAP) fugitive dust handbook (WRAP 2004). Although these guidelines were developed for use in western states, they assume standard dust mitigation best practices activities of 50 percent from wetting; therefore, they were deemed applicable but conservative for the Southeastern United States. The WRAP handbook offers several options for selecting factors for PM_{10} (coarse PM) depending on what information is known.

After PM_{10} is estimated, the fraction of fugitive dust emitted as $PM_{2.5}$ is estimated, the most recent WRAP study (MRI 2005) recommends the use of a fractional factor of 0.10 to estimate the $PM_{2.5}$ portion of the PM_{10}.

For site preparation activities, the emission factor was obtained from Table 3-2 of the WRAP Fugitive Dust Handbook. The areas of disturbance and approximate durations were used in conjunction with the large scale of land-disturbing activities occurring, resulting in the selection of the first factor with worst-case conditions for use in the analysis.

PM_{10}, $PM_{2.5}$, and Mobile Sources. Diesel exhaust is a primary, well-documented source of $PM_{2.5}$ emissions. The vast majority of PM emissions in diesel exhaust is $PM_{2.5}$. Therefore, all calculated PM is assumed to be $PM_{2.5}$. A corollary result of this is that the PM_{10} fraction of diesel exhaust is estimated very conservatively as only a small fraction of PM_{10} is present in the exhaust. However, ratios of PM_{10} to $PM_{2.5}$ in diesel exhaust are not yet published and therefore for the purposes of the EIS calculations, all PM emissions are equally distributed as PM_{10} and $PM_{2.5}$.

VOC Emissions from Paving and Pavement Marking. VOC emissions from the application of hot mix asphalt were calculated throughout the construction period of 2009 to 2016. The estimates used asphalt volumes as provided in the Form 1391s, and used the published CARB hot mix asphalt emission factor.

Construction Workers – Mobile Sources. Mobile source emissions were calculated for construction workers for each of the construction years. These emissions assumed that each worker drove their own car, and that the average mileage driven each workday within the Installation fenceline (for MCB Camp Lejeune, MCAS New River or MCAS Cherry Point), was 10 miles (to include driving during lunch break) and at a rate not exceeding 30 miles per hour. Emission factors were derived from the USEPA Mobile 6 mobile emissions model for each of the years 2009 - 2016.

OPERATIONS

Operations evaluated for air emissions include mobile source emissions generated by the growth of commuters to the Installations, emissions from boilers installed in large (barracks-scale) new buildings, and emissions from new emergency generators installed at specified, newly constructed locations.

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Total Annual Construction Emission Summaries for MCB Camp Lejeune and MCAS New River
2010 - 2015

CORE ONLY

2010 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
6.8	31.5	69.5	7.6	11.2	4.3

2011 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
8.8	41.9	81.7	9.0	18.3	6.3

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
10.9	45.6	100.0	11.2	50.3	9.8

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
14.2	62.1	121.8	13.7	65.2	12.5

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
14.1	61.1	123.2	13.9	72.7	13.3

2015 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
2.6	12.5	21.1	2.4	14.3	2.5

CORE + GTF

2010 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
16.3	68.6	135.0	14.8	156.3	22.0

2011 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
22.8	98.6	179.7	19.9	186.0	27.8

2012 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
28.9	122.6	245.6	27.8	190.9	31.2

2013 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
27.7	121.1	232.3	26.3	152.4	26.7

2014 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
15.8	71.6	136.0	15.3	77.1	14.3

2015 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
4.4	24.2	31.5	3.5	18.7	3.5

MCB Camp Lejeune 2010

MCB Camp Lejeune Construction Emissions 2010

CORE PROJECTS ONLY

Total Footprint 12 Acres

Clearing 12 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	8	6	6	5	0.7	120.06	351.02	1.82	NA	7.7	267	780	4	N/A	17
Backhoe/loader	2	8	6	98	0.21	0.99	3.49	6.9	0.85	0.722	4	15	30	4	3
Skid/steer Loader	2	8	2	168	0.59	0.68	2.7	8.38	0.93	0.402	5	19	59	7	3
Dozer	4	6	2	299	0.58	0.68	2.7	8.38	0.93	0.402	12	50	154	17	7
Dump truck (12 CY)	6	5	6	275	0.21	0.68	2.7	8.38	0.89	0.402	16	62	192	20	9
										Subtotal	304	926	439	48	40

Demolition 37,674 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	8	8	19	90	0.59	0.99	3.49	6.9	0.93	0.722	141	497	982	132	103
Skid steer loader	8	8	19	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	22	98	231	38	20
Crane	4	8	1	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	3	21	3	1
										Subtotal	164	598	1,234	174	123

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	8	8	9	98	0.21	0.99	3.49	6.9	0.85	0.722	26	91	180	22	19
Skid steer loader	8	8	9	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	10	46	110	18	9
Dump truck	32	0.5	9	275	0.21	0.68	2.7	8.38	0.89	0.402	12	50	154	16	7
										Subtotal	49	187	444	57	35

Cut/Fill/Borrow 20,927 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	3	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	6	14	2	1
Dump truck (40 CY)	28	5	3	710	0.59	0.68	2.7	8.38	0.89	0.402	264	1,047	3,250	345	156
Backhoe/loader	5	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Excavator	5	8	3	513	0.59	0.68	2.7	8.38	0.93	0.402	54	216	671	74	32
Dozer	5	8	3	620	0.59	0.68	2.7	8.38	0.93	0.402	66	261	811	90	39
Small diesel engines	10	8	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	9	12	2	1
										Subtotal	392	1,559	4,796	519	233

Excavation 68,438 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	7	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	14	32	5	3
Dump truck (40 CY)	28	5	6	710	0.59	0.68	2.7	8.38	0.89	0.402	528	2,095	6,501	690	312
Backhoe/loader	5	8	6	98	0.21	0.99	3.49	6.9	0.85	0.722	11	38	75	9	8
Excavator	5	8	6	513	0.59	0.68	2.7	8.38	0.93	0.402	109	432	1,342	149	64
Dozer	5	8	6	620	0.59	0.68	2.7	8.38	0.93	0.402	132	523	1,622	180	78
Small diesel engines	10	8	6	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	19	24	4	2
										Subtotal	785	3,120	9,596	1,038	467

MCB Camp Lejeune 2010

Trenching 10,334 CY 67 CY= 1 site/1 day

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	15	8	31	98	0.21	0.99	3.49	6.9	0.85	0.722	167	589	1,165	143	122
Excavator	5	8	31	90	0.21	0.99	3.49	6.9	0.85	0.722	51	180	357	44	37
Dump truck	20	0.5	31	275	0.21	0.68	2.7	8.38	0.89	0.402	27	107	331	35	16
Delivery truck	5	2	31	180	0.21	0.68	2.7	8.38	0.89	0.402	18	70	216	23	10
Small diesel engines	10	8	31	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	18	97	123	22	11
Trencher	5	8	31	100	0.21	0.99	3.49	6.9	0.85	0.722	57	200	396	49	41
										Subtotal	337	1,243	2,587	316	237

Building Construction 87,381 SF

Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	11	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4	19	46	8	4
Concrete truck	30	4	7	250	0.21	0.68	2.7	8.38	0.89	0.402	66	263	815	87	39
Dump truck	21	0.5	7	275	0.21	0.68	2.7	8.38	0.89	0.402	6	25	78	8	4
Delivery truck	5	1	13	180	0.21	0.68	2.7	8.38	0.89	0.402	4	15	45	5	2
Backhoe/loader	5	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Small diesel engines	14	4	15	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	33	42	7	4
										Subtotal	92	374	1064	119	56

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	11	4	9	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	15	20	3	2
Delivery truck	3	2	11	180	0.21	0.68	2.7	8.38	0.89	0.402	4	15	46	5	2
Skid steer loader	7	8	19	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	19	86	202	34	17
Concrete truck	11	4	7	250	0.21	0.68	2.7	8.38	0.89	0.402	24	96	299	32	14
Crane	1	8	14	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	4	11	72	12	4
										Subtotal	54	223	639	86	39

Grading 55,660 SY

Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	2	90	0.59	0.99	3.49	6.9	0.93	0.722	3	10	19	3	2
Skid steer loader	4	4	6	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	8	18	3	2
Backhoe/loader	4	6	5	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Small diesel engines	2	4	6	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	2	0	0
Dump truck	12	0.5	3	275	0.21	0.68	2.7	8.38	0.89	0.402	2	6	19	2	1
										Subtotal	12	45	97	13	9

MCB Camp Lejeune 2010

Gravel Work 8,038 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	12	8	11	135	0.58	0.68	2.7	8.38	0.93	0.402	124	492	1,528	170	73
Skid steer loader	24	8	11	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	37	170	402	67	34
Small diesel engines	12	8	11	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	8	41	52	9	4
Dump truck (12 CY)	72	1	11	275	0.21	0.68	2.7	8.38	0.89	0.402	69	272	845	90	41
										Subtotal	238	975	2,827	335	152

Concrete Work 3,611 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	8	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	14	33	6	3
Concrete truck (9 CY)	46	1	10	250	0.21	0.68	2.7	8.38	0.89	0.402	36	144	446	47	21
Dump truck (12 CY)	34	0.5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	15	58	181	19	9
Delivery truck	5	1	9	180	0.21	0.68	2.7	8.38	0.89	0.402	3	10	31	3	2
Backhoe/loader	5	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
										Subtotal	60	239	717	79	37

Paving 5,218 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	7	150	0.59	0.68	2.7	8.38	0.93	0.402	7	30	92	10	4
Roller	4	4	7	30	0.59	1.8	5	6.9	1	0.8	8	22	30	4	3
Paver	2	8	7	107	0.59	0.68	2.7	8.38	0.93	0.402	11	42	131	14	6
Delivery truck	4	2	11	180	0.21	0.68	2.7	8.38	0.89	0.402	5	20	61	7	3
										Subtotal	31	113	314	36	17

Volume of hot mix asphalt	140,886	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	409	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	1	75	1	0.1	0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
310	137	10	0.001767014	0.024207	0.001440728	1.8078E-05	0.000055	750	10281	612	8	23

2010 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
1.8	9.9	12.7	1.4	2.0	0.9

MCB Camp Lejeune 2010

GTF PROJECTS ONLY

Total Footprint **338 Acres**

Clearing 321 AC

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Chain saw	8	6	153	5	0.7	120.06	351.02	1.82	NA	7.7	6,804	19,892	103	N/A	436
Backhoe/loader	2	8	153	98	0.21	0.99	3.49	6.9	0.85	0.722	110	388	766	94	80
Skid/steer Loader	2	8	39	168	0.59	0.68	2.7	8.38	0.93	0.402	93	368	1,143	127	55
Dozer	4	6	63	299	0.58	0.68	2.7	8.38	0.93	0.402	393	1,561	4,844	538	232
Dump truck (12 CY)	6	5	153	275	0.21	0.68	2.7	8.38	0.89	0.402	397	1,578	4,897	520	235
										Subtotal	7,797	23,786	11,754	1,279	1,039

Demolition 53,000 SF

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Dozer	8	8	26	90	0.59	0.99	3.49	6.9	0.93	0.722	193	680	1,344	181	141
Skid steer loader	8	8	26	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	29	134	317	53	27
Crane	2	8	2	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	3	21	3	1
										Subtotal	224	817	1,681	237	168

Equipment	*Number*	*Hr/day*	*# days*	*Hp*		**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Backhoe/loader	8	8	13	98	0.21	0.99	3.49	6.9	0.85	0.722	37	132	260	32	27
Skid steer loader	8	8	13	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	15	67	158	26	13
Dump truck	32	0.5	13	275	0.21	0.68	2.7	8.38	0.89	0.402	18	72	222	24	11
										Subtotal	70	270	641	82	51

Cut/Fill/Borrow 445,582 CY

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Skid steer loader	3	8	73	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	31	141	333	55	28
Dump truck (40 CY)	28	5	69	710	0.59	0.68	2.7	8.38	0.89	0.402	6,066	24,087	74,760	7,940	3,586
Backhoe/loader	5	8	66	98	0.21	0.99	3.49	6.9	0.85	0.722	119	418	826	102	86
Excavator	5	8	66	513	0.59	0.68	2.7	8.38	0.93	0.402	1,198	4,756	14,762	1,638	708
Dozer	5	8	66	620	0.59	0.68	2.7	8.38	0.93	0.402	1,448	5,748	17,841	1,980	856
Small diesel engines	10	8	69	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	40	215	274	49	23
										Subtotal	8,902	35,366	108,797	11,764	5,288

Excavation 343,523 CY

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Skid steer loader	3	8	32	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	14	62	146	24	12
Dump truck (40 CY)	28	5	30	710	0.59	0.68	2.7	8.38	0.89	0.402	2,638	10,473	32,504	3,452	1,559
Backhoe/loader	5	8	29	98	0.21	0.99	3.49	6.9	0.85	0.722	52	184	363	45	38
Excavator	5	8	29	513	0.59	0.68	2.7	8.38	0.93	0.402	526	2,090	6,486	720	311
Dozer	5	8	29	620	0.59	0.68	2.7	8.38	0.93	0.402	636	2,526	7,839	870	376
Small diesel engines	10	8	30	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	17	94	119	21	10
										Subtotal	3,883	15,427	47,458	5,132	2,307

MCB Camp Lejeune 2010

Trenching 32,812 CY 67 CY= 1 site/1 day

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	15	8	94	98	0.21	0.99	3.49	6.9	0.85	0.722	507	1,786	3,531	435	370
Excavator	5	8	94	90	0.21	0.99	3.49	6.9	0.85	0.722	155	547	1,081	133	113
Dump truck	20	0.5	94	275	0.21	0.68	2.7	8.38	0.89	0.402	81	323	1,003	107	48
Delivery truck	5	2	94	180	0.21	0.68	2.7	8.38	0.89	0.402	53	212	656	70	31
Small diesel engines	10	8	94	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	54	293	373	66	32
Trencher	5	8	94	100	0.21	0.99	3.49	6.9	0.85	0.722	172	608	1,201	148	126
										Subtotal	1,023	3,768	7,846	959	720

Building Construction 303,911 SF

Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	39	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	15	69	163	27	14
Concrete truck	30	4	22	250	0.21	0.68	2.7	8.38	0.89	0.402	208	825	2,561	272	123
Dump truck	21	0.5	25	275	0.21	0.68	2.7	8.38	0.89	0.402	23	90	280	30	13
Delivery truck	5	1	44	180	0.21	0.68	2.7	8.38	0.89	0.402	12	50	154	16	7
Backhoe/loader	5	8	10	98	0.21	0.99	3.49	6.9	0.85	0.722	18	63	125	15	13
Small diesel engines	14	4	51	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	21	111	142	25	12
										Subtotal	297	1208	3424	386	183

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	11	4	29	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	9	50	63	11	5
Delivery truck	3	2	39	180	0.21	0.68	2.7	8.38	0.89	0.402	13	53	163	17	8
Skid steer loader	7	8	63	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	62	284	671	111	57
Concrete truck	11	4	25	250	0.21	0.68	2.7	8.38	0.89	0.402	87	344	1,067	113	51
Crane	1	8	49	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	15	39	252	41	12
										Subtotal	187	768	2217	295	134

Grading 714,798 SY

Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	27	90	0.59	0.99	3.49	6.9	0.93	0.722	38	132	262	35	27
Skid steer loader	4	4	77	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	22	99	234	39	20
Backhoe/loader	4	6	61	98	0.21	0.99	3.49	6.9	0.85	0.722	66	232	458	56	48
Small diesel engines	2	4	77	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	4	24	31	5	3
Dump truck	12	0.5	39	275	0.21	0.68	2.7	8.38	0.89	0.402	20	80	250	27	12
										Subtotal	150	568	1,235	163	110

MCB Camp Lejeune 2010

Gravel Work 97,419 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	12	8	128	135	0.58	0.68	2.7	8.38	0.93	0.402	1,442	5,727	17,776	1,973	853
Skid steer loader	24	8	128	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	435	1,975	4,675	776	395
Small diesel engines	12	8	128	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	89	479	609	108	52
Dump truck (12 CY)	72	1	128	275	0.21	0.68	2.7	8.38	0.89	0.402	798	3,168	9,833	1,044	472
										Subtotal	2,764	11,349	32,892	3,902	1,771

Concrete Work 34,024 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	71	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	28	126	297	49	25
Concrete truck (9 CY)	46	1	88	250	0.21	0.68	2.7	8.38	0.89	0.402	319	1265	3926	417	188
Dump truck (12 CY)	34	0.5	89	275	0.21	0.68	2.7	8.38	0.89	0.402	131	520	1614	171	77
Delivery truck	5	1	79	180	0.21	0.68	2.7	8.38	0.89	0.402	22	89	276	29	13
Backhoe/loader	5	8	18	98	0.21	0.99	3.49	6.9	0.85	0.722	32	114	225	28	24
										Subtotal	532	2114	6339	695	328

Paving 59,284 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	76	150	0.59	0.68	2.7	8.38	0.93	0.402	81	320	994	110	48
Roller	4	4	76	30	0.59	1.8	5	6.9	1	0.8	85	237	327	47	38
Paver	2	8	76	107	0.59	0.68	2.7	8.38	0.93	0.402	115	457	1418	157	68
Delivery truck	4	2	128	180	0.21	0.68	2.7	8.38	0.89	0.402	58	230	715	76	34
										Subtotal	339	1245	3455	391	188

Volume of hot mix asphalt	1,600,668	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	4,642	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	34	530	252	0.1	25

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
308	260	10	0.001767014	0.024207	0.001440728	1.8078E-05	0.000055	1415	19385	1154	14	44
308	200	10	0.001621508	0.023016	0.001313962	1.8078E-05	0.000055	999	14178	809	11	34

MCB Camp Lejeune 2010

2010 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
9.3	36.8	64.3	7.1	144.7	17.6

2011 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
7.3	28.4	50.5	5.6	113.7	13.8

CORE AND GTF COMBINED

2010 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
11.2	46.7	77.0	8.5	146.7	18.4

2011 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
7.3	28.4	50.5	5.6	113.7	13.8

MCB Camp Lejeune 2011

MCB Camp Lejeune Construction Emissions **2011**

CORE PROJECTS ONLY

Total Footprint **21 Acres**

Clearing 20 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	7	5	0.7	120.06	351.02	1.82	NA	7.7	428	1,251	6	N/A	27
Backhoe/loader	3	8	7	98	0.21	0.99	3.49	6.9	0.85	0.722	8	27	53	6	6
Skid/steer Loader	3	8	2	168	0.59	0.68	2.7	8.38	0.93	0.402	7	28	88	10	4
Dozer	5	6	3	299	0.58	0.68	2.7	8.38	0.93	0.402	23	93	288	32	14
Dump truck (12 CY)	8	5	7	275	0.21	0.68	2.7	8.38	0.89	0.402	24	96	299	32	14
										Subtotal	490	1,495	734	80	65

Demolition 28,338 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	28	90	0.59	0.99	3.49	6.9	0.93	0.722	104	366	724	98	76
Skid steer loader	4	8	28	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	16	72	170	28	14
Crane	1	8	4	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	3	21	3	1
										Subtotal	121	441	915	129	91

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	17	98	0.21	0.99	3.49	6.9	0.85	0.722	24	86	170	21	18
Skid steer loader	4	8	17	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	10	44	103	17	9
Dump truck	16	0.5	17	275	0.21	0.68	2.7	8.38	0.89	0.402	12	47	145	15	7
										Subtotal	46	177	419	54	34

Cut/Fill/Borrow 51,663 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	7	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	14	32	5	3
Dump truck (40 CY)	28	5	7	710	0.59	0.68	2.7	8.38	0.89	0.402	615	2,444	7,584	805	364
Backhoe/loader	5	8	6	98	0.21	0.99	3.49	6.9	0.85	0.722	11	38	75	9	8
Excavator	5	8	6	513	0.59	0.68	2.7	8.38	0.93	0.402	109	432	1,342	149	64
Dozer	5	8	6	620	0.59	0.68	2.7	8.38	0.93	0.402	132	523	1,622	180	78
Small diesel engines	10	8	7	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	4	22	28	5	2
										Subtotal	874	3,472	10,683	1,154	519

Excavation 38,355 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	4	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	8	18	3	2
Dump truck (40 CY)	28	5	3	710	0.59	0.68	2.7	8.38	0.89	0.402	264	1,047	3,250	345	156
Backhoe/loader	5	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Excavator	5	8	3	513	0.59	0.68	2.7	8.38	0.93	0.402	54	216	671	74	32
Dozer	5	8	3	620	0.59	0.68	2.7	8.38	0.93	0.402	66	261	811	90	39
Small diesel engines	10	8	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	9	12	2	1
										Subtotal	393	1,561	4,800	519	234

MCB Camp Lejeune 2011

Trenching 1,520 CY 67 CY= 1 site/1 day

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	15	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	27	95	188	23	20
Excavator	5	8	5	90	0.21	0.99	3.49	6.9	0.85	0.722	8	29	58	7	6
Dump truck	20	0.5	5	275	0.21	0.68	2.7	8.38	0.89	0.402	4	17	53	6	3
Delivery truck	5	2	5	180	0.21	0.68	2.7	8.38	0.89	0.402	3	11	35	4	2
Small diesel engines	10	8	5	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	16	20	4	2
Trencher	5	8	5	100	0.21	0.99	3.49	6.9	0.85	0.722	9	32	64	8	7
										Subtotal	54	200	417	51	38

Building Construction 86,222 SF

Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	11	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4	19	46	8	4
Concrete truck	30	4	6	250	0.21	0.68	2.7	8.38	0.89	0.402	57	225	698	74	34
Dump truck	21	0.5	6	275	0.21	0.68	2.7	8.38	0.89	0.402	5	22	67	7	3
Delivery truck	5	1	12	180	0.21	0.68	2.7	8.38	0.89	0.402	3	14	42	4	2
Backhoe/loader	5	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Small diesel engines	14	4	10	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	4	22	28	5	2
										Subtotal	79	320	919	103	49

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	11	4	8	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	14	17	3	1
Delivery truck	3	2	10	180	0.21	0.68	2.7	8.38	0.89	0.402	3	14	42	4	2
Skid steer loader	7	8	16	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	16	72	170	28	14
Concrete truck	11	4	6	250	0.21	0.68	2.7	8.38	0.89	0.402	21	83	256	27	12
Crane	1	8	13	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	4	10	67	11	3
										Subtotal	47	192	553	74	33

Grading 59,996 SY

Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	2	90	0.59	0.99	3.49	6.9	0.93	0.722	3	10	19	3	2
Skid steer loader	4	4	7	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	9	21	4	2
Backhoe/loader	4	6	5	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Small diesel engines	2	4	7	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	0	0
Dump truck	12	0.5	3	275	0.21	0.68	2.7	8.38	0.89	0.402	2	6	19	2	1
										Subtotal	12	46	100	13	9

Gravel Work 7,598 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	20	135	0.58	0.68	2.7	8.38	0.93	0.402	113	447	1,389	154	67
Skid steer loader	12	8	18	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	31	139	329	55	28
Small diesel engines	6	8	20	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	7	37	48	8	4
Dump truck (12 CY)	36	0.5	18	275	0.21	0.68	2.7	8.38	0.89	0.402	28	111	346	37	17
										Subtotal	178	735	2,111	254	115

MCB Camp Lejeune 2011

Concrete Work 6,778 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	14	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	5	25	59	10	5
Concrete truck (9 CY)	46	1	17	250	0.21	0.68	2.7	8.38	0.89	0.402	62	244	758	81	36
Dump truck (12 CY)	34	0.5	17	275	0.21	0.68	2.7	8.38	0.89	0.402	25	99	308	33	15
Delivery truck	5	1	15	180	0.21	0.68	2.7	8.38	0.89	0.402	4	17	52	6	3
Backhoe/loader	5	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
										Subtotal	102	404	1215	133	63

Paving 10,040 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	13	150	0.59	0.68	2.7	8.38	0.93	0.402	14	55	170	19	8
Roller	4	4	13	30	0.59	1.8	5	6.9	1	0.8	15	41	56	8	6
Paver	2	8	13	107	0.59	0.68	2.7	8.38	0.93	0.402	20	78	243	27	12
Delivery truck	4	2	4	180	0.21	0.68	2.7	8.38	0.89	0.402	2	7	22	2	1
										Subtotal	50	181	491	56	27

Volume of hot mix asphalt	271,080	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	786	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	2	90	3	0.1	0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
279	159	10	0.001621508	0.023016	0.00131396	1.8078E-05	0.000055	719	10210	583	8	24

2011 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
2.0	9.7	12.0	1.3	3.3	0.9

MCB Camp Lejeune 2011

GTF PROJECTS ONLY

Total Footprint **247 Acres**

Clearing 232 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	77	5	0.7	120.06	351.02	1.82	NA	7.7	4,708	13,765	71	N/A	302
Backhoe/loader	3	8	77	98	0.21	0.99	3.49	6.9	0.85	0.722	83	293	579	71	61
Skid/steer Loader	3	8	19	168	0.59	0.68	2.7	8.38	0.93	0.402	68	269	835	93	40
Dozer	5	6	30	299	0.58	0.68	2.7	8.38	0.93	0.402	234	929	2,884	320	138
Dump truck (12 CY)	8	5	77	275	0.21	0.68	2.7	8.38	0.89	0.402	267	1,059	3,286	349	158
										Subtotal	5,359	16,314	7,655	833	699

Demolition 198,127 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	100	90	0.59	0.99	3.49	6.9	0.93	0.722	371	1,307	2,585	348	270
Skid steer loader	4	8	100	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	57	257	609	101	51
Crane	1	8	28	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	9	22	144	24	7
										Subtotal	436	1,587	3,338	473	329

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	88	98	0.21	0.99	3.49	6.9	0.85	0.722	126	446	882	109	92
Skid steer loader	4	8	88	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	50	226	536	89	45
Dump truck	16	0.5	88	275	0.21	0.68	2.7	8.38	0.89	0.402	61	242	751	80	36
										Subtotal	237	914	2,168	277	174

Cut/Fill/Borrow 273,551 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	38	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	16	73	173	29	15
Dump truck (40 CY)	28	4	40	710	0.59	0.68	2.7	8.38	0.89	0.402	2,813	11,171	34,671	3,682	1,663
Backhoe/loader	5	8	34	98	0.21	0.99	3.49	6.9	0.85	0.722	61	215	426	52	45
Excavator	5	8	34	513	0.59	0.68	2.7	8.38	0.93	0.402	617	2,450	7,605	844	365
Dozer	5	8	34	620	0.59	0.68	2.7	8.38	0.93	0.402	746	2,961	9,191	1,020	441
Small diesel engines	10	8	35	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	20	109	139	25	12
										Subtotal	4,274	16,980	52,205	5,652	2,540

Excavation 481,940 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	44	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	19	85	201	33	17
Dump truck (40 CY)	28	4	41	710	0.59	0.68	2.7	8.38	0.89	0.402	2,884	11,450	35,538	3,774	1,705
Backhoe/loader	5	8	52	98	0.21	0.99	3.49	6.9	0.85	0.722	93	329	651	80	68
Excavator	5	8	52	513	0.59	0.68	2.7	8.38	0.93	0.402	944	3,747	11,631	1,291	558
Dozer	5	8	52	620	0.59	0.68	2.7	8.38	0.93	0.402	1,141	4,529	14,057	1,560	674
Small diesel engines	10	8	41	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	24	128	163	29	14
										Subtotal	5,104	20,269	62,240	6,768	3,036

MCB Camp Lejeune 2011

Trenching 29,034 CY 67 CY= 1 site/1 day

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	15	8	88	98	0.21	0.99	3.49	6.9	0.85	0.722	474	1,672	3,306	407	346
Excavator	5	8	88	90	0.21	0.99	3.49	6.9	0.85	0.722	145	512	1,012	125	106
Dump truck	20	0.5	88	275	0.21	0.68	2.7	8.38	0.89	0.402	76	303	939	100	45
Delivery truck	5	2	88	180	0.21	0.68	2.7	8.38	0.89	0.402	50	198	615	65	29
Small diesel engines	10	8	88	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	51	274	349	62	30
Trencher	5	8	88	100	0.21	0.99	3.49	6.9	0.85	0.722	161	569	1,124	139	118
										Subtotal	958	3,528	7,345	897	674

Building Construction 1,869,523 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	234	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	91	414	979	163	83
Concrete truck	30	4	145	250	0.21	0.68	2.7	8.38	0.89	0.402	1,369	5,438	16,877	1,792	810
Dump truck	21	0.5	145	275	0.21	0.68	2.7	8.38	0.89	0.402	132	523	1,624	173	78
Delivery truck	5	1	265	180	0.21	0.68	2.7	8.38	0.89	0.402	75	298	925	98	44
Backhoe/loader	5	8	60	98	0.21	0.99	3.49	6.9	0.85	0.722	108	380	751	93	79
Small diesel engines	14	4	103	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	42	225	286	51	24
										Subtotal	1817	7278	21443	2369	1118

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	11	4	174	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	55	298	380	67	32
Delivery truck	3	2	234	180	0.21	0.68	2.7	8.38	0.89	0.402	80	316	980	104	47
Skid steer loader	7	8	378	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	375	1,701	4,026	669	340
Concrete truck	11	4	145	250	0.21	0.68	2.7	8.38	0.89	0.402	502	1,994	6,188	657	297
Crane	1	8	291	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	90	230	1,497	246	74
										Subtotal	1102	4539	13071	1744	791

Grading 865,808 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	34	90	0.59	0.99	3.49	6.9	0.93	0.722	47	167	330	44	34
Skid steer loader	4	4	97	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	27	125	295	49	25
Backhoe/loader	4	6	73	98	0.21	0.99	3.49	6.9	0.85	0.722	79	277	548	68	57
Small diesel engines	2	4	97	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	30	38	7	3
Dump truck	12	0.5	49	275	0.21	0.68	2.7	8.38	0.89	0.402	25	101	314	33	15
										Subtotal	185	700	1,525	201	135

Gravel Work 159,858 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	415	135	0.58	0.68	2.7	8.38	0.93	0.402	2,338	9,284	28,816	3,198	1,382
Skid steer loader	12	8	400	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	680	3,086	7,304	1,213	617
Small diesel engines	6	8	415	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	144	777	988	176	84
Dump truck (12 CY)	36	0.5	400	275	0.21	0.68	2.7	8.38	0.89	0.402	623	2,475	7,682	816	369
										Subtotal	3,786	15,622	44,789	5,403	2,452

MCB Camp Lejeune 2011

Concrete Work 84,359 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	173	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	67	306	724	120	61
Concrete truck (9 CY)	46	1	212	250	0.21	0.68	2.7	8.38	0.89	0.402	768	3048	9459	1005	454
Dump truck (12 CY)	34	0.5	212	275	0.21	0.68	2.7	8.38	0.89	0.402	312	1239	3845	408	184
Delivery truck	5	1	185	180	0.21	0.68	2.7	8.38	0.89	0.402	52	208	646	69	31
Backhoe/loader	5	8	41	98	0.21	0.99	3.49	6.9	0.85	0.722	74	260	513	63	54
										Subtotal	1273	5060	15187	1665	784

Paving 69,934 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	91	150	0.59	0.68	2.7	8.38	0.93	0.402	97	384	1190	132	57
Roller	4	4	91	30	0.59	1.8	5	6.9	1	0.8	102	284	392	57	45
Paver	2	8	91	107	0.59	0.68	2.7	8.38	0.93	0.402	138	547	1698	188	81
Delivery truck	4	2	29	180	0.21	0.68	2.7	8.38	0.89	0.402	13	52	162	17	8
										Subtotal	350	1267	3443	395	192

Volume of hot mix asphalt	1,888,218	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	5,476	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	25	393	136	0.1	14

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
264	260	10	0.001621508	0.023016	0.00131396	1.8078E-05	0.000055	1113	15798	902	12	38
264	260	10	0.001476003	0.021859	0.00120263	1.8078E-05	0.000055	1013	15004	825	12	38
176	169	10	0.001367975	0.02101	0.0010957	1.8078E-05	0.000055	407	6249	326	5	16

2011 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
6.2	25.3	43.8	4.9	52.7	7.4

2012 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
6.1	24.9	43.8	4.9	52.7	7.4

2013 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
4.0	14.9	29.5	3.3	35.6	5.0

MCB Camp Lejeune 2011

CORE AND GTF COMBINED

2011 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
8.1	35.0	55.8	6.3	56.0	8.4

2012 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
6.1	24.9	43.8	4.9	52.7	7.4

2013 Emission Totals:

VOC	CO	NOx	SO2	PM 10	PM 2.5
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
4.0	14.9	29.5	3.3	35.6	5.0

MCB Camp Lejeune 2012

MCB Camp Lejeune Construction Emissions 2012

CORE PROJECTS ONLY

Total Footprint **188 Acres**

Clearing 137 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	35	5	0.7	120.06	351.02	1.82	NA	7.7	2,140	6,257	32	N/A	137
Backhoe/loader	3	8	35	98	0.21	0.99	3.49	6.9	0.85	0.722	38	133	263	32	28
Skid/steer Loader	3	8	9	168	0.59	0.68	2.7	8.38	0.93	0.402	32	127	396	44	19
Dozer	5	6	14	299	0.58	0.68	2.7	8.38	0.93	0.402	109	434	1,346	149	65
Dump truck (12 CY)	8	5	35	275	0.21	0.68	2.7	8.38	0.89	0.402	121	481	1,494	159	72
										Subtotal	2,440	7,432	3,530	384	320

Demolition 1,201,520 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	10	8	300	90	0.59	0.99	3.49	6.9	0.93	0.722	2,781	9,805	19,386	2,613	2,029
Skid steer loader	10	8	300	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	425	1,929	4,565	758	386
Crane	4	8	32	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	39	101	658	108	33
										Subtotal	3,246	11,835	24,610	3,480	2,447

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	8	8	175	98	0.21	0.99	3.49	6.9	0.85	0.722	503	1,773	3,506	432	367
Skid steer loader	8	8	175	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	198	900	2,130	354	180
Dump truck	32	0.5	175	275	0.21	0.68	2.7	8.38	0.89	0.402	242	963	2,987	317	143
										Subtotal	944	3,636	8,624	1,103	690

721474

Cut/Fill/Borrow 721,474 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	93	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	40	179	425	71	36
Dump truck (40 CY)	28	4	86	710	0.59	0.68	2.7	8.38	0.89	0.402	6,049	24,017	74,543	7,917	3,576
Backhoe/loader	5	8	86	98	0.21	0.99	3.49	6.9	0.85	0.722	155	545	1,077	133	113
Excavator	5	8	86	513	0.59	0.68	2.7	8.38	0.93	0.402	1,561	6,198	19,236	2,135	923
Dozer	5	8	86	620	0.59	0.68	2.7	8.38	0.93	0.402	1,886	7,490	23,248	2,580	1,115
Small diesel engines	10	8	83	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	48	259	329	59	28
										Subtotal	9,738	38,688	118,857	12,893	5,791

Excavation 1,395,953 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	189	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	80	365	863	143	73
Dump truck (40 CY)	28	4	178	710	0.59	0.68	2.7	8.38	0.89	0.402	12,520	49,711	154,287	16,386	7,401
Backhoe/loader	5	8	178	98	0.21	0.99	3.49	6.9	0.85	0.722	320	1,127	2,229	275	233
Excavator	5	8	178	513	0.59	0.68	2.7	8.38	0.93	0.402	3,231	12,828	39,813	4,418	1,910
Dozer	5	8	178	620	0.59	0.68	2.7	8.38	0.93	0.402	3,905	15,503	48,118	5,340	2,308
Small diesel engines	10	8	171	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	99	533	678	121	58
										Subtotal	20,154	80,067	245,988	26,683	11,984

MCB Camp Lejeune 2012

Trenching 12,372 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	17	8	28	98	0.21	0.99	3.49	6.9	0.85	0.722	171	603	1,192	147	125
Excavator	5	8	28	90	0.21	0.99	3.49	6.9	0.85	0.722	46	163	322	40	34
Dump truck	22	0.5	28	275	0.21	0.68	2.7	8.38	0.89	0.402	27	106	329	35	16
Delivery truck	5	1	28	180	0.21	0.68	2.7	8.38	0.89	0.402	8	32	98	10	5
Small diesel engines	11	8	28	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	18	96	122	22	10
Trencher	5	8	28	100	0.21	0.99	3.49	6.9	0.85	0.722	51	181	358	44	37
										Subtotal	321	1,180	2,420	298	227

Building Construction 2,013,594 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	8	2	293	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	83	377	892	148	75
Concrete truck	16	4	169	250	0.21	0.68	2.7	8.38	0.89	0.402	851	3,380	10,491	1,114	503
Dump truck	16	0.5	169	275	0.21	0.68	2.7	8.38	0.89	0.402	117	465	1,442	153	69
Delivery truck	4	1	337	180	0.21	0.68	2.7	8.38	0.89	0.402	76	303	941	100	45
Backhoe/loader	4	8	72	98	0.21	0.99	3.49	6.9	0.85	0.722	103	365	721	89	75
Small diesel engines	8	4	244	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	56	304	387	69	33
										Subtotal	1288	5194	14875	1673	802

Structure

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	8	4	220	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	51	274	349	62	30
Delivery truck	4	2	291	180	0.21	0.68	2.7	8.38	0.89	0.402	132	524	1,626	173	78
Skid steer loader	14	8	285	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	565	2,565	6,072	1,009	513
Concrete truck	8	4	182	250	0.21	0.68	2.7	8.38	0.89	0.402	458	1,820	5,649	600	271
Crane	3	8	107	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	99	253	1,651	272	82
										Subtotal	1305	5437	15346	2115	974

Grading 808,338 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	31	90	0.59	0.99	3.49	6.9	0.93	0.722	43	152	300	41	31
Skid steer loader	4	4	86	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	24	111	262	43	22
Backhoe/loader	4	6	66	98	0.21	0.99	3.49	6.9	0.85	0.722	71	251	496	61	52
Small diesel engines	2	4	86	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	27	34	6	3
Dump truck	12	0.5	43	275	0.21	0.68	2.7	8.38	0.89	0.402	22	89	275	29	13
										Subtotal	166	629	1,367	180	122

MCB Camp Lejeune 2012

Gravel Work 190,666 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	8	8	350	135	0.58	0.68	2.7	8.38	0.93	0.402	2,629	10,440	32,403	3,596	1,554
Skid steer loader	25	8	353	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1,250	5,674	13,429	2,231	1,135
Small diesel engines	8	8	350	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	162	873	1,111	197	95
Dump truck (12 CY)	46	0.5	345	275	0.21	0.68	2.7	8.38	0.89	0.402	687	2,728	8,466	899	406
										Subtotal	4,729	19,715	55,409	6,923	3,190

Concrete Work 103,584 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	14	2	200	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	99	450	1065	177	90
Concrete truck (9 CY)	46	1	253	250	0.21	0.68	2.7	8.38	0.89	0.402	916	3637	11288	1199	542
Dump truck (12 CY)	34	0.5	253	275	0.21	0.68	2.7	8.38	0.89	0.402	372	1479	4589	487	220
Delivery truck	4	1	222	180	0.21	0.68	2.7	8.38	0.89	0.402	50	200	620	66	30
Backhoe/loader	7	8	47	98	0.21	0.99	3.49	6.9	0.85	0.722	118	417	824	102	86
										Subtotal	1556	6182	18386	2031	968

Paving

96,036 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	124	150	0.59	0.68	2.7	8.38	0.93	0.402	132	523	1622	180	78
Roller	4	4	124	30	0.59	1.8	5	6.9	1	0.8	139	387	534	77	62
Paver	2	8	124	107	0.59	0.68	2.7	8.38	0.93	0.402	188	746	2314	257	111
Delivery truck	4	2	61	180	0.21	0.68	2.7	8.38	0.89	0.402	28	110	341	36	16
										Subtotal	486	1765	4811	550	267

Volume of hot mix asphalt	2,592,972	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	7,520	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	19	498	131	0.1	13

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
339	260	10	0.001476003	0.021859	0.00120263	1.81E-05	0.000055	1301	19266	1060	16	48
339	260	10	0.001367975	0.02101	0.0010957	1.81E-05	0.000055	1206	18518	966	16	48
339	260	10	0.001276483	0.020283	0.0010009	1.81E-05	0.000055	1125	17877	882	16	48

MCB Camp Lejeune 2012

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
9.5	39.6	85.4	9.6	47.9	8.9

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
9.5	39.2	85.3	9.6	47.9	8.9

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
9.5	38.9	85.3	9.6	47.9	8.9

GTF PROJECTS ONLY

Total Footprint **210 Acres**

Clearing 156 AC

						VOC	CO	NOx	SO2	PM	VOC	CO	NOx	SO2	PM
Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	lb	lb	lb	lb	lb
Chain saw	11	6	41	5	0.7	120.06	351.02	1.82	NA	7.7	2,507	7,329	38	N/A	161
Backhoe/loader	3	8	41	98	0.21	0.99	3.49	6.9	0.85	0.722	44	156	308	38	32
Skid/steer Loader	3	8	11	168	0.59	0.68	2.7	8.38	0.93	0.402	39	156	483	54	23
Dozer	5	6	17	299	0.58	0.68	2.7	8.38	0.93	0.402	133	526	1,634	181	78
Dump truck (12 CY)	8	5	41	275	0.21	0.68	2.7	8.38	0.89	0.402	142	564	1,750	186	84
										Subtotal	2,865	8,731	4,213	459	379

Demolition 718,830 SF

						VOC	CO	NOx	SO2	PM	VOC	CO	NOx	SO2	PM
Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	lb	lb	lb	lb	lb
Dozer	8	8	204	90	0.59	0.99	3.49	6.9	0.93	0.722	1,513	5,334	10,546	1,421	1,104
Skid steer loader	8	8	204	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	231	1,049	2,483	413	210
Crane	4	8	18	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	22	57	370	61	18
										Subtotal	1,767	6,440	13,400	1,895	1,332

						VOC	CO	NOx	SO2	PM	VOC	CO	NOx	SO2	PM
Equipment	*Number*	*Hr/day*	*# days*	*Hp*		g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	lb	lb	lb	lb	lb
Backhoe/loader	8	8	126	98	0.21	0.99	3.49	6.9	0.85	0.722	362	1,277	2,525	311	264
Skid steer loader	8	8	126	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	143	648	1,534	255	130
Dump truck	32	0.5	126	275	0.21	0.68	2.7	8.38	0.89	0.402	175	693	2,151	228	103
										Subtotal	680	2,618	6,209	794	497

MCB Camp Lejeune 2012

Cut/Fill/Borrow 158,666 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	21	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	9	41	96	16	8
Dump truck (40 CY)	28	4	20	710	0.59	0.68	2.7	8.38	0.89	0.402	1,407	5,585	17,336	1,841	832
Backhoe/loader	5	8	20	98	0.21	0.99	3.49	6.9	0.85	0.722	36	127	250	31	26
Excavator	5	8	20	513	0.59	0.68	2.7	8.38	0.93	0.402	363	1,441	4,473	496	215
Dozer	5	8	20	620	0.59	0.68	2.7	8.38	0.93	0.402	439	1,742	5,406	600	259
Small diesel engines	10	8	19	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	11	59	75	13	6
										Subtotal	2,264	8,995	27,637	2,998	1,346

Excavation 647,567 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	90	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	38	174	411	68	35
Dump truck (40 CY)	28	4	82	710	0.59	0.68	2.7	8.38	0.89	0.402	5,768	22,900	71,076	7,549	3,410
Backhoe/loader	5	8	82	98	0.21	0.99	3.49	6.9	0.85	0.722	147	519	1,027	126	107
Excavator	5	8	82	513	0.59	0.68	2.7	8.38	0.93	0.402	1,488	5,909	18,341	2,035	880
Dozer	5	8	82	620	0.59	0.68	2.7	8.38	0.93	0.402	1,799	7,142	22,167	2,460	1,063
Small diesel engines	10	8	81	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	47	253	321	57	27
										Subtotal	9,287	36,897	113,343	12,296	5,522

Trenching 17,695 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	17	8	41	98	0.21	0.99	3.49	6.9	0.85	0.722	250	883	1,746	215	183
Excavator	5	8	41	90	0.21	0.99	3.49	6.9	0.85	0.722	68	238	472	58	49
Dump truck	22	0.5	41	275	0.21	0.68	2.7	8.38	0.89	0.402	39	155	481	51	23
Delivery truck	5	2	41	180	0.21	0.68	2.7	8.38	0.89	0.402	23	92	286	30	14
Small diesel engines	11	8	41	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	26	141	179	32	15
Trencher	5	8	41	100	0.21	0.99	3.49	6.9	0.85	0.722	75	265	524	65	55
										Subtotal	482	1,774	3,687	451	339

Building Construction 1,639,247 SF

Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	8	2	245	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	69	315	746	124	63
Concrete truck	16	4	143	250	0.21	0.68	2.7	8.38	0.89	0.402	720	2,860	8,877	943	426
Dump truck	16	0.5	143	275	0.21	0.68	2.7	8.38	0.89	0.402	99	393	1,221	130	59
Delivery truck	4	1	283	180	0.21	0.68	2.7	8.38	0.89	0.402	64	255	791	84	38
Backhoe/loader	4	8	61	98	0.21	0.99	3.49	6.9	0.85	0.722	88	309	611	75	64
Small diesel engines	8	4	205	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	47	256	325	58	28
										Subtotal	1088	4388	12570	1413	677

Structure

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	8	4	186	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	43	232	295	52	25
Delivery truck	4	2	244	180	0.21	0.68	2.7	8.38	0.89	0.402	111	439	1,363	145	65
Skid steer loader	14	8	234	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	464	2,106	4,985	828	421
Concrete truck	8	4	152	250	0.21	0.68	2.7	8.38	0.89	0.402	383	1,520	4,718	501	226
Crane	3	8	90	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	83	213	1,389	229	69
										Subtotal	1084	4510	12750	1755	807

MCB Camp Lejeune 2012

Grading 857,186 SY

Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	54	90	0.59	0.99	3.49	6.9	0.93	0.722	75	265	523	71	55
Skid steer loader	4	4	156	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	44	201	475	79	40
Backhoe/loader	4	6	121	98	0.21	0.99	3.49	6.9	0.85	0.722	130	460	909	112	95
Small diesel engines	2	4	156	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	9	49	62	11	5
Dump truck	12	0.5	78	275	0.21	0.68	2.7	8.38	0.89	0.402	41	161	499	53	24
										Subtotal	299	1,135	2,469	325	219

Gravel Work 103,882 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	8	8	214	135	0.58	0.68	2.7	8.38	0.93	0.402	1,608	6,383	19,812	2,199	950
Skid steer loader	25	8	196	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	694	3,150	7,456	1,239	630
Small diesel engines	8	8	209	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	97	522	663	118	57
Dump truck (12 CY)	46	0.5	199	275	0.21	0.68	2.7	8.38	0.89	0.402	396	1,573	4,883	519	234
										Subtotal	2,795	11,629	32,815	4,074	1,871

Concrete Work 72,668 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	14	2	147	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	73	331	783	130	66
Concrete truck (9 CY)	46	1	182	250	0.21	0.68	2.7	8.38	0.89	0.402	659	2616	8120	862	390
Dump truck (12 CY)	34	0.5	182	275	0.21	0.68	2.7	8.38	0.89	0.402	268	1064	3301	351	158
Delivery truck	2	1	123	180	0.21	0.68	2.7	8.38	0.89	0.402	14	55	172	18	8
Backhoe/loader	7	8	35	98	0.21	0.99	3.49	6.9	0.85	0.722	88	310	614	76	64
										Subtotal	1102	4376	12990	1437	686

Paving

41,539 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	54	150	0.59	0.68	2.7	8.38	0.93	0.402	57	228	706	78	34
Roller	4	4	54	30	0.59	1.8	5	6.9	1	0.8	61	169	233	34	27
Paver	2	8	54	107	0.59	0.68	2.7	8.38	0.93	0.402	82	325	1008	112	48
Delivery truck	4	2	27	180	0.21	0.68	2.7	8.38	0.89	0.402	12	49	151	16	7
										Subtotal	212	769	2098	240	116

Volume of hot mix asphalt	1,121,553	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	3,253	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	21	326	96	0.1	10

MCB Camp Lejeune 2012

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

			VOC	CO	NOx	SOx	PM	VOC	CO	NOx	SOx	PM
# vehicles	# days	mi/day	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi	lb	lb	lb	lb	lb
339	260	10	0.001476003	0.021859	0.00120263	1.81E-05	0.000055	1301	19266	1060	16	48
339	150	10	0.001367975	0.02101	0.0010957	1.81E-05	0.000055	696	10684	557	9	28

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
9.3	39.2	78.7	9.0	65.8	10.6

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
5.2	21.9	44.2	5.1	37.0	5.9

CORE AND GTF COMBINED

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
18.9	78.8	164.0	18.6	113.6	19.5

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
14.7	61.2	129.6	14.7	84.9	14.9

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
9.5	38.9	85.3	9.6	47.9	8.9

MCB Camp Lejeune 2013

MCB Camp Lejeune Construction Emissions 2013

CORE PROJECTS ONLY

Total Footprint **36 Acres**

Clearing 36 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	9	5	0.7	120.06	351.02	1.82	NA	7.7	550	1,609	8	N/A	35
Backhoe/loader	3	8	9	98	0.21	0.99	3.49	6.9	0.85	0.722	10	34	68	8	7
Skid/steer Loader	3	8	2	168	0.59	0.68	2.7	8.38	0.93	0.402	7	28	88	10	4
Dozer	5	6	4	299	0.58	0.68	2.7	8.38	0.93	0.402	31	124	384	43	18
Dump truck (12 CY)	8	5	9	275	0.21	0.68	2.7	8.38	0.89	0.402	31	124	384	41	18
										Subtotal	629	1,919	932	102	83

Demolition 183,230 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	100	90	0.59	0.99	3.49	6.9	0.93	0.722	371	1,307	2,585	348	270
Skid steer loader	4	8	100	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	57	257	609	101	51
Crane	1	8	23	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	7	18	118	19	6
										Subtotal	435	1,583	3,312	469	328

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	100	98	0.21	0.99	3.49	6.9	0.85	0.722	144	507	1,002	123	105
Skid steer loader	4	8	100	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	57	257	609	101	51
Dump truck	16	0.5	100	275	0.21	0.68	2.7	8.38	0.89	0.402	69	275	854	91	41
										Subtotal	270	1,039	2,464	315	197

Cut/Fill/Borrow 59,458 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	8	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	15	37	6	3
Dump truck (40 CY)	28	5	8	710	0.59	0.68	2.7	8.38	0.89	0.402	703	2,793	8,668	921	416
Backhoe/loader	5	8	8	98	0.21	0.99	3.49	6.9	0.85	0.722	14	51	100	12	10
Excavator	5	8	8	513	0.59	0.68	2.7	8.38	0.93	0.402	145	577	1,789	199	86
Dozer	5	8	8	620	0.59	0.68	2.7	8.38	0.93	0.402	175	697	2,163	240	104
Small diesel engines	10	8	7	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	4	22	28	5	2
										Subtotal	1,046	4,154	12,784	1,382	621

Excavation 122,830 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	17	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	7	33	78	13	7
Dump truck (40 CY)	28	5	17	710	0.59	0.68	2.7	8.38	0.89	0.402	1,495	5,935	18,419	1,956	884
Backhoe/loader	5	8	17	98	0.21	0.99	3.49	6.9	0.85	0.722	31	108	213	26	22
Excavator	5	8	17	513	0.59	0.68	2.7	8.38	0.93	0.402	309	1,225	3,802	422	182
Dozer	5	8	17	620	0.59	0.68	2.7	8.38	0.93	0.402	373	1,481	4,596	510	220
Small diesel engines	10	8	15	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	9	47	59	11	5
										Subtotal	2,223	8,828	27,167	2,938	1,320

MCB Camp Lejeune 2013

Trenching 2,355 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	17	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	31	108	213	26	22
Excavator	5	8	5	90	0.21	0.99	3.49	6.9	0.85	0.722	8	29	58	7	6
Dump truck	22	0.5	5	275	0.21	0.68	2.7	8.38	0.89	0.402	5	19	59	6	3
Delivery truck	5	2	5	180	0.21	0.68	2.7	8.38	0.89	0.402	3	11	35	4	2
Small diesel engines	11	8	5	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	17	22	4	2
Trencher	5	8	5	100	0.21	0.99	3.49	6.9	0.85	0.722	9	32	64	8	7
										Subtotal	59	216	450	55	41

Building Construction 495,172 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	8	2	76	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	22	98	231	38	20
Concrete truck	16	4	44	250	0.21	0.68	2.7	8.38	0.89	0.402	222	880	2,731	290	131
Dump truck	16	0.5	47	275	0.21	0.68	2.7	8.38	0.89	0.402	33	129	401	43	19
Delivery truck	4	1	87	180	0.21	0.68	2.7	8.38	0.89	0.402	20	78	243	26	12
Backhoe/loader	4	8	19	98	0.21	0.99	3.49	6.9	0.85	0.722	27	96	190	23	20
Small diesel engines	8	4	133	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	31	166	211	38	18
										Subtotal	354	1448	4008	458	219

Structure

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	8	4	57	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	13	71	90	16	8
Delivery truck	2	2	151	180	0.21	0.68	2.7	8.38	0.89	0.402	34	136	422	45	20
Skid steer loader	5	8	195	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	138	627	1,484	246	125
Concrete truck	8	4	47	250	0.21	0.68	2.7	8.38	0.89	0.402	118	470	1,459	155	70
Crane	1	8	95	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	29	75	489	80	24
										Subtotal	333	1379	3943	543	247

Grading 173,539 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	7	90	0.59	0.99	3.49	6.9	0.93	0.722	10	34	68	9	7
Skid steer loader	4	4	20	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	26	61	10	5
Backhoe/loader	4	6	16	98	0.21	0.99	3.49	6.9	0.85	0.722	17	61	120	15	13
Small diesel engines	2	4	20	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	8	1	1
Dump truck	12	0.5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	5	21	64	7	3
										Subtotal	39	148	321	42	29

MCB Camp Lejeune 2013

Gravel Work 39,910 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	108	135	0.58	0.68	2.7	8.38	0.93	0.402	609	2,416	7,499	832	360
Skid steer loader	12	8	100	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	170	771	1,826	303	154
Small diesel engines	6	8	105	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	36	196	250	44	21
Dump truck (12 CY)	36	0.5	100	275	0.21	0.68	2.7	8.38	0.89	0.402	156	619	1,920	204	92
										Subtotal	971	4,003	11,495	1,384	628

Concrete Work 23,446 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	14	2	46	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	23	104	245	41	21
Concrete truck (9 CY)	46	1	58	250	0.21	0.68	2.7	8.38	0.89	0.402	210	834	2588	275	124
Dump truck (12 CY)	34	0.5	58	275	0.21	0.68	2.7	8.38	0.89	0.402	85	339	1052	112	50
Delivery truck	7	1	51	180	0.21	0.68	2.7	8.38	0.89	0.402	20	80	249	26	12
Backhoe/loader	7	8	11	98	0.21	0.99	3.49	6.9	0.85	0.722	28	98	193	24	20
										Subtotal	366	1454	4327	477	227

Paving 20,685 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	26	150	0.59	0.68	2.7	8.38	0.93	0.402	28	110	340	38	16
Roller	4	4	26	30	0.59	1.8	5	6.9	1	0.8	29	81	112	16	13
Paver	2	8	26	107	0.59	0.68	2.7	8.38	0.93	0.402	39	156	485	54	23
Delivery truck	4	2	44	180	0.21	0.68	2.7	8.38	0.89	0.402	20	79	246	26	12
										Subtotal	116	426	1183	134	64

Volume of hot mix asphalt	558,495	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	1,620	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	4	363	18	0.1	2

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
266	260	10	0.001367975	0.02101	0.0010957	1.81E-05	0.000055	946	14531	758	13	38
266	52	10	0.001276483	0.020283	0.0010009	1.81E-05	0.000055	177	2805	138	3	8

MCB Camp Lejeune 2013

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
4.0	18.3	30.4	3.5	16.9	3.2

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.8	3.7	6.2	0.7	3.5	0.7

GTF PROJECTS ONLY

Total Footprint **41 Acres**

Clearing 28 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	3	6	8	5	0.7	120.06	351.02	1.82	NA	7.7	133	390	2	N/A	9
Backhoe/loader	1	8	6	98	0.21	0.99	3.49	6.9	0.85	0.722	2	8	15	2	2
Skid/steer Loader	1	8	2	168	0.59	0.68	2.7	8.38	0.93	0.402	2	9	29	3	1
Dozer	1	6	5	299	0.58	0.68	2.7	8.38	0.93	0.402	8	31	96	11	5
Dump truck (12 CY)	2	5	9	275	0.21	0.68	2.7	8.38	0.89	0.402	8	31	96	10	5
										Subtotal	154	469	238	26	21

Demolition 186,398 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	100	90	0.59	0.99	3.49	6.9	0.93	0.722	371	1,307	2,585	348	270
Skid steer loader	4	8	100	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	57	257	609	101	51
Crane	1	8	23	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	7	18	118	19	6
										Subtotal	435	1,583	3,312	469	328

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	100	98	0.21	0.99	3.49	6.9	0.85	0.722	144	507	1,002	123	105
Skid steer loader	4	8	100	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	57	257	609	101	51
Dump truck	16	0.5	100	275	0.21	0.68	2.7	8.38	0.89	0.402	69	275	854	91	41
										Subtotal	270	1,039	2,464	315	197

Cut/Fill/Borrow 144,484 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	20	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	9	39	91	15	8
Dump truck (40 CY)	28	5	19	710	0.59	0.68	2.7	8.38	0.89	0.402	1,670	6,633	20,586	2,186	988
Backhoe/loader	5	8	19	98	0.21	0.99	3.49	6.9	0.85	0.722	34	120	238	29	25
Excavator	5	8	19	513	0.59	0.68	2.7	8.38	0.93	0.402	345	1,369	4,250	472	204
Dozer	5	8	19	620	0.59	0.68	2.7	8.38	0.93	0.402	417	1,655	5,136	570	246
Small diesel engines	10	8	19	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	11	59	75	13	6
										Subtotal	2,486	9,875	30,377	3,286	1,477

MCB Camp Lejeune 2013

Excavation 83,647 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	13	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	25	59	10	5
Dump truck (40 CY)	28	5	12	710	0.59	0.68	2.7	8.38	0.89	0.402	1,055	4,189	13,002	1,381	624
Backhoe/loader	5	8	12	98	0.21	0.99	3.49	6.9	0.85	0.722	22	76	150	19	16
Excavator	5	8	12	513	0.59	0.68	2.7	8.38	0.93	0.402	218	865	2,684	298	129
Dozer	5	8	12	620	0.59	0.68	2.7	8.38	0.93	0.402	263	1,045	3,244	360	156
Small diesel engines	10	8	11	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	34	44	8	4
										Subtotal	1,570	6,234	19,183	2,075	933

Trenching 3,822 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	17	8	9	98	0.21	0.99	3.49	6.9	0.85	0.722	55	194	383	47	40
Excavator	5	8	9	90	0.21	0.99	3.49	6.9	0.85	0.722	15	52	104	13	11
Dump truck	22	0.5	9	275	0.21	0.68	2.7	8.38	0.89	0.402	9	34	106	11	5
Delivery truck	5	2	9	180	0.21	0.68	2.7	8.38	0.89	0.402	5	20	63	7	3
Small diesel engines	11	8	9	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	31	39	7	3
Trencher	5	8	9	100	0.21	0.99	3.49	6.9	0.85	0.722	17	58	115	14	12
										Subtotal	106	389	809	99	74

Building Construction 372,636 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	8	2	53	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	15	68	161	27	14
Concrete truck	16	4	31	250	0.21	0.68	2.7	8.38	0.89	0.402	156	620	1,924	204	92
Dump truck	16	0.5	33	275	0.21	0.68	2.7	8.38	0.89	0.402	23	91	282	30	14
Delivery truck	4	1	61	180	0.21	0.68	2.7	8.38	0.89	0.402	14	55	170	18	8
Backhoe/loader	4	8	13	98	0.21	0.99	3.49	6.9	0.85	0.722	19	66	130	16	14
Small diesel engines	8	4	93	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	22	116	148	26	13
										Subtotal	248	1016	2815	321	154

Structure

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	8	4	40	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	9	50	63	11	5
Delivery truck	2	2	106	180	0.21	0.68	2.7	8.38	0.89	0.402	24	95	296	31	14
Skid steer loader	5	8	136	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	96	437	1,035	172	87
Concrete truck	8	4	33	250	0.21	0.68	2.7	8.38	0.89	0.402	83	330	1,024	109	49
Crane	1	8	66	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	20	52	340	56	17
										Subtotal	233	965	2758	379	173

MCB Camp Lejeune 2013

Grading 198,440 SY

Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	8	90	0.59	0.99	3.49	6.9	0.93	0.722	11	39	78	10	8
Skid steer loader	4	4	24	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	7	31	73	12	6
Backhoe/loader	4	6	18	98	0.21	0.99	3.49	6.9	0.85	0.722	19	68	135	17	14
Small diesel engines	2	4	24	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	7	10	2	1
Dump truck	12	0.5	12	275	0.21	0.68	2.7	8.38	0.89	0.402	6	25	77	8	4
										Subtotal	45	171	372	49	33

Gravel Work 27,772 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	79	135	0.58	0.68	2.7	8.38	0.93	0.402	445	1,767	5,485	609	263
Skid steer loader	12	8	75	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	128	579	1,370	227	116
Small diesel engines	6	8	79	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	27	148	188	33	16
Dump truck (12 CY)	36	0.5	75	275	0.21	0.68	2.7	8.38	0.89	0.402	117	464	1,440	153	69
										Subtotal	717	2,958	8,483	1,023	464

Concrete Work 14,534 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	14	2	31	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	15	70	165	27	14
Concrete truck (9 CY)	46	1	38	250	0.21	0.68	2.7	8.38	0.89	0.402	138	546	1695	180	81
Dump truck (12 CY)	34	0.5	38	275	0.21	0.68	2.7	8.38	0.89	0.402	56	222	689	73	33
Delivery truck	7	1	34	180	0.21	0.68	2.7	8.38	0.89	0.402	13	54	166	18	8
Backhoe/loader	7	8	8	98	0.21	0.99	3.49	6.9	0.85	0.722	20	71	140	17	15
										Subtotal	242	963	2856	316	151

Paving 13,551 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	20	150	0.59	0.68	2.7	8.38	0.93	0.402	21	84	262	29	13
Roller	4	4	20	30	0.59	1.8	5	6.9	1	0.8	22	62	86	12	10
Paver	2	8	20	107	0.59	0.68	2.7	8.38	0.93	0.402	30	120	373	41	18
Delivery truck	4	2	33	180	0.21	0.68	2.7	8.38	0.89	0.402	15	59	184	20	9
										Subtotal	89	326	905	103	49

Volume of hot mix asphalt	365,877	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	1,061	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	4	200	11	0.1	1

MCB Camp Lejeune 2013

POV Emissions from Construction Workers
Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

			VOC	CO	NOx	SOx	PM	VOC	CO	NOx	SOx	PM
# vehicles	# days	mi/day	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi	lb	lb	lb	lb	lb
266	260	10	0.001367975	0.02101	0.0010957	1.81E-05	0.000055	946	14531	758	13	38
266	103	10	0.001276483	0.020283	0.0010009	1.81E-05	0.000055	350	5557	274	5	15

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
3.2	16.6	27.2	3.1	9.7	2.3

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
1.2	6.4	10.6	1.2	3.8	0.9

CORE AND GTF COMBINED

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
7.2	34.9	57.6	6.5	26.6	5.5

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
2.1	10.1	16.8	1.9	7.2	1.6

MCB Camp Lejeune 2014

MCB Camp Lejeune Construction Emissions 2014

CORE PROJECTS ONLY

Total Footprint **89 Acres**

Clearing 55 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	15	5	0.7	120.06	351.02	1.82	NA	7.7	917	2,681	14	N/A	59
Backhoe/loader	3	8	15	98	0.21	0.99	3.49	6.9	0.85	0.722	16	57	113	14	12
Skid/steer Loader	3	8	4	168	0.59	0.68	2.7	8.38	0.93	0.402	14	57	176	20	8
Dozer	5	6	6	299	0.58	0.68	2.7	8.38	0.93	0.402	47	186	577	64	28
Dump truck (12 CY)	8	5	15	275	0.21	0.68	2.7	8.38	0.89	0.402	52	206	640	68	31
										Subtotal	1,046	3,187	1,519	165	137

Demolition 165,645 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	160	90	0.59	0.99	3.49	6.9	0.93	0.722	593	2,092	4,136	557	433
Skid steer loader	4	8	160	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	91	411	974	162	82
Crane	1	8	12	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	4	9	62	10	3
										Subtotal	688	2,513	5,171	729	518

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	86	98	0.21	0.99	3.49	6.9	0.85	0.722	124	436	862	106	90
Skid steer loader	4	8	86	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	49	221	523	87	44
Dump truck	16	0.5	86	275	0.21	0.68	2.7	8.38	0.89	0.402	60	237	734	78	35
										Subtotal	232	893	2,119	271	170

Cut/Fill/Borrow 33,796 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	5	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	10	23	4	2
Dump truck (40 CY)	28	5	4	710	0.59	0.68	2.7	8.38	0.89	0.402	352	1,396	4,334	460	208
Backhoe/loader	5	8	4	98	0.21	0.99	3.49	6.9	0.85	0.722	7	25	50	6	5
Excavator	5	8	4	513	0.59	0.68	2.7	8.38	0.93	0.402	73	288	895	99	43
Dozer	5	8	4	620	0.59	0.68	2.7	8.38	0.93	0.402	88	348	1,081	120	52
Small diesel engines	10	8	5	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	16	20	4	2
										Subtotal	524	2,084	6,403	693	312

Excavation 320,664 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	40	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	17	77	183	30	15
Dump truck (40 CY)	28	5	41	710	0.59	0.68	2.7	8.38	0.89	0.402	3,605	14,313	44,422	4,718	2,131
Backhoe/loader	5	8	41	98	0.21	0.99	3.49	6.9	0.85	0.722	74	260	513	63	54
Excavator	5	8	41	513	0.59	0.68	2.7	8.38	0.93	0.402	744	2,955	9,171	1,018	440
Dozer	5	8	41	620	0.59	0.68	2.7	8.38	0.93	0.402	899	3,571	11,083	1,230	532
Small diesel engines	10	8	37	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	21	115	147	26	13
										Subtotal	5,360	21,291	65,519	7,085	3,184

MCB Camp Lejeune 2014

Trenching 5,447 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	17	8	12	98	0.21	0.99	3.49	6.9	0.85	0.722	73	258	511	63	53
Excavator	5	8	12	90	0.21	0.99	3.49	6.9	0.85	0.722	20	70	138	17	14
Dump truck	22	0.5	12	275	0.21	0.68	2.7	8.38	0.89	0.402	11	45	141	15	7
Delivery truck	5	2	12	180	0.21	0.68	2.7	8.38	0.89	0.402	7	27	84	9	4
Small diesel engines	11	8	12	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	8	41	52	9	4
Trencher	5	8	12	100	0.21	0.99	3.49	6.9	0.85	0.722	22	78	153	19	16
										Subtotal	141	519	1,079	132	99

Building Construction 447,412 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	8	2	67	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	19	86	204	34	17
Concrete truck	16	4	38	250	0.21	0.68	2.7	8.38	0.89	0.402	191	760	2,359	251	113
Dump truck	16	0.5	42	275	0.21	0.68	2.7	8.38	0.89	0.402	29	116	358	38	17
Delivery truck	4	1	76	180	0.21	0.68	2.7	8.38	0.89	0.402	17	68	212	23	10
Backhoe/loader	4	8	17	98	0.21	0.99	3.49	6.9	0.85	0.722	24	86	170	21	18
Small diesel engines	8	4	141	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	33	176	224	40	19
										Subtotal	314	1292	3528	406	195

Structure

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	8	4	50	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	12	62	79	14	7
Delivery truck	2	2	134	180	0.21	0.68	2.7	8.38	0.89	0.402	30	121	374	40	18
Skid steer loader	5	8	174	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	123	559	1,324	220	112
Concrete truck	8	4	42	250	0.21	0.68	2.7	8.38	0.89	0.402	106	420	1,304	138	63
Crane	1	8	84	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	26	66	432	71	21
										Subtotal	297	1229	3513	483	221

Grading 386,576 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	15	90	0.59	0.99	3.49	6.9	0.93	0.722	21	74	145	20	15
Skid steer loader	4	4	41	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	12	53	125	21	11
Backhoe/loader	4	6	31	98	0.21	0.99	3.49	6.9	0.85	0.722	33	118	233	29	24
Small diesel engines	2	4	41	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	13	16	3	1
Dump truck	12	0.5	21	275	0.21	0.68	2.7	8.38	0.89	0.402	11	43	134	14	6
										Subtotal	79	300	654	86	58

MCB Camp Lejeune 2014

Gravel Work 37,919 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	100	135	0.58	0.68	2.7	8.38	0.93	0.402	563	2,237	6,944	771	333
Skid steer loader	12	8	82	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	139	633	1,497	249	126
Small diesel engines	6	8	100	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	35	187	238	42	20
Dump truck (12 CY)	36	0.5	82	275	0.21	0.68	2.7	8.38	0.89	0.402	128	507	1,575	167	76
										Subtotal	865	3,564	10,254	1,229	555

Concrete Work 20,504 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	14	2	39	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	19	88	208	35	18
Concrete truck (9 CY)	46	1	52	250	0.21	0.68	2.7	8.38	0.89	0.402	188	748	2320	246	111
Dump truck (12 CY)	34	0.5	52	275	0.21	0.68	2.7	8.38	0.89	0.402	77	304	943	100	45
Delivery truck	7	1	42	180	0.21	0.68	2.7	8.38	0.89	0.402	17	66	205	22	10
Backhoe/loader	7	8	9	98	0.21	0.99	3.49	6.9	0.85	0.722	23	80	158	19	17
										Subtotal	323	1285	3834	422	200

Paving 18,174 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	2	4	24	150	0.59	0.68	2.7	8.38	0.93	0.402	25	101	314	35	15
Roller	4	4	24	30	0.59	1.8	5	6.9	1	0.8	27	75	103	15	12
Paver	2	8	24	107	0.59	0.68	2.7	8.38	0.93	0.402	36	144	448	50	21
Delivery truck	4	2	19	180	0.21	0.68	2.7	8.38	0.89	0.402	9	34	106	11	5
										Subtotal	97	355	971	111	54

Volume of hot mix asphalt	490,698	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	1,423	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	9	263	33	0.1	3

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
265	260	10	0.001276483	0.020283	0.0010009	1.81E-05	0.000055	879	13975	690	12	38
265	177	10	0.001276483	0.020283	0.0010009	1.81E-05	0.000055	599	9514	469	8	26

MCB Camp Lejeune 2014

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
3.9	18.5	31.7	3.6	21.4	3.7

2015 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
2.6	12.5	21.1	2.4	14.3	2.5

GTF PROJECTS ONLY

Total Footprint 12 **Acres**

Clearing 25 AC

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	7	5	0.7	120.06	351.02	1.82	NA	7.7	428	1,251	6	N/A	27
Backhoe/loader	3	8	7	98	0.21	0.99	3.49	6.9	0.85	0.722	8	27	53	6	6
Skid/steer Loader	3	6	2	168	0.59	0.68	2.7	8.38	0.93	0.402	5	21	66	7	3
Dozer	5	6	3	299	0.58	0.68	2.7	8.38	0.93	0.402	23	93	288	32	14
Dump truck (12 CY)	8	5	7	275	0.21	0.68	2.7	8.38	0.89	0.402	24	96	299	32	14
										Subtotal	489	1,488	712	78	64

Demolition 32,358 SF

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	8	30	90	0.59	0.99	3.49	6.9	0.93	0.722	56	196	388	52	41
Skid steer loader	2	8	30	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	9	39	91	15	8
Crane	1	8	4	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	3	21	3	1
										Subtotal	65	238	500	71	49

Equipment	*Number*	*Hr/day*	*# days*	*Hp*		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	15	98	0.21	0.99	3.49	6.9	0.85	0.722	22	76	150	19	16
Skid steer loader	4	8	15	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	9	39	91	15	8
Dump truck	16	0.5	15	275	0.21	0.68	2.7	8.38	0.89	0.402	10	41	128	14	6
										Subtotal	40	156	370	47	30

Cut/Fill/Borrow 17,004 CY

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	4	9	2	1
Dump truck (40 CY)	28	4	2	710	0.59	0.68	2.7	8.38	0.89	0.402	141	559	1,734	184	83
Backhoe/loader	5	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
Excavator	5	8	2	513	0.59	0.68	2.7	8.38	0.93	0.402	36	144	447	50	21
Dozer	1	8	2	620	0.59	0.68	2.7	8.38	0.93	0.402	9	35	108	12	5
Small diesel engines	10	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	8	1	1
										Subtotal	191	760	2,331	252	114

MCB Camp Lejeune 2014

Excavation 45,167 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	6	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	12	27	5	2
Dump truck (40 CY)	28	5	6	710	0.59	0.68	2.7	8.38	0.89	0.402	528	2,095	6,501	690	312
Backhoe/loader	5	8	6	98	0.21	0.99	3.49	6.9	0.85	0.722	11	38	75	9	8
Excavator	5	8	6	513	0.59	0.68	2.7	8.38	0.93	0.402	109	432	1,342	149	64
Dozer	5	8	6	620	0.59	0.68	2.7	8.38	0.93	0.402	132	523	1,622	180	78
Small diesel engines	10	8	6	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	19	24	4	2
										Subtotal	785	3,118	9,591	1,037	466

Trenching 2,419 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	30	98	0.21	0.99	3.49	6.9	0.85	0.722	11	38	75	9	8
Excavator	1	8	23	90	0.21	0.99	3.49	6.9	0.85	0.722	8	27	53	7	6
Dump truck	22	0.5	5	275	0.21	0.68	2.7	8.38	0.89	0.402	5	19	59	6	3
Delivery truck	1	2	23	180	0.21	0.68	2.7	8.38	0.89	0.402	3	10	32	3	2
Small diesel engines	1	8	50	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	16	20	4	2
Trencher	1	8	23	100	0.21	0.99	3.49	6.9	0.85	0.722	8	30	59	7	6
										Subtotal	37	139	297	36	26

Building Construction 194,656 SF

Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	8	2	28	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	8	36	85	14	7
Concrete truck	16	4	16	250	0.21	0.68	2.7	8.38	0.89	0.402	81	320	993	105	48
Dump truck	16	0.5	18	275	0.21	0.68	2.7	8.38	0.89	0.402	12	50	154	16	7
Delivery truck	4	1	7	180	0.21	0.68	2.7	8.38	0.89	0.402	2	6	20	2	1
Backhoe/loader	4	8	7	98	0.21	0.99	3.49	6.9	0.85	0.722	10	35	70	9	7
Small diesel engines	8	4	18	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	4	22	29	5	2
										Subtotal	117	470	1350	152	73

Structure

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	8	4	21	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	26	33	6	3
Delivery truck	2	2	55	180	0.21	0.68	2.7	8.38	0.89	0.402	12	50	154	16	7
Skid steer loader	4	8	95	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	54	244	578	96	49
Concrete truck	8	4	18	250	0.21	0.68	2.7	8.38	0.89	0.402	45	180	559	59	27
Crane	1	8	34	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	10	27	175	29	9
										Subtotal	127	527	1499	206	95

MCB Camp Lejeune 2014

Grading 154,880 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	6	90	0.59	0.99	3.49	6.9	0.93	0.722	8	29	58	8	6
Skid steer loader	4	4	20	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	26	61	10	5
Backhoe/loader	4	6	14	98	0.21	0.99	3.49	6.9	0.85	0.722	15	53	105	13	11
Small diesel engines	2	4	20	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	8	1	1
Dump truck	12	0.5	9	275	0.21	0.68	2.7	8.38	0.89	0.402	5	19	58	6	3
										Subtotal	35	133	290	38	26

Gravel Work 16,904 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	44	135	0.58	0.68	2.7	8.38	0.93	0.402	248	984	3,055	339	147
Skid steer loader	12	8	42	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	71	324	767	127	65
Small diesel engines	6	8	44	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	15	82	105	19	9
Dump truck (12 CY)	36	0.5	42	275	0.21	0.68	2.7	8.38	0.89	0.402	65	260	807	86	39
										Subtotal	400	1,651	4,733	571	259

Concrete Work 9,468 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	14	2	17	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	8	38	91	15	8
Concrete truck (9 CY)	46	1	21	250	0.21	0.68	2.7	8.38	0.89	0.402	76	302	937	100	45
Dump truck (12 CY)	34	0.5	21	275	0.21	0.68	2.7	8.38	0.89	0.402	31	123	381	40	18
Delivery truck	7	1	19	180	0.21	0.68	2.7	8.38	0.89	0.402	8	30	93	10	4
Backhoe/loader	7	8	4	98	0.21	0.99	3.49	6.9	0.85	0.722	10	35	70	9	7
										Subtotal	133	528	1571	174	83

Paving 7,938 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	18	150	0.59	0.68	2.7	8.38	0.93	0.402	10	38	118	13	6
Roller	2	4	18	30	0.59	1.8	5	6.9	1	0.8	10	28	39	6	4
Paver	1	8	18	107	0.59	0.68	2.7	8.38	0.93	0.402	14	54	168	19	8
Delivery truck	2	2	11	180	0.21	0.68	2.7	8.38	0.89	0.402	2	10	31	3	1
										Subtotal	36	130	355	41	20

Volume of hot mix asphalt	214,326	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	622	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	3	76	3	0.1	0

MCB Camp Lejeune 2014

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions (based on 2014 model yr)

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
192	165	10	0.001276483	0.020283	0.0010009	1.81E-05	0.000055	404	6426	317	6	17

2014 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
0.5	4.0	2.2	0.2	0.6	0.2

2015 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
0.6	4.5	3.5	0.4	0.9	0.3

2016 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
0.6	4.5	3.5	0.4	0.9	0.3

2017 Emission Totals (per year):

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
0.6	4.5	3.3	0.4	0.9	0.3

MCB Camp Lejeune 2014

CORE AND GTF COMBINED

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
4.3	22.5	33.9	3.8	22.0	3.9

2015 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
3.2	17.0	24.6	2.7	15.2	2.7

2016 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.6	4.5	3.5	0.4	0.9	0.3

2017 Emission Totals (per year):

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.6	4.5	3.3	0.4	0.9	0.3

MCB Camp Lejeune 2015

MCB Camp Lejeune Construction Emissions 2015

GTF PROJECTS ONLY

Total Footprint **36 Acres**

Clearing 36 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	10	5	0.7	120.06	351.02	1.82	NA	7.7	611	1,788	9	N/A	39
Backhoe/loader	3	8	10	98	0.21	0.99	3.49	6.9	0.85	0.722	11	38	75	9	8
Skid/steer Loader	3	8	2	168	0.59	0.68	2.7	8.38	0.93	0.402	7	28	88	10	4
Dozer	5	6	4	299	0.58	0.68	2.7	8.38	0.93	0.402	31	124	384	43	18
Dump truck (12 CY)	8	5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	35	138	427	45	20
										Subtotal	695	2,115	984	107	90

Demolition 27,750 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	25	90	0.59	0.99	3.49	6.9	0.93	0.722	93	327	646	87	68
Skid steer loader	4	8	25	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	14	64	152	25	13
Crane	1	8	3	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	2	15	3	1
										Subtotal	108	394	814	115	81

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	10	98	0.21	0.99	3.49	6.9	0.85	0.722	14	51	100	12	10
Skid steer loader	4	8	10	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	26	61	10	5
Dump truck	16	0.5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	7	28	85	9	4
										Subtotal	27	104	246	32	20

Excavation 16,023 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	4	9	2	1
Dump truck (40 CY)	28	5	2	710	0.59	0.68	2.7	8.38	0.89	0.402	176	698	2,167	230	104
Backhoe/loader	5	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
Excavator	5	8	2	513	0.59	0.68	2.7	8.38	0.93	0.402	36	144	447	50	21
Dozer	5	8	2	620	0.59	0.68	2.7	8.38	0.93	0.402	44	174	541	60	26
Small diesel engines	10	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	8	1	1
										Subtotal	262	1,039	3,197	346	155

Trenching 537 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	17	98	0.21	0.99	3.49	6.9	0.85	0.722	6	22	43	5	4
Excavator	1	8	5	90	0.21	0.99	3.49	6.9	0.85	0.722	2	6	12	1	1
Dump truck	22	0.5	1	275	0.21	0.68	2.7	8.38	0.89	0.402	1	4	12	1	1
Delivery truck	1	2	5	180	0.21	0.68	2.7	8.38	0.89	0.402	1	2	7	1	0
Small diesel engines	1	8	11	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	3	4	1	0
Trencher	1	8	5	100	0.21	0.99	3.49	6.9	0.85	0.722	2	6	13	2	1
										Subtotal	12	43	90	11	8

MCB Camp Lejeune 2015

Building Construction 242,091 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	8	2	35	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	10	45	107	18	9
Concrete truck	16	4	20	250	0.21	0.68	2.7	8.38	0.89	0.402	101	400	1,242	132	60
Dump truck	16	0.5	22	275	0.21	0.68	2.7	8.38	0.89	0.402	15	61	188	20	9
Delivery truck	4	1	9	180	0.21	0.68	2.7	8.38	0.89	0.402	2	8	25	3	1
Backhoe/loader	4	8	9	98	0.21	0.99	3.49	6.9	0.85	0.722	13	46	90	11	9
Small diesel engines	8	4	23	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	29	36	6	3
										Subtotal	146	588	1688	190	91

Structure

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	8	4	26	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	32	41	7	4
Delivery truck	2	2	69	180	0.21	0.68	2.7	8.38	0.89	0.402	16	62	193	20	9
Skid steer loader	4	8	119	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	67	306	724	120	61
Concrete truck	8	4	22	250	0.21	0.68	2.7	8.38	0.89	0.402	55	220	683	73	33
Crane	1	8	43	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	13	34	221	36	11
										Subtotal	158	654	1862	257	118

Grading 174,240 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	8	90	0.59	0.99	3.49	6.9	0.93	0.722	11	39	78	10	8
Skid steer loader	4	4	22	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	28	67	11	6
Backhoe/loader	4	6	16	98	0.21	0.99	3.49	6.9	0.85	0.722	17	61	120	15	13
Small diesel engines	2	4	22	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	7	9	2	1
Dump truck	12	0.5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	5	21	64	7	3
										Subtotal	41	156	337	45	30

Gravel Work 8,959 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	23	135	0.58	0.68	2.7	8.38	0.93	0.402	130	515	1,597	177	77
Skid steer loader	12	8	22	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	37	170	402	67	34
Small diesel engines	6	8	23	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	8	43	55	10	5
Dump truck (12 CY)	36	0.5	22	275	0.21	0.68	2.7	8.38	0.89	0.402	34	136	423	45	20
										Subtotal	209	863	2,476	299	136

Concrete Work 9,046 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	14	2	17	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	8	38	91	15	8
Concrete truck (9 CY)	46	1	21	250	0.21	0.68	2.7	8.38	0.89	0.402	76	302	937	100	45
Dump truck (12 CY)	34	0.5	21	275	0.21	0.68	2.7	8.38	0.89	0.402	31	123	381	40	18
Delivery truck	7	1	19	180	0.21	0.68	2.7	8.38	0.89	0.402	8	30	93	10	4
Backhoe/loader	7	8	4	98	0.21	0.99	3.49	6.9	0.85	0.722	10	35	70	9	7
										Subtotal	133	528	1571	174	83

MCB Camp Lejeune 2015

Paving 2,193 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	5	150	0.59	0.68	2.7	8.38	0.93	0.402	3	11	33	4	2
Roller	2	4	5	30	0.59	1.8	5	6.9	1	0.8	3	8	11	2	1
Paver	1	8	5	107	0.59	0.68	2.7	8.38	0.93	0.402	4	15	47	5	2
Delivery truck	2	2	3	180	0.21	0.68	2.7	8.38	0.89	0.402	1	3	8	1	0
										Subtotal	10	36	99	11	5

Volume of hot mix asphalt	59,211	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	172	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	4	62	3	0.1	0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
195	200	10	0.001276483	0.020283	0.0010009	1.81E-05	0.000055	498	7910	390	7	21

2015 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
1.2	7.2	6.9	0.8	3.5	0.7

MCAS New River 2010

MCAS New River Construction Emissions **2010**

CORE PROJECTS ONLY

Total Footprint **67 Acres**

Clearing 8 AC

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Chain saw	3	4	21	5	0.7	120.06	351.02	1.82	NA	7.7	233	683	4	N/A	15
Backhoe/loader	1	5	21	98	0.21	0.99	3.49	6.9	0.85	0.722	5	17	33	4	3
Skid/steer Loader	2	5	5	168	0.59	0.68	2.7	8.38	0.93	0.402	7	30	92	10	4
Dozer	1	4	8	299	0.58	0.68	2.7	8.38	0.93	0.402	8	33	103	11	5
Dump truck (12 CY)	4	3	21	275	0.21	0.68	2.7	8.38	0.89	0.402	22	87	269	29	13
										Subtotal	276	848	499	54	41

Demo Buildings 1,076 SF

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Dozer	1	6	2	90	0.59	0.99	3.49	6.9	0.93	0.722	1	5	10	1	1
Skid steer loader	1	6	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	2	0	0
										Subtotal	2	6	12	2	1

Equipment	*Number*	*Hr/day*	*# days*	*Hp*		**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Backhoe/loader	1	8	1	98	0.21	0.99	3.49	6.9	0.85	0.722	0	1	3	0	0
Skid steer loader	1	8	1	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	2	0	0
Dump truck	3	0.5	2	275	0.21	0.68	2.7	8.38	0.89	0.402	0	1	3	0	0
										Subtotal	1	3	7	1	1

Cut/Fill/Borrow 219,183 CY

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Skid steer loader	2	8	65	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	18	84	198	33	17
Dump truck (40 CY)	28	5	65	710	0.59	0.68	2.7	8.38	0.89	0.402	5,715	22,691	70,426	7,480	3,378
Backhoe/loader	2	8	129	98	0.21	0.99	3.49	6.9	0.85	0.722	93	327	646	80	68
Excavator	2	8	129	513	0.59	0.68	2.7	8.38	0.93	0.402	937	3,719	11,541	1,281	554
Dozer	2	8	129	620	0.59	0.68	2.7	8.38	0.93	0.402	1,132	4,494	13,949	1,548	669
Small diesel engines	4	8	65	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	15	81	103	18	9
										Subtotal	7,909	31,395	96,863	10,439	4,694

Excavation 97,291 CY

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Skid steer loader	1	8	235	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	33	151	358	59	30
Dump truck (40 CY)	16	5	168	710	0.59	0.68	2.7	8.38	0.89	0.402	8,440	33,513	104,014	11,047	4,990
Backhoe/loader	1	8	168	98	0.21	0.99	3.49	6.9	0.85	0.722	60	213	421	52	44
Excavator	1	8	168	513	0.59	0.68	2.7	8.38	0.93	0.402	610	2,421	7,515	834	361
Dozer	1	8	168	620	0.59	0.68	2.7	8.38	0.93	0.402	737	2,926	9,083	1,008	436
Small diesel engines	2	8	100	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	12	62	79	14	7
										Subtotal	9,892	39,287	121,470	13,014	5,867

MCAS New River 2010

Trenching 3492 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	125	98	0.21	0.99	3.49	6.9	0.85	0.722	45	158	313	39	33
Excavator	1	8	48	90	0.21	0.99	3.49	6.9	0.85	0.722	16	56	110	14	12
Dump truck	1	0.5	173	275	0.21	0.68	2.7	8.38	0.89	0.402	7	30	92	10	4
Delivery truck	1	2	48	180	0.21	0.68	2.7	8.38	0.89	0.402	5	22	67	7	3
Small diesel engines	1	8	96	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	30	38	7	3
Trencher	1	8	48	100	0.21	0.99	3.49	6.9	0.85	0.722	18	62	123	15	13
										Subtotal	97	358	744	91	68

Building Construction 603 SF

Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	2	1	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	0	0	0	0
Concrete truck	1	4	1	250	0.21	0.68	2.7	8.38	0.89	0.402	0	1	4	0	0
Dump truck	1	0.5	1	275	0.21	0.68	2.7	8.38	0.89	0.402	0	0	1	0	0
Delivery truck	1	1	1	180	0.21	0.68	2.7	8.38	0.89	0.402	0	0	1	0	0
Backhoe/loader	1	8	1	98	0.21	0.99	3.49	6.9	0.85	0.722	0	1	3	0	0
Small diesel engines	1	4	1	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	0	0	0
										Subtotal	1	3	8	1	1

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	2	4	1	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	0	0	0
Delivery truck	1	2	2	180	0.21	0.68	2.7	8.38	0.89	0.402	0	1	3	0	0
Skid steer loader	2	8	1	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	3	1	0
Concrete truck	2	4	1	250	0.21	0.68	2.7	8.38	0.89	0.402	1	3	8	1	0
										Subtotal	1	5	14	2	1

Grading 291,278 SY

Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	26	90	0.59	0.99	3.49	6.9	0.93	0.722	18	64	126	17	13
Skid steer loader	2	4	73	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	10	47	111	18	9
Backhoe/loader	2	6	52	98	0.21	0.99	3.49	6.9	0.85	0.722	28	99	195	24	20
Small diesel engines	1	4	73	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	11	14	3	1
Dump truck	6	0.5	36	275	0.21	0.68	2.7	8.38	0.89	0.402	9	37	115	12	6
										Subtotal	68	258	562	74	50

Gravel Work 68,400 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	572	135	0.58	0.68	2.7	8.38	0.93	0.402	806	3,199	9,929	1,102	476
Skid steer loader	6	4	546	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	232	1,053	2,493	414	211
Small diesel engines	3	4	572	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	50	268	340	61	29
Dump truck (12 CY)	10	0.5	546	275	0.21	0.68	2.7	8.38	0.89	0.402	236	938	2,913	309	140
										Subtotal	1,324	5,458	15,675	1,886	856

MCAS New River 2010

Concrete Work 92,034 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	8	2	431	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	122	554	1312	218	111
Concrete truck (9 CY)	27	1	522	250	0.21	0.68	2.7	8.38	0.89	0.402	1109	4404	13670	1452	656
Dump truck (12 CY)	16	0.5	522	275	0.21	0.68	2.7	8.38	0.89	0.402	362	1436	4455	473	214
Delivery truck	4	1	377	180	0.21	0.68	2.7	8.38	0.89	0.402	85	339	1053	112	51
Backhoe/loader	4	2	363	98	0.21	0.99	3.49	6.9	0.85	0.722	130	460	909	112	95
										Subtotal	1809	7193	21400	2367	1126

Paving 5,258 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	14	150	0.59	0.68	2.7	8.38	0.93	0.402	7	30	92	10	4
Roller	2	4	14	30	0.59	1.8	5	6.9	1	0.8	8	22	30	4	3
Paver	1	8	14	107	0.59	0.68	2.7	8.38	0.93	0.402	11	42	131	14	6
Delivery truck	2	2	26	180	0.21	0.68	2.7	8.38	0.89	0.402	6	23	73	8	3
										Subtotal	32	117	325	37	18

Volume of hot mix asphalt	141,966	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	412	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	4	258	14	0.1	1

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
90	260	10	0.001767014	0.024207	0.00144073	1.8078E-05	0.000055	413	5664	337	4	13
90	260	10	0.001621508	0.023016	0.00131396	1.8078E-05	0.000055	379	5386	307	4	13
60	65	10	0.001476003	0.021859	0.00120263	1.8078E-05	0.000055	58	852	47	1	2

MCAS New River 2010

2010 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
5.0	21.5	56.8	6.2	9.2	3.4

2011 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
5.0	21.4	56.8	6.2	9.2	3.4

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
1.2	5.1	14.2	1.5	2.3	0.9

GTF PROJECTS ONLY

Total Footprint **15 Acres**

Cut/Fill/Borrow 5,107 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	3	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	2	5	1	0
Dump truck (40 CY)	14	5	3	710	0.59	0.68	2.7	8.38	0.89	0.402	132	524	1,625	173	78
Backhoe/loader	1	8	6	98	0.21	0.99	3.49	6.9	0.85	0.722	2	8	15	2	2
Excavator	1	8	6	513	0.59	0.68	2.7	8.38	0.93	0.402	22	86	268	30	13
Dozer	1	8	6	620	0.59	0.68	2.7	8.38	0.93	0.402	26	105	324	36	16
Small diesel engines	3	8	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	3	4	1	0
										Subtotal	183	727	2,241	242	109

Grading 48,400 SY

Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	4	90	0.59	0.99	3.49	6.9	0.93	0.722	3	10	19	3	2
Skid steer loader	2	4	12	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	8	18	3	2
Backhoe/loader	2	6	9	98	0.21	0.99	3.49	6.9	0.85	0.722	5	17	34	4	4
Small diesel engines	1	4	12	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	2	0	0
Dump truck	6	0.5	6	275	0.21	0.68	2.7	8.38	0.89	0.402	2	6	19	2	1
										Subtotal	11	43	93	12	8

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	2	18	0.4	0.1	0.0

MCAS New River 2010

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

			VOC	CO	NOx	SOx	PM	VOC	CO	NOx	SOx	PM
# vehicles	# days	mi/day	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi	lb	lb	lb	lb	lb
14	20	10	0.001767014	0.024207	0.00144073	1.8078E-05	0.000055	5	68	4	0	0

2010 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.1	0.4	1.2	0.1	0.4	0.1

CORE AND GTF COMBINED

2010 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
5.1	21.9	58.0	6.3	9.6	3.5

2011 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
5.0	21.4	56.8	6.2	9.2	3.4

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
1.2	5.1	14.2	1.5	2.3	0.9

MCAS New River 2011

MCAS New River Construction Emissions **2011**

CORE PROJECTS ONLY

Total Footprint **20 Acres**

Demo 111,654 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	8	8	53	90	0.59	0.99	3.49	6.9	0.93	0.722	393	1,386	2,740	369	287
Skid steer loader	8	8	53	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	60	273	645	107	55
Crane	2	8	3	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	2	5	31	5	2
										Subtotal	455	1,663	3,416	482	343

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	8	14	16	98	0.21	0.99	3.49	6.9	0.85	0.722	80	284	561	69	59
Skid steer loader	8	14	16	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	32	144	341	57	29
Dump truck	32	0.5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	14	55	171	18	8
										Subtotal	126	483	1,073	144	96

Cut/Fill/Borrow 8,272 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	1	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	2	5	1	0
Dump truck (40 CY)	28	4	1	710	0.59	0.68	2.7	8.38	0.89	0.402	70	279	867	92	42
Backhoe/loader	5	8	1	98	0.21	0.99	3.49	6.9	0.85	0.722	2	6	13	2	1
Excavator	5	8	1	513	0.59	0.68	2.7	8.38	0.93	0.402	18	72	224	25	11
Dozer	1	8	1	620	0.59	0.68	2.7	8.38	0.93	0.402	4	17	54	6	3
Small diesel engines	10	8	1	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	3	4	1	0
										Subtotal	96	380	1,166	126	57

Excavation 44,494 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	6	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	12	27	5	2
Dump truck (40 CY)	28	4	5	710	0.59	0.68	2.7	8.38	0.89	0.402	352	1,396	4,334	460	208
Backhoe/loader	5	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	9	32	63	8	7
Excavator	5	8	5	513	0.59	0.68	2.7	8.38	0.93	0.402	91	360	1,118	124	54
Dozer	5	8	5	620	0.59	0.68	2.7	8.38	0.93	0.402	110	435	1,352	150	65
Small diesel engines	10	8	5	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	16	20	4	2
										Subtotal	567	2,251	6,914	750	337

Trenching 3,810 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	8	8	12	98	0.21	0.99	3.49	6.9	0.85	0.722	34	122	240	30	25
Excavator	3	8	12	90	0.21	0.99	3.49	6.9	0.85	0.722	12	42	83	10	9
Dump truck	11	0.5	12	275	0.21	0.68	2.7	8.38	0.89	0.402	6	23	70	7	3
Delivery truck	3	2	12	180	0.21	0.68	2.7	8.38	0.89	0.402	4	16	50	5	2
Small diesel engines	6	8	12	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	4	22	29	5	2
Trencher	3	8	12	100	0.21	0.99	3.49	6.9	0.85	0.722	13	47	92	11	10
										Subtotal	74	271	564	69	52

MCAS New River 2011

Building Construction 259,992 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	43	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	11	48	115	19	10
Concrete truck	19	4	24	250	0.21	0.68	2.7	8.38	0.89	0.402	144	570	1,769	188	85
Dump truck	13	0.5	19	275	0.21	0.68	2.7	8.38	0.89	0.402	11	42	132	14	6
Delivery truck	3	1	36	180	0.21	0.68	2.7	8.38	0.89	0.402	6	24	75	8	4
Backhoe/loader	3	8	31	98	0.21	0.99	3.49	6.9	0.85	0.722	33	118	233	29	24
Small diesel engines	9	4	41	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	11	58	73	13	6
										Subtotal	215	861	2397	271	135

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	24	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	26	33	6	3
Delivery truck	2	2	31	180	0.21	0.68	2.7	8.38	0.89	0.402	7	28	87	9	4
Skid steer loader	7	8	31	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	31	140	330	55	28
Concrete truck	7	4	19	250	0.21	0.68	2.7	8.38	0.89	0.402	42	166	516	55	25
Crane	1	8	24	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	7	19	123	20	6
										Subtotal	92	379	1090	145	66

Grading 13,374 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	1	90	0.59	0.99	3.49	6.9	0.93	0.722	1	2	5	1	1
Skid steer loader	1	4	7	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	2	5	1	0
Backhoe/loader	1	6	5	98	0.21	0.99	3.49	6.9	0.85	0.722	1	5	9	1	1
Small diesel engines	1	4	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	1	0	0
Dump truck	12	0.5	1	275	0.21	0.68	2.7	8.38	0.89	0.402	1	2	6	1	0
										Subtotal	3	12	27	3	2

Gravel Work 17,826 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	46	135	0.58	0.68	2.7	8.38	0.93	0.402	259	1,029	3,194	354	153
Skid steer loader	12	8	47	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	80	363	858	143	73
Small diesel engines	6	8	46	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	16	86	109	19	9
Dump truck (12 CY)	36	0.5	47	275	0.21	0.68	2.7	8.38	0.89	0.402	73	291	903	96	43
										Subtotal	428	1,769	5,064	612	278

Concrete Work 16,768 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	35	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	14	62	146	24	12
Concrete truck (9 CY)	46	1	43	250	0.21	0.68	2.7	8.38	0.89	0.402	156	618	1919	204	92
Dump truck (12 CY)	34	0.5	43	275	0.21	0.68	2.7	8.38	0.89	0.402	63	251	780	83	37
Delivery truck	5	1	39	180	0.21	0.68	2.7	8.38	0.89	0.402	11	44	136	14	7
Backhoe/loader	5	8	8	98	0.21	0.99	3.49	6.9	0.85	0.722	14	51	100	12	10
										Subtotal	258	1026	3081	338	159

MCAS New River 2011

Paving 4,979 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	14	150	0.59	0.68	2.7	8.38	0.93	0.402	7	30	92	10	4
Roller	2	4	14	30	0.59	1.8	5	6.9	1	0.8	8	22	30	4	3
Paver	1	8	14	107	0.59	0.68	2.7	8.38	0.93	0.402	11	42	131	14	6
Delivery truck	2	2	22	180	0.21	0.68	2.7	8.38	0.89	0.402	5	20	61	7	3
										Subtotal	31	113	314	36	17

Volume of hot mix asphalt	134,433	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	390	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	2	157	4	0.1	0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
208	260	10	0.001621508	0.023016	0.00131396	1.8078E-05	0.000055	877	12447	711	10	30

2011 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
1.8	10.8	12.9	1.5	5.9	1.9

GTF PROJECTS ONLY

Total Footprint **20 Acres**

Clearing 5 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	2	5	0.7	120.06	351.02	1.82	NA	7.7	122	358	2	N/A	8
Backhoe/loader	3	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	2	8	15	2	2
Skid/steer Loader	1	8	2	168	0.59	0.68	2.7	8.38	0.93	0.402	2	9	29	3	1
Dozer	1	5	4	299	0.58	0.68	2.7	8.38	0.93	0.402	5	21	64	7	3
Dump truck (12 CY)	8	8	2	275	0.21	0.68	2.7	8.38	0.89	0.402	11	44	137	15	7
										Subtotal	143	439	247	27	20

MCAS New River 2011

Cut/Fill/Borrow 5,107 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	3	1	0
Dump truck (40 CY)	14	5	1	710	0.59	0.68	2.7	8.38	0.89	0.402	44	175	542	58	26
Backhoe/loader	1	8	4	98	0.21	0.99	3.49	6.9	0.85	0.722	1	5	10	1	1
Excavator	1	8	4	513	0.59	0.68	2.7	8.38	0.93	0.402	15	58	179	20	9
Dozer	1	8	1	620	0.59	0.68	2.7	8.38	0.93	0.402	4	17	54	6	3
Small diesel engines	1	8	7	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	0	0
										Subtotal	65	258	791	86	39

Excavation 18,941 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	4	9	2	1
Dump truck (40 CY)	28	5	2	710	0.59	0.68	2.7	8.38	0.89	0.402	176	698	2,167	230	104
Backhoe/loader	5	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
Excavator	5	8	2	513	0.59	0.68	2.7	8.38	0.93	0.402	36	144	447	50	21
Dozer	5	8	2	620	0.59	0.68	2.7	8.38	0.93	0.402	44	174	541	60	26
Small diesel engines	10	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	8	1	1
										Subtotal	262	1,039	3,197	346	155

Trenching 721 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	8	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	6	20	40	5	4
Excavator	3	8	2	90	0.21	0.99	3.49	6.9	0.85	0.722	2	7	14	2	1
Dump truck	11	0.5	2	275	0.21	0.68	2.7	8.38	0.89	0.402	1	4	12	1	1
Delivery truck	3	2	2	180	0.21	0.68	2.7	8.38	0.89	0.402	1	3	8	1	0
Small diesel engines	6	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	4	5	1	0
Trencher	3	8	2	100	0.21	0.99	3.49	6.9	0.85	0.722	2	8	15	2	2
										Subtotal	12	45	94	12	9

Building Construction 40,892 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	7	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	8	19	3	2
Concrete truck	19	4	4	250	0.21	0.68	2.7	8.38	0.89	0.402	24	95	295	31	14
Dump truck	13	0.5	3	275	0.21	0.68	2.7	8.38	0.89	0.402	2	7	21	2	1
Delivery truck	3	1	6	180	0.21	0.68	2.7	8.38	0.89	0.402	1	4	13	1	1
Backhoe/loader	3	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Small diesel engines	9	4	7	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	10	12	2	1
										Subtotal	36	142	397	45	22

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	4	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	4	6	1	0
Delivery truck	2	2	6	180	0.21	0.68	2.7	8.38	0.89	0.402	1	5	17	2	1
Skid steer loader	7	8	6	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	27	64	11	5
Concrete truck	7	4	3	250	0.21	0.68	2.7	8.38	0.89	0.402	7	26	81	9	4
Crane	1	8	4	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	3	21	3	1
										Subtotal	16	66	188	25	12

MCAS New River 2011

Grading 110,849 SY

Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	5	90	0.59	0.99	3.49	6.9	0.93	0.722	7	25	48	7	5
Skid steer loader	4	4	14	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4	18	43	7	4
Backhoe/loader	4	6	10	98	0.21	0.99	3.49	6.9	0.85	0.722	11	38	75	9	8
Small diesel engines	2	4	14	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	4	6	1	0
Dump truck	12	0.5	7	275	0.21	0.68	2.7	8.38	0.89	0.402	4	14	45	5	2
										Subtotal	26	99	217	29	19

Gravel Work 5,175 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	13	135	0.58	0.68	2.7	8.38	0.93	0.402	73	291	903	100	43
Skid steer loader	12	8	12	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	20	93	219	36	19
Small diesel engines	6	8	13	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	24	31	6	3
Dump truck (12 CY)	36	0.5	12	275	0.21	0.68	2.7	8.38	0.89	0.402	19	74	230	24	11
										Subtotal	117	482	1,383	167	76

Concrete Work 3,176 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	11	2	7	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	12	29	5	2
Concrete truck (9 CY)	46	1	8	250	0.21	0.68	2.7	8.38	0.89	0.402	29	115	357	38	17
Dump truck (12 CY)	34	0.5	8	275	0.21	0.68	2.7	8.38	0.89	0.402	12	47	145	15	7
Delivery truck	5	1	8	180	0.21	0.68	2.7	8.38	0.89	0.402	2	9	28	3	1
Backhoe/loader	5	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
										Subtotal	49	196	584	64	31

Paving 2609 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	7	150	0.59	0.68	2.7	8.38	0.93	0.402	4	15	46	5	2
Roller	2	4	7	30	0.59	1.8	5	6.9	1	0.8	4	11	15	2	2
Paver	1	8	7	107	0.59	0.68	2.7	8.38	0.93	0.402	5	21	65	7	3
Delivery truck	2	2	11	180	0.21	0.68	2.7	8.38	0.89	0.402	2	10	31	3	1
										Subtotal	15	57	157	18	9

Volume of hot mix asphalt	70,443	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	204	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	2	37	1	0.1	0

MCAS New River 2011

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

			VOC	CO	NOx	SOx	PM	VOC	CO	NOx	SOx	PM
# vehicles	# days	mi/day	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi	lb	lb	lb	lb	lb
177	77	10	0.001621508	0.023016	0.00131396	1.8078E-05	0.000055	221	3137	179	2	7

2011 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.6	3.0	3.7	0.4	1.2	0.3

CORE AND GTF COMBINED

2011 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
2.4	13.8	16.6	1.9	7.1	2.2

MCAS New River 2012

MCAS New River Construction Emissions **2012**

CORE PROJECTS ONLY

Total Footprint **0.35 Acres**

Excavation 558 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	1	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	2	0	0
Dump truck (40 CY)	4	5	1	710	0.59	0.68	2.7	8.38	0.89	0.402	13	50	155	16	7
Backhoe/loader	1	8	1	98	0.21	0.99	3.49	6.9	0.85	0.722	0	1	3	0	0
Excavator	1	8	1	513	0.59	0.68	2.7	8.38	0.93	0.402	4	14	45	5	2
Dozer	1	8	1	620	0.59	0.68	2.7	8.38	0.93	0.402	4	17	54	6	3
Small diesel engines	1	8	1	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	0	0	0
										Subtotal	21	84	258	28	13

Trenching 22 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	4	1	98	0.21	0.99	3.49	6.9	0.85	0.722	0	1	1	0	0
Excavator	1	3	1	90	0.21	0.99	3.49	6.9	0.85	0.722	0	0	1	0	0
Dump truck	2	0.5	1	275	0.21	0.68	2.7	8.38	0.89	0.402	0	0	1	0	0
Delivery truck	1	2	1	180	0.21	0.68	2.7	8.38	0.89	0.402	0	0	1	0	0
Small diesel engines	1	8	1	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	0	0	0
Trencher	1	4	1	100	0.21	0.99	3.49	6.9	0.85	0.722	0	1	1	0	0
										Subtotal	1	3	6	1	1

Building Construction 15,069 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	3	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	3	8	1	1
Concrete truck	19	4	2	250	0.21	0.68	2.7	8.38	0.89	0.402	12	48	147	16	7
Dump truck	13	0.5	2	275	0.21	0.68	2.7	8.38	0.89	0.402	1	4	14	1	1
Delivery truck	3	1	3	180	0.21	0.68	2.7	8.38	0.89	0.402	1	2	6	1	0
Backhoe/loader	3	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	3	11	23	3	2
Small diesel engines	9	4	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	4	5	1	0
										Subtotal	18	73	203	23	12

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	0	0
Delivery truck	2	2	3	180	0.21	0.68	2.7	8.38	0.89	0.402	1	3	8	1	0
Skid steer loader	7	8	3	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	14	32	5	3
Concrete truck	7	4	2	250	0.21	0.68	2.7	8.38	0.89	0.402	4	18	54	6	3
Crane	1	8	2	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	2	10	2	1
										Subtotal	9	37	108	14	6

MCAS New River 2012

Grading 1,694 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	1	1	90	0.59	0.99	3.49	6.9	0.93	0.722	0	0	1	0	0
Skid steer loader	2	4	1	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	2	0	0
Backhoe/loader	2	4	1	98	0.21	0.99	3.49	6.9	0.85	0.722	0	1	3	0	0
Small diesel engines	1	4	1	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	0	0	0
Dump truck	2	0.5	1	275	0.21	0.68	2.7	8.38	0.89	0.402	0	0	1	0	0
										Subtotal	1	3	6	1	1

Gravel Work 372 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	3	135	0.58	0.68	2.7	8.38	0.93	0.402	4	17	52	6	2
Skid steer loader	6	4	3	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	6	14	2	1
Small diesel engines	3	4	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	1	2	0	0
Dump truck (12 CY)	10	0.5	3	275	0.21	0.68	2.7	8.38	0.89	0.402	1	5	16	2	1
										Subtotal	7	29	84	10	5

Concrete Work 558 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	5	2	4	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	3	8	1	1
Concrete truck (9 CY)	15	1	5	250	0.21	0.68	2.7	8.38	0.89	0.402	6	23	73	8	3
Dump truck (12 CY)	10	0.5	5	275	0.21	0.68	2.7	8.38	0.89	0.402	2	9	27	3	1
Delivery truck	2	1	4	180	0.21	0.68	2.7	8.38	0.89	0.402	0	2	6	1	0
Backhoe/loader	2	8	1	98	0.21	0.99	3.49	6.9	0.85	0.722	1	3	5	1	1
										Subtotal	10	40	118	13	6

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	1	8	0	0.1	0.0

POV Emissions from Construction Workers
Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
69	100	10	0.001476003	0.021859	0.001202628	1.81E-05	0.000055	102	1508	83	1	4

2012 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
0.1	0.9	0.4	0.0	0.1	0.0

MCAS New River 2012

GTF PROJECTS ONLY

Total Footprint **38 Acres**

Clearing 11 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	5	6	17	5	0.7	120.06	351.02	1.82	NA	7.7	472	1,381	7	N/A	30
Backhoe/loader	2	8	17	98	0.21	0.99	3.49	6.9	0.85	0.722	12	43	85	10	9
Skid/steer Loader	2	8	6	168	0.59	0.68	2.7	8.38	0.93	0.402	14	57	176	20	8
Dozer	3	6	7	299	0.58	0.68	2.7	8.38	0.93	0.402	33	130	404	45	19
Dump truck (12 CY)	4	5	17	275	0.21	0.68	2.7	8.38	0.89	0.402	29	117	363	39	17
										Subtotal	561	1,728	1,035	113	84

Demo Buildings 68,490 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	8	80	90	0.59	0.99	3.49	6.9	0.93	0.722	148	523	1,034	139	108
Skid steer loader	2	8	80	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	23	103	243	40	21
Crane	1	8	7	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	2	6	36	6	2
										Subtotal	173	631	1,313	186	131

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	2	14	50	98	0.21	0.99	3.49	6.9	0.85	0.722	63	222	438	54	46
Skid steer loader	2	14	50	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	25	113	266	44	22
Dump truck	8	0.5	50	275	0.21	0.68	2.7	8.38	0.89	0.402	17	69	213	23	10
										Subtotal	105	403	918	121	79

Excavation 65,944 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	40	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	26	61	10	5
Dump truck (40 CY)	7	4	33	710	0.59	0.68	2.7	8.38	0.89	0.402	580	2,304	7,151	759	343
Backhoe/loader	2	8	33	98	0.21	0.99	3.49	6.9	0.85	0.722	24	84	165	20	17
Excavator	2	8	33	513	0.59	0.68	2.7	8.38	0.93	0.402	240	951	2,952	328	142
Dozer	2	8	33	620	0.59	0.68	2.7	8.38	0.93	0.402	290	1,150	3,568	396	171
Small diesel engines	3	8	33	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	31	39	7	3
										Subtotal	1,145	4,545	13,937	1,521	682

Cut/Fill/Borrow 35,574 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	5	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	10	23	4	2
Dump truck (40 CY)	28	4	5	710	0.59	0.68	2.7	8.38	0.89	0.402	352	1,396	4,334	460	208
Backhoe/loader	5	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	9	32	63	8	7
Excavator	5	8	5	513	0.59	0.68	2.7	8.38	0.93	0.402	91	360	1,118	124	54
Dozer	5	8	1	620	0.59	0.68	2.7	8.38	0.93	0.402	22	87	270	30	13
Small diesel engines	10	8	5	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	16	20	4	2
										Subtotal	478	1,901	5,828	629	285

MCAS New River 2012

Trenching 2,146 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	8	8	7	98	0.21	0.99	3.49	6.9	0.85	0.722	20	71	140	17	15
Excavator	3	8	7	90	0.21	0.99	3.49	6.9	0.85	0.722	7	24	48	6	5
Dump truck	11	0.5	7	275	0.21	0.68	2.7	8.38	0.89	0.402	3	13	41	4	2
Delivery truck	3	2	7	180	0.21	0.68	2.7	8.38	0.89	0.402	2	9	29	3	1
Small diesel engines	6	8	7	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	13	17	3	1
Trencher	3	8	7	100	0.21	0.99	3.49	6.9	0.85	0.722	8	27	54	7	6
										Subtotal	43	158	329	40	30

Building Construction 290,194 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	54	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	13	61	144	24	12
Concrete truck	19	4	30	250	0.21	0.68	2.7	8.38	0.89	0.402	179	713	2,211	235	106
Dump truck	13	0.5	34	275	0.21	0.68	2.7	8.38	0.89	0.402	19	76	236	25	11
Delivery truck	3	1	58	180	0.21	0.68	2.7	8.38	0.89	0.402	10	39	122	13	6
Backhoe/loader	3	8	54	98	0.21	0.99	3.49	6.9	0.85	0.722	58	205	406	50	42
Small diesel engines	9	4	66	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	17	93	118	21	10
										Subtotal	297	1186	3236	368	188

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	38	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	8	41	53	9	5
Delivery truck	2	2	54	180	0.21	0.68	2.7	8.38	0.89	0.402	12	49	151	16	7
Skid steer loader	7	8	56	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	56	252	596	99	50
Concrete truck	7	4	34	250	0.21	0.68	2.7	8.38	0.89	0.402	75	298	923	98	44
Crane	1	8	40	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	12	32	206	34	10
										Subtotal	163	671	1929	256	117

Grading 179,778 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	30	90	0.59	0.99	3.49	6.9	0.93	0.722	21	74	145	20	15
Skid steer loader	2	4	81	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	11	52	123	20	10
Backhoe/loader	2	6	62	98	0.21	0.99	3.49	6.9	0.85	0.722	33	118	233	29	24
Small diesel engines	1	4	81	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	13	16	3	1
Dump truck	6	0.5	38	275	0.21	0.68	2.7	8.38	0.89	0.402	10	39	122	13	6
										Subtotal	78	295	639	85	57

MCAS New River 2012

Gravel Work 61,424 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	526	135	0.58	0.68	2.7	8.38	0.93	0.402	741	2,942	9,131	1,013	438
Skid steer loader	6	4	490	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	208	945	2,237	372	189
Small diesel engines	3	4	526	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	46	246	313	56	27
Dump truck (12 CY)	10	0.5	490	275	0.21	0.68	2.7	8.38	0.89	0.402	212	842	2,614	278	125
										Subtotal	1,207	4,975	14,295	1,718	779

Concrete Work 51,696 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	5	2	360	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	64	289	685	114	58
Concrete truck (9 CY)	15	1	425	250	0.21	0.68	2.7	8.38	0.89	0.402	502	1992	6183	657	297
Dump truck (12 CY)	10	0.5	425	275	0.21	0.68	2.7	8.38	0.89	0.402	184	730	2267	241	109
Delivery truck	2	1	374	180	0.21	0.68	2.7	8.38	0.89	0.402	42	168	522	55	25
Backhoe/loader	2	8	99	98	0.21	0.99	3.49	6.9	0.85	0.722	71	251	496	61	52
										Subtotal	863	3431	10154	1128	540

Paving 4168 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	11	150	0.59	0.68	2.7	8.38	0.93	0.402	6	23	72	8	3
Roller	2	4	11	30	0.59	1.8	5	6.9	1	0.8	6	17	24	3	3
Paver	1	8	11	107	0.59	0.68	2.7	8.38	0.93	0.402	8	33	103	11	5
Delivery truck	2	2	22	180	0.21	0.68	2.7	8.38	0.89	0.402	5	20	61	7	3
										Subtotal	25	93	260	29	14

Volume of hot mix asphalt	112,536	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	326	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	8	220	25	0.1	2.5

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
155	260	10	0.001476003	0.021859	0.001202628	1.81E-05	0.000055	595	8809	485	7	22
103	46	10	0.001367975	0.02101	0.001095703	1.81E-05	0.000055	65	995	52	1	3

MCAS New River 2012

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
2.6	12.9	23.1	2.6	22.2	3.4

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.4	2.0	4.1	0.5	3.9	0.6

CORE AND GTF COMBINED

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
2.7	13.8	23.6	2.7	22.3	3.4

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.4	2.0	4.1	0.5	3.9	0.6

MCAS New River 2013

MCAS New River Construction Emissions 2013

CORE PROJECTS ONLY

Total Footprint **1.2 Acres**

Clearing 1 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	3	4	3	5	0.7	120.06	351.02	1.82	NA	7.7	33	98	1	N/A	2
Backhoe/loader	1	5	3	98	0.21	0.99	3.49	6.9	0.85	0.722	1	2	5	1	0
Skid/steer Loader	1	5	1	168	0.59	0.68	2.7	8.38	0.93	0.402	1	3	9	1	0
Dozer	1	4	1	299	0.58	0.68	2.7	8.38	0.93	0.402	1	4	13	1	1
Dump truck (12 CY)	4	3	3	275	0.21	0.68	2.7	8.38	0.89	0.402	3	12	38	4	2
										Subtotal	39	119	66	7	6

Demo Buildings 1,663 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	8	4	90	0.59	0.99	3.49	6.9	0.93	0.722	7	26	52	7	5
Skid steer loader	2	8	4	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	5	12	2	1
Crane	1	2	1	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	0	0	1	0	0
										Subtotal	9	31	65	9	7

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	2	14	2	98	0.21	0.99	3.49	6.9	0.85	0.722	3	9	18	2	2
Skid steer loader	2	14	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	5	11	2	1
Dump truck	8	0.5	2	275	0.21	0.68	2.7	8.38	0.89	0.402	1	3	9	1	0
										Subtotal	4	16	37	5	3

Excavation 5,493 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	13	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	8	20	3	2
Dump truck (40 CY)	16	5	9	710	0.59	0.68	2.7	8.38	0.89	0.402	452	1,795	5,572	592	267
Backhoe/loader	1	8	9	98	0.21	0.99	3.49	6.9	0.85	0.722	3	11	23	3	2
Excavator	1	8	9	513	0.59	0.68	2.7	8.38	0.93	0.402	33	130	403	45	19
Dozer	1	8	9	620	0.59	0.68	2.7	8.38	0.93	0.402	39	157	487	54	23
Small diesel engines	2	8	22	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	14	17	3	1
										Subtotal	532	2,115	6,521	700	315

Cut/Fill/Borrow 10,594 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	4	9	2	1
Dump truck (40 CY)	28	5	2	710	0.59	0.68	2.7	8.38	0.89	0.402	176	698	2,167	230	104
Backhoe/loader	5	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
Excavator	5	8	2	513	0.59	0.68	2.7	8.38	0.93	0.402	36	144	447	50	21
Dozer	1	8	2	620	0.59	0.68	2.7	8.38	0.93	0.402	9	35	108	12	5
Small diesel engines	10	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	8	1	1
										Subtotal	227	900	2,765	298	135

MCAS New River 2013

Trenching 367 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	14	98	0.21	0.99	3.49	6.9	0.85	0.722	5	18	35	4	4
Excavator	1	8	5	90	0.21	0.99	3.49	6.9	0.85	0.722	2	6	12	1	1
Dump truck	1	0.5	19	275	0.21	0.68	2.7	8.38	0.89	0.402	1	3	10	1	0
Delivery truck	1	2	5	180	0.21	0.68	2.7	8.38	0.89	0.402	1	2	7	1	0
Small diesel engines	1	8	10	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	3	4	1	0
Trencher	1	8	5	100	0.21	0.99	3.49	6.9	0.85	0.722	2	6	13	2	1
										Subtotal	10	39	80	10	7

Building Construction 32,216 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	6	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	7	16	3	1
Concrete truck	19	4	4	250	0.21	0.68	2.7	8.38	0.89	0.402	24	95	295	31	14
Dump truck	13	0.5	11	275	0.21	0.68	2.7	8.38	0.89	0.402	6	25	76	8	4
Delivery truck	3	1	20	180	0.21	0.68	2.7	8.38	0.89	0.402	3	14	42	4	2
Backhoe/loader	3	8	17	98	0.21	0.99	3.49	6.9	0.85	0.722	18	65	128	16	13
Small diesel engines	9	4	23	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	32	41	7	4
										Subtotal	59	237	598	70	38

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	13	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	14	18	3	2
Delivery truck	2	2	17	180	0.21	0.68	2.7	8.38	0.89	0.402	4	15	47	5	2
Skid steer loader	7	8	18	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	18	81	192	32	16
Concrete truck	7	4	11	250	0.21	0.68	2.7	8.38	0.89	0.402	24	96	299	32	14
Crane	1	8	14	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	4	11	72	12	4
										Subtotal	53	218	628	84	38

Grading 5,980 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	1	90	0.59	0.99	3.49	6.9	0.93	0.722	1	2	5	1	1
Skid steer loader	2	4	3	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	2	5	1	0
Backhoe/loader	2	6	2	98	0.21	0.99	3.49	6.9	0.85	0.722	1	4	8	1	1
Small diesel engines	1	4	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	1	0	0
Dump truck	6	0.5	2	275	0.21	0.68	2.7	8.38	0.89	0.402	1	2	6	1	0
										Subtotal	3	11	24	3	2

MCAS New River 2013

Gravel Work 2,345 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	21	135	0.58	0.68	2.7	8.38	0.93	0.402	30	117	365	40	17
Skid steer loader	6	4	20	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	9	39	91	15	8
Small diesel engines	3	4	21	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	10	12	2	1
Dump truck (12 CY)	10	0.5	20	275	0.21	0.68	2.7	8.38	0.89	0.402	9	34	107	11	5
										Subtotal	49	200	575	69	31

Concrete Work 2,349 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	2	85	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	14	32	5	3
Concrete truck (9 CY)	3	1	102	250	0.21	0.68	2.7	8.38	0.89	0.402	24	96	297	32	14
Dump truck (12 CY)	2	0.5	102	275	0.21	0.68	2.7	8.38	0.89	0.402	9	35	109	12	5
Delivery truck	4	1	9	180	0.21	0.68	2.7	8.38	0.89	0.402	2	8	25	3	1
Backhoe/loader	2	2	18	98	0.21	0.99	3.49	6.9	0.85	0.722	3	11	23	3	2
										Subtotal	41	164	486	54	26

Paving 583 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	2	150	0.59	0.68	2.7	8.38	0.93	0.402	1	4	13	1	1
Roller	2	4	2	30	0.59	1.8	5	6.9	1	0.8	1	3	4	1	0
Paver	1	8	2	107	0.59	0.68	2.7	8.38	0.93	0.402	2	6	19	2	1
Delivery truck	2	2	5	180	0.21	0.68	2.7	8.38	0.89	0.402	1	5	14	1	1
										Subtotal	5	18	50	6	3

Volume of hot mix asphalt	15,741	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	46	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	0.2	66	0	0.1	0.0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
112	212	10	0.001367975	0.02101	0.0010957	1.8078E-05	0.000055	325	4989	260	4	13

MCAS New River 2013

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.7	4.5	6.1	0.7	0.5	0.3

GTF PROJECTS ONLY

Total Footprint **7 Acres**

Demo Buildings 7,114 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	8	16	90	0.59	0.99	3.49	6.9	0.93	0.722	30	105	207	28	22
Skid steer loader	2	8	16	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	5	21	49	8	4
Crane	1	8	1	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	0	1	5	1	0
										Subtotal	35	126	261	37	26

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	2	14	8	98	0.21	0.99	3.49	6.9	0.85	0.722	10	35	70	9	7
Skid steer loader	2	14	8	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4	18	43	7	4
Dump truck	8	0.5	8	275	0.21	0.68	2.7	8.38	0.89	0.402	3	11	34	4	2
										Subtotal	17	64	147	19	13

Excavation 5,250 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	12	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	8	18	3	2
Dump truck (40 CY)	16	5	8	710	0.59	0.68	2.7	8.38	0.89	0.402	402	1,596	4,953	526	238
Backhoe/loader	1	8	8	98	0.21	0.99	3.49	6.9	0.85	0.722	3	10	20	2	2
Excavator	1	8	8	513	0.59	0.68	2.7	8.38	0.93	0.402	29	115	358	40	17
Dozer	1	8	8	620	0.59	0.68	2.7	8.38	0.93	0.402	35	139	433	48	21
Small diesel engines	2	8	20	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	12	16	3	1
										Subtotal	473	1,881	5,798	622	281

Trenching 219 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	8	98	0.21	0.99	3.49	6.9	0.85	0.722	3	10	20	2	2
Excavator	1	8	3	90	0.21	0.99	3.49	6.9	0.85	0.722	1	3	7	1	1
Dump truck	1	0.5	11	275	0.21	0.68	2.7	8.38	0.89	0.402	0	2	6	1	0
Delivery truck	1	2	3	180	0.21	0.68	2.7	8.38	0.89	0.402	0	1	4	0	0
Small diesel engines	1	8	6	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	2	0	0
Trencher	1	8	3	100	0.21	0.99	3.49	6.9	0.85	0.722	1	4	8	1	1
										Subtotal	6	23	47	6	4

MCAS New River 2013

Building Construction 71,042 SF
Foundation (slab)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	12	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	14	32	5	3
Concrete truck	19	4	7	250	0.21	0.68	2.7	8.38	0.89	0.402	42	166	516	55	25
Dump truck	13	0.5	22	275	0.21	0.68	2.7	8.38	0.89	0.402	12	49	153	16	7
Delivery truck	3	1	40	180	0.21	0.68	2.7	8.38	0.89	0.402	7	27	84	9	4
Backhoe/loader	3	8	35	98	0.21	0.99	3.49	6.9	0.85	0.722	38	133	263	32	28
Small diesel engines	9	4	46	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	12	65	82	15	7
										Subtotal	114	453	1129	132	73

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	26	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	28	36	6	3
Delivery truck	2	2	35	180	0.21	0.68	2.7	8.38	0.89	0.402	8	32	98	10	5
Skid steer loader	7	8	37	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	37	167	394	65	33
Concrete truck	7	4	22	250	0.21	0.68	2.7	8.38	0.89	0.402	48	193	597	63	29
Crane	1	8	28	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	9	22	144	24	7
										Subtotal	107	441	1269	169	77

Grading 33,880 SY
Site prep (grading, drainage, utilities etc.)

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	5	90	0.59	0.99	3.49	6.9	0.93	0.722	3	12	24	3	3
Skid steer loader	2	4	15	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	10	23	4	2
Backhoe/loader	2	6	11	98	0.21	0.99	3.49	6.9	0.85	0.722	6	21	41	5	4
Small diesel engines	1	4	15	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	1	0
Dump truck	6	0.5	8	275	0.21	0.68	2.7	8.38	0.89	0.402	2	8	26	3	1
										Subtotal	14	53	117	15	10

Gravel Work 4,047 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	36	135	0.58	0.68	2.7	8.38	0.93	0.402	51	201	625	69	30
Skid steer loader	6	4	34	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	14	66	155	26	13
Small diesel engines	3	4	36	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	17	21	4	2
Dump truck (12 CY)	10	0.5	34	275	0.21	0.68	2.7	8.38	0.89	0.402	15	58	181	19	9
										Subtotal	83	342	983	118	54

Concrete Work 4,432 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	2	170	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	27	65	11	5
Concrete truck (9 CY)	3	1	204	250	0.21	0.68	2.7	8.38	0.89	0.402	48	191	594	63	28
Dump truck (12 CY)	2	0.5	204	275	0.21	0.68	2.7	8.38	0.89	0.402	18	70	218	23	10
Delivery truck	4	1	18	180	0.21	0.68	2.7	8.38	0.89	0.402	4	16	50	5	2
Backhoe/loader	2	2	36	98	0.21	0.99	3.49	6.9	0.85	0.722	6	23	45	6	5
										Subtotal	82	328	971	108	52

MCAS New River 2013

Paving 817 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	3	150	0.59	0.68	2.7	8.38	0.93	0.402	2	6	20	2	1
Roller	2	4	3	30	0.59	1.8	5	6.9	1	0.8	2	5	6	1	1
Paver	1	8	3	107	0.59	0.68	2.7	8.38	0.93	0.402	2	9	28	3	1
Delivery truck	2	2	6	180	0.21	0.68	2.7	8.38	0.89	0.402	1	5	17	2	1
										Subtotal	7	25	71	8	4

Volume of hot mix asphalt	22,059	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	64	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	1	65	1	0.1	0.1

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
84	197	10	0.001367975	0.02101	0.0010957	1.8078E-05	0.000055	226	3477	181	3	9

2013 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
0.6	3.6	5.5	0.6	0.9	0.4

CORE AND GTF COMBINED

2013 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
1.3	8.1	11.6	1.3	1.4	0.7

Total Annual Emission Summaries for MCAS Cherry Point 2011 - 2014

CORE

2012 Emission Totals:

VOC	CO	NOx	SO2	PM $_{10}$	PM $_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
1.9	10.8	12.3	1.5	7.0	1.5

2013 Emission Totals:

VOC	CO	NOx	SO2	PM $_{10}$	PM $_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
1.5	6.9	12.1	1.4	2.4	0.9

2014 Emission Totals:

VOC	CO	NOx	SO2	PM $_{10}$	PM $_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.1	0.8	0.9	0.1	0.1	0.1

CORE + GTF

2011 Emission Totals:

VOC	CO	NOx	SO2	PM $_{10}$	PM $_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
2.8	13.3	26.4	2.9	5.1	1.7

2012 Emission Totals:

VOC	CO	NOx	SO2	PM $_{10}$	PM $_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
4.0	16.6	25.4	2.9	11.6	2.5

2013 Emission Totals:

VOC	CO	NOx	SO2	PM $_{10}$	PM $_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
3.6	16.5	33.9	3.8	4.3	2.1

2014 Emission Totals:

VOC	CO	NOx	SO2	PM $_{10}$	PM $_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.8	4.1	5.6	0.6	1.0	0.4

MCAS Cherry Point 2011

MCAS Cherry Point Construction Emissions **2011**

GTF ONLY

Total Footprint **20 Acres**

Clearing 6 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	3	6	18	5	0.7	120.06	351.02	1.82	NA	7.7	300	878	5	N/A	19
Backhoe/loader	1	8	18	98	0.21	0.99	3.49	6.9	0.85	0.722	6	23	45	6	5
Skid/steer Loader	1	8	6	168	0.59	0.68	2.7	8.38	0.93	0.402	7	28	88	10	4
Dozer	1	6	6	299	0.58	0.68	2.7	8.38	0.93	0.402	9	37	115	13	6
Dump truck (12 CY)	2	5	18	275	0.21	0.68	2.7	8.38	0.89	0.402	16	62	192	20	9
										Subtotal	339	1,028	445	49	43

Demo Buildings 52,590 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	52	90	0.59	0.99	3.49	6.9	0.93	0.722	193	680	1,344	181	141
Skid steer loader	4	8	52	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	29	134	317	53	27
Crane	1	8	4	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	3	21	3	1
										Subtotal	224	817	1,681	237	168

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	14	14	98	0.21	0.99	3.49	6.9	0.85	0.722	35	124	245	30	26
Skid steer loader	4	14	14	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	14	63	149	25	13
Dump truck	16	0.5	14	275	0.21	0.68	2.7	8.38	0.89	0.402	10	39	119	13	6
										Subtotal	59	226	514	68	44

Cut/Fill/Borrow 16,219 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	3	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	6	14	2	1
Dump truck (40 CY)	28	5	3	710	0.59	0.68	2.7	8.38	0.89	0.402	264	1,047	3,250	345	156
Backhoe/loader	5	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Excavator	5	8	3	513	0.59	0.68	2.7	8.38	0.93	0.402	54	216	671	74	32
Dozer	3	8	1	620	0.59	0.68	2.7	8.38	0.93	0.402	13	52	162	18	8
Small diesel engines	10	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	8	1	1
										Subtotal	339	1,347	4,143	446	202

Excavation 32,349 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	2	8	40	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	11	51	122	20	10
Dump truck (40 CY)	32	5	27	710	0.59	0.68	2.7	8.38	0.89	0.402	2,713	10,772	33,433	3,551	1,604
Backhoe/loader	2	8	27	98	0.21	0.99	3.49	6.9	0.85	0.722	19	68	135	17	14
Excavator	2	8	27	513	0.59	0.68	2.7	8.38	0.93	0.402	196	778	2,416	268	116
Dozer	2	8	27	620	0.59	0.68	2.7	8.38	0.93	0.402	237	941	2,919	324	140
Small diesel engines	2	8	64	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	7	40	51	9	4

MCAS Cherry Point 2011

											Subtotal	3,184	12,651	39,076	4,189	1,889

Trenching 642 CY

Equipment	*Number*	*Hr/day*	*days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Backhoe/loader	4	8	4	98	0.21	0.99	3.49	6.9	0.85	0.722	6	20	40	5	4
Excavator	2	8	3	90	0.21	0.99	3.49	6.9	0.85	0.722	2	7	14	2	1
Dump truck	11	0.5	2	275	0.21	0.68	2.7	8.38	0.89	0.402	1	4	12	1	1
Delivery truck	2	2	3	180	0.21	0.68	2.7	8.38	0.89	0.402	1	3	8	1	0
Small diesel engines	6	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	4	5	1	0
Trencher	1	8	6	100	0.21	0.99	3.49	6.9	0.85	0.722	2	8	15	2	2
										Subtotal	12	45	94	12	9

Building Construction 183,897 SF

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Skid steer loader	4	2	52	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	7	33	79	13	7
Concrete truck	16	4	15	250	0.21	0.68	2.7	8.38	0.89	0.402	76	300	931	99	45
Dump truck	16	0.5	16	275	0.21	0.68	2.7	8.38	0.89	0.402	11	44	137	15	7
Delivery truck	4	1	30	180	0.21	0.68	2.7	8.38	0.89	0.402	7	27	84	9	4
Backhoe/loader	2	8	12	98	0.21	0.99	3.49	6.9	0.85	0.722	9	30	60	7	6
Small diesel engines	8	4	53	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	12	66	84	15	7
										Subtotal	122	501	1375	158	75

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Small diesel engines	8	4	20	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	25	32	6	3
Delivery truck	2	2	51	180	0.21	0.68	2.7	8.38	0.89	0.402	12	46	142	15	7
Skid steer loader	4	8	83	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	47	213	505	84	43
Concrete truck	8	4	16	250	0.21	0.68	2.7	8.38	0.89	0.402	40	160	497	53	24
Crane	1	8	31	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	10	24	159	26	8
										Subtotal	113	469	1335	184	84

Grading 36,849 SY

Site prep (grading, drainage, utilities etc.)

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Dozer	1	6	6	90	0.59	0.99	3.49	6.9	0.93	0.722	4	15	29	4	3
Skid steer loader	2	4	16	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	10	24	4	2
Backhoe/loader	2	6	12	98	0.21	0.99	3.49	6.9	0.85	0.722	6	23	45	6	5
Small diesel engines	1	4	16	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	1	0
Dump truck	6	0.5	9	275	0.21	0.68	2.7	8.38	0.89	0.402	2	9	29	3	1
										Subtotal	16	60	130	17	11

Gravel Work 9,024 CY

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Grader	3	4	73	135	0.58	0.68	2.7	8.38	0.93	0.402	103	408	1,267	141	61
Skid steer loader	6	4	82	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	35	158	374	62	32
Small diesel engines	3	4	73	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	34	43	8	4

MCAS Cherry Point 2011

Dump truck (12 CY)	10	0.5	82	275	0.21	0.68	2.7	8.38	0.89	0.402	35	141	437	46	21
										Subtotal	180	742	2,122	257	117

Concrete Work 7,230 CY

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Skid steer loader	2	2	139	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	10	45	106	18	9
Concrete truck (9 CY)	6	1	133	250	0.21	0.68	2.7	8.38	0.89	0.402	63	249	774	82	37
Dump truck (12 CY)	4	0.5	133	275	0.21	0.68	2.7	8.38	0.89	0.402	23	91	284	30	14
Delivery truck	8	1	15	180	0.21	0.68	2.7	8.38	0.89	0.402	7	27	84	9	4
Backhoe/loader	4	2	29	98	0.21	0.99	3.49	6.9	0.85	0.722	10	37	73	9	8
										Subtotal	113	449	1320	148	71

Paving 3,149 CY

Equipment	*Number*	*Hr/day*	*# days*	*Hp*	*LF*	**VOC** g/hp-hr	**CO** g/hp-hr	**NOx** g/hp-hr	**SO2** g/hp-hr	**PM** g/hp-hr	**VOC** lb	**CO** lb	**NOx** lb	**SO2** lb	**PM** lb
Grader	1	4	9	150	0.59	0.68	2.7	8.38	0.93	0.402	5	19	59	7	3
Roller	2	4	9	30	0.59	1.8	5	6.9	1	0.8	5	14	19	3	2
Paver	1	8	9	107	0.59	0.68	2.7	8.38	0.93	0.402	7	27	84	9	4
Delivery truck	2	2	5	180	0.21	0.68	2.7	8.38	0.89	0.402	1	5	14	1	1
										Subtotal	18	65	176	20	10

Volume of hot mix asphalt	85023	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0	lb/ton
VOC emissions from HMA paving	247	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	**PM_{10}** Total	**$PM_{2.5}/PM_{10}$** Ratio	**$PM_{2.5}$** Total
0.42	2.0	132	3.7	0.1	0.4

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	**VOC** lb/mi	**CO** lb/mi	**NOx** lb/mi	**SOx** lb/mi	**PM** lb/mi	**VOC** lb	**CO** lb	**NOx** lb	**SOx** lb	**PM** lb
137	260	10	0.00162151	0.023016	0.001314	1.8078E-05	0.000055	577.58	8198.43	468.03	6.439384	19.55

GTF
2011 Emission Totals:

VOC T/yr	**CO** T/yr	**NOx** T/yr	**SO2** T/yr	**PM_{10}** T/yr	**$PM_{2.5}$** T/yr
2.8	13.3	26.4	2.9	5.1	1.7

MCAS Cherry Point 2012

MCAS Cherry Point Construction Emissions **2012**

CORE ONLY

Total Footprint **33.5 Acres**

Clearing 20.5 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	11	6	6	5	0.7	120.06	351.02	1.82	NA	7.7	367	1,073	6	N/A	24
Backhoe/loader	3	8	6	98	0.21	0.99	3.49	6.9	0.85	0.722	6	23	45	6	5
Skid/steer Loader	3	8	1	168	0.59	0.68	2.7	8.38	0.93	0.402	4	14	44	5	2
Dozer	5	6	2	299	0.58	0.68	2.7	8.38	0.93	0.402	16	62	192	21	9
Dump truck (12 CY)	8	5	6	275	0.21	0.68	2.7	8.38	0.89	0.402	21	83	256	27	12
										Subtotal	413	1,254	543	59	52

Demolition 204,245 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	221	90	0.59	0.99	3.49	6.9	0.93	0.722	820	2,889	5,712	770	598
Skid steer loader	4	8	221	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	125	568	1,345	223	114
Crane	1	8	26	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	8	21	134	22	7
										Subtotal	953	3,478	7,191	1,015	718

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	110	98	0.21	0.99	3.49	6.9	0.85	0.722	158	557	1,102	136	115
Skid steer loader	4	8	110	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	62	283	670	111	57
Dump truck	16	0.5	110	275	0.21	0.68	2.7	8.38	0.89	0.402	76	303	939	100	45
										Subtotal	297	1,143	2,710	347	217

Cut/Fill/Borrow 31,967 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	5	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	10	23	4	2
Dump truck (40 CY)	28	5	5	710	0.59	0.68	2.7	8.38	0.89	0.402	440	1,745	5,417	575	260
Backhoe/loader	5	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	9	32	63	8	7
Excavator	5	8	5	513	0.59	0.68	2.7	8.38	0.93	0.402	91	360	1,118	124	54
Dozer	5	8	2	620	0.59	0.68	2.7	8.38	0.93	0.402	44	174	541	60	26
Small diesel engines	10	8	5	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	16	20	4	2
										Subtotal	588	2,337	7,182	774	350

MCAS Cherry Point 2012

Excavation 18,609 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	3	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	6	14	2	1
Dump truck (40 CY)	28	5	2	710	0.59	0.68	2.7	8.38	0.89	0.402	176	698	2,167	230	104
Backhoe/loader	5	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
Excavator	5	8	2	513	0.59	0.68	2.7	8.38	0.93	0.402	36	144	447	50	21
Dozer	5	8	2	620	0.59	0.68	2.7	8.38	0.93	0.402	44	174	541	60	26
Small diesel engines	10	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	8	1	1
										Subtotal	262	1,041	3,202	347	156

Trenching 1,081 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	24	98	0.21	0.99	3.49	6.9	0.85	0.722	9	30	60	7	6
Excavator	1	8	9	90	0.21	0.99	3.49	6.9	0.85	0.722	3	10	21	3	2
Dump truck	3	0.5	11	275	0.21	0.68	2.7	8.38	0.89	0.402	1	6	18	2	1
Delivery truck	1	2	9	180	0.21	0.68	2.7	8.38	0.89	0.402	1	4	13	1	1
Small diesel engines	1	8	18	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	7	1	1
Trencher	1	8	9	100	0.21	0.99	3.49	6.9	0.85	0.722	3	12	23	3	2
										Subtotal	18	68	141	17	13

Building Construction 120,316 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	21	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	5	24	56	9	5
Concrete truck	19	4	11	250	0.21	0.68	2.7	8.38	0.89	0.402	66	261	811	86	39
Dump truck	13	0.5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	6	22	69	7	3
Delivery truck	3	1	17	180	0.21	0.68	2.7	8.38	0.89	0.402	3	11	36	4	2
Backhoe/loader	3	8	15	98	0.21	0.99	3.49	6.9	0.85	0.722	16	57	113	14	12
Small diesel engines	9	4	19	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	27	34	6	3
										Subtotal	101	402	1118	126	63

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	11	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	12	15	3	1
Delivery truck	2	2	15	180	0.21	0.68	2.7	8.38	0.89	0.402	3	14	42	4	2
Skid steer loader	7	8	15	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	15	68	160	27	13
Concrete truck	7	4	10	250	0.21	0.68	2.7	8.38	0.89	0.402	22	88	272	29	13
Crane	1	8	11	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	3	9	57	9	3
										Subtotal	46	189	545	72	33

Grading 77,763 SY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	3	90	0.59	0.99	3.49	6.9	0.93	0.722	4	15	29	4	3
Skid steer loader	4	4	10	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	13	30	5	3
Backhoe/loader	4	6	7	98	0.21	0.99	3.49	6.9	0.85	0.722	8	27	53	6	6
Small diesel engines	2	4	10	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	3	4	1	0
Dump truck	12	0.5	5	275	0.21	0.68	2.7	8.38	0.89	0.402	3	10	32	3	2
										Subtotal	18	68	148	20	13

MCAS Cherry Point 2012

Gravel Work 9,736 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	25	135	0.58	0.68	2.7	8.38	0.93	0.402	141	559	1,736	193	83
Skid steer loader	12	8	23	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	39	177	420	70	35
Small diesel engines	6	8	25	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	9	47	59	11	5
Dump truck (12 CY)	36	0.5	23	275	0.21	0.68	2.7	8.38	0.89	0.402	36	142	442	47	21
										Subtotal	224	926	2,657	320	145

Concrete Work 6,396 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	2	2	109	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	8	35	83	14	7
Concrete truck (9 CY)	6	1	134	250	0.21	0.68	2.7	8.38	0.89	0.402	63	251	780	83	37
Dump truck (12 CY)	4	0.5	134	275	0.21	0.68	2.7	8.38	0.89	0.402	23	92	286	30	14
Delivery truck	8	1	12	180	0.21	0.68	2.7	8.38	0.89	0.402	5	22	67	7	3
Backhoe/loader	4	2	24	98	0.21	0.99	3.49	6.9	0.85	0.722	9	30	60	7	6
										Subtotal	108	430	1276	141	68

Paving 4,100 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	11	150	0.59	0.68	2.7	8.38	0.93	0.402	6	23	72	8	3
Roller	2	4	11	30	0.59	1.8	5	6.9	1	0.8	6	17	24	3	3
Paver	1	8	11	107	0.59	0.68	2.7	8.38	0.93	0.402	8	33	103	11	5
Delivery truck	2	2	6	180	0.21	0.68	2.7	8.38	0.89	0.402	1	5	17	2	1
										Subtotal	22	79	215	25	12

Volume of hot mix asphalt	110700	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	321	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	3	146	7	0.1	1

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
201	260	10	0.001476	0.021859	0.00120263	1.8078E-05	0.000055	771.36	11423.49	628.49	9.447563	28.63
134	33	10	0.00136798	0.02101	0.0010957	1.8078E-05	0.000055	60.49	929.07	48.45	0.799409	2.42

MCAS Cherry Point 2012

2012 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
1.9	10.8	12.3	1.5	7.0	1.5

2013 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.2	1.1	1.5	0.2	0.9	0.2

GTF ONLY

Total Footprint **44 Acres**

Excavation 72,446 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	11	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	5	21	50	8	4
Dump truck (40 CY)	28	5	9	710	0.59	0.68	2.7	8.38	0.89	0.402	791	3,142	9,751	1,036	468
Backhoe/loader	5	8	9	98	0.21	0.99	3.49	6.9	0.85	0.722	16	57	113	14	12
Excavator	5	8	9	513	0.59	0.68	2.7	8.38	0.93	0.402	163	649	2,013	223	97
Dozer	5	8	9	620	0.59	0.68	2.7	8.38	0.93	0.402	197	784	2,433	270	117
Small diesel engines	10	8	9	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	5	28	36	6	3
										Subtotal	1,178	4,681	14,396	1,558	700

Trenching 200 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	2	8	4	98	0.21	0.99	3.49	6.9	0.85	0.722	3	10	20	2	2
Excavator	1	8	3	90	0.21	0.99	3.49	6.9	0.85	0.722	1	3	7	1	1
Dump truck	11	0.5	1	275	0.21	0.68	2.7	8.38	0.89	0.402	0	2	6	1	0
Delivery truck	1	2	3	180	0.21	0.68	2.7	8.38	0.89	0.402	0	1	4	0	0
Small diesel engines	6	8	1	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	2	0	0
Trencher	1	8	3	100	0.21	0.99	3.49	6.9	0.85	0.722	1	4	8	1	1
										Subtotal	6	23	47	6	4

Building Construction 6635 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	2	8	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	3	1	0
Concrete truck	1	4	11	250	0.21	0.68	2.7	8.38	0.89	0.402	3	14	43	5	2
Dump truck	1	0.5	7	275	0.21	0.68	2.7	8.38	0.89	0.402	0	1	4	0	0
Delivery truck	1	1	3	180	0.21	0.68	2.7	8.38	0.89	0.402	0	1	2	0	0
Backhoe/loader	1	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	1	3	5	1	1
Small diesel engines	1	4	9	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	1	2	0	0
										Subtotal	5	21	58	7	3

MCAS Cherry Point 2012

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	1	4	4	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	1	1	0	0
Delivery truck	1	2	2	180	0.21	0.68	2.7	8.38	0.89	0.402	0	1	3	0	0
Skid steer loader	1	8	6	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	4	9	2	1
Concrete truck	1	4	4	250	0.21	0.68	2.7	8.38	0.89	0.402	1	5	16	2	1
Crane	1	4	1	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	0	0	3	0	0
										Subtotal	3	11	31	4	2

Grading 134,911 SY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	6	6	90	0.59	0.99	3.49	6.9	0.93	0.722	8	29	58	8	6
Skid steer loader	4	4	18	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	5	23	55	9	5
Backhoe/loader	4	6	14	98	0.21	0.99	3.49	6.9	0.85	0.722	15	53	105	13	11
Small diesel engines	2	4	18	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	7	1	1
Dump truck	12	0.5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	5	21	64	7	3
										Subtotal	35	132	289	38	25

Gravel Work 32985 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	6	8	87	135	0.58	0.68	2.7	8.38	0.93	0.402	490	1,946	6,041	670	290
Skid steer loader	12	8	81	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	138	625	1,479	246	125
Small diesel engines	6	8	87	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	30	163	207	37	18
Dump truck (12 CY)	36	0.5	81	275	0.21	0.68	2.7	8.38	0.89	0.402	126	501	1,556	165	75
										Subtotal	784	3,235	9,283	1,118	507

Concrete Work 4,729 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	2	2	91	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	29	69	12	6
Concrete truck (9 CY)	6	1	88	250	0.21	0.68	2.7	8.38	0.89	0.402	42	165	512	54	25
Dump truck (12 CY)	4	0.5	88	275	0.21	0.68	2.7	8.38	0.89	0.402	15	61	188	20	9
Delivery truck	8	1	10	180	0.21	0.68	2.7	8.38	0.89	0.402	5	18	56	6	3
Backhoe/loader	4	2	20	98	0.21	0.99	3.49	6.9	0.85	0.722	7	25	50	6	5
										Subtotal	75	298	875	98	47

Paving 22,362 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	54	150	0.59	0.68	2.7	8.38	0.93	0.402	29	114	353	39	17
Roller	2	4	54	30	0.59	1.8	5	6.9	1	0.8	30	84	116	17	13
Paver	1	8	54	107	0.59	0.68	2.7	8.38	0.93	0.402	41	162	504	56	24
Delivery truck	2	2	30	180	0.21	0.68	2.7	8.38	0.89	0.402	7	27	84	9	4
										Subtotal	107	387	1057	121	59

Volume of hot mix asphalt	603774	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	1751	lb

MCAS Cherry Point 2012

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	4	64	4	0.1	0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
90	141	10	0.001476	0.021859	0.00120263	1.8078E-05	0.000055	187.30	2773.90	152.61	2.294098	6.95

2012 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
2.1	5.8	13.1	1.5	4.6	1.1

CORE AND GTF COMBINED

2012 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
4.0	16.6	25.4	2.9	11.6	2.5

2013 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
0.2	1.1	1.5	0.2	0.9	0.2

MCAS Cherry Point 2013

MCAS Cherry Point Construction Emissions **2013**

CORE ONLY

Total Footprint **6.5 Acres**

Clearing 1.5 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	3	6	5	5	0.7	120.06	351.02	1.82	NA	7.7	83	244	1	N/A	5
Backhoe/loader	1	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	2	6	13	2	1
Skid/steer Loader	1	8	2	168	0.59	0.68	2.7	8.38	0.93	0.402	2	9	29	3	1
Dozer	1	6	2	299	0.58	0.68	2.7	8.38	0.93	0.402	3	12	38	4	2
Dump truck (12 CY)	2	5	5	275	0.21	0.68	2.7	8.38	0.89	0.402	4	17	53	6	3
										Subtotal	95	289	135	15	12

Demolition 47,206 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	58	90	0.59	0.99	3.49	6.9	0.93	0.722	215	758	1,499	202	157
Skid steer loader	4	8	58	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	33	149	353	59	30
Crane	1	8	7	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	2	6	36	6	2
									Subtotal		250	913	1,888	267	188

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	29	98	0.21	0.99	3.49	6.9	0.85	0.722	42	147	291	36	30
Skid steer loader	4	8	29	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	16	75	177	29	15
Dump truck	16	0.5	29	275	0.21	0.68	2.7	8.38	0.89	0.402	20	80	248	26	12
									Subtotal		78	301	715	91	57

Cut/Fill/Borrow 8,502 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	5	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	3	8	1	1
Dump truck (40 CY)	14	5	5	710	0.59	0.68	2.7	8.38	0.89	0.402	220	873	2,709	288	130
Backhoe/loader	1	8	10	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
Excavator	1	8	10	513	0.59	0.68	2.7	8.38	0.93	0.402	36	144	447	50	21
Dozer	1	8	10	620	0.59	0.68	2.7	8.38	0.93	0.402	44	174	541	60	26
Small diesel engines	3	8	5	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	5	6	1	1
										Subtotal	305	1,212	3,735	403	181

Excavation 50,007 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	3	8	9	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4	17	41	7	3
Dump truck (40 CY)	28	5	7	710	0.59	0.68	2.7	8.38	0.89	0.402	615	2,444	7,584	805	364
Backhoe/loader	5	8	7	98	0.21	0.99	3.49	6.9	0.85	0.722	13	44	88	11	9
Excavator	5	8	7	513	0.59	0.68	2.7	8.38	0.93	0.402	127	504	1,566	174	75
Dozer	5	8	7	620	0.59	0.68	2.7	8.38	0.93	0.402	154	610	1,892	210	91
Small diesel engines	10	8	7	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	4	22	28	5	2
										Subtotal	916	3,641	11,199	1,212	545

MCAS Cherry Point 2013

Trenching 467 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	10	98	0.21	0.99	3.49	6.9	0.85	0.722	4	13	25	3	3
Excavator	1	8	4	90	0.21	0.99	3.49	6.9	0.85	0.722	1	5	9	1	1
Dump truck	1	0.5	13	275	0.21	0.68	2.7	8.38	0.89	0.402	1	2	7	1	0
Delivery truck	1	2	4	180	0.21	0.68	2.7	8.38	0.89	0.402	0	2	6	1	0
Small diesel engines	1	8	7	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	0	0
Trencher	1	8	4	100	0.21	0.99	3.49	6.9	0.85	0.722	1	5	10	1	1
										Subtotal	8	29	60	7	5

Building Construction 38,038 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	2	42	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	7	16	3	1
Concrete truck	19	4	3	250	0.21	0.68	2.7	8.38	0.89	0.402	18	71	221	23	11
Dump truck	13	0.5	3	275	0.21	0.68	2.7	8.38	0.89	0.402	2	7	21	2	1
Delivery truck	3	1	5	180	0.21	0.68	2.7	8.38	0.89	0.402	1	3	10	1	1
Backhoe/loader	1	8	12	98	0.21	0.99	3.49	6.9	0.85	0.722	4	15	30	4	3
Small diesel engines	2	4	18	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	7	1	1
										Subtotal	27	109	306	34	17

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	1	4	21	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	3	4	1	0
Delivery truck	1	2	8	180	0.21	0.68	2.7	8.38	0.89	0.402	1	4	11	1	1
Skid steer loader	1	8	28	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4	18	43	7	4
Concrete truck	7	4	3	250	0.21	0.68	2.7	8.38	0.89	0.402	7	26	81	9	4
Crane	1	8	3	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	2	15	3	1
										Subtotal	13	53	155	20	9

Grading 31,460 SY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	5	90	0.59	0.99	3.49	6.9	0.93	0.722	3	12	24	3	3
Skid steer loader	2	4	14	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	9	21	4	2
Backhoe/loader	2	6	11	98	0.21	0.99	3.49	6.9	0.85	0.722	6	21	41	5	4
Small diesel engines	1	4	14	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	0	0
Dump truck	6	0.5	8	275	0.21	0.68	2.7	8.38	0.89	0.402	2	8	26	3	1
										Subtotal	14	53	115	15	10

Gravel Work 7,701 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	66	135	0.58	0.68	2.7	8.38	0.93	0.402	93	369	1,146	127	55
Skid steer loader	6	4	63	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	27	122	288	48	24
Small diesel engines	3	4	66	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	6	31	39	7	3
Dump truck (12 CY)	10	0.5	63	275	0.21	0.68	2.7	8.38	0.89	0.402	27	108	336	36	16
										Subtotal	153	630	1,809	218	99

MCAS Cherry Point 2013

Concrete Work 3,127 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	2	2	53	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4	17	40	7	3
Concrete truck (9 CY)	6	1	66	250	0.21	0.68	2.7	8.38	0.89	0.402	31	124	384	41	18
Dump truck (12 CY)	4	0.5	66	275	0.21	0.68	2.7	8.38	0.89	0.402	11	45	141	15	7
Delivery truck	8	1	6	180	0.21	0.68	2.7	8.38	0.89	0.402	3	11	34	4	2
Backhoe/loader	4	2	11	98	0.21	0.99	3.49	6.9	0.85	0.722	4	14	28	3	3
										Subtotal	53	211	626	69	33

Paving 3,843 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	11	150	0.59	0.68	2.7	8.38	0.93	0.402	6	23	72	8	3
Roller	2	4	11	30	0.59	1.8	5	6.9	1	0.8	6	17	24	3	3
Paver	1	8	11	107	0.59	0.68	2.7	8.38	0.93	0.402	8	33	103	11	5
Delivery truck	2	2	6	180	0.21	0.68	2.7	8.38	0.89	0.402	1	5	17	2	1
										Subtotal	22	79	215	25	12

Volume of hot mix asphalt	103761	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	301	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	0.7	102	1	0.1	0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
114	172	10	0.00136798	0.02101	0.0010957	1.8078E-05	0.000055	268.23	4119.67	214.85	3.544734	10.74

2013 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
1.3	5.8	10.6	1.2	1.5	0.7

MCAS Cherry Point 2013

GTF ONLY

Total Footprint **5 Acres**

Clearing 3 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	3	6	9	5	0.7	120.06	351.02	1.82	NA	7.7	150	439	2	N/A	10
Backhoe/loader	1	8	9	98	0.21	0.99	3.49	6.9	0.85	0.722	3	11	23	3	2
Skid/steer Loader	1	8	3	168	0.59	0.68	2.7	8.38	0.93	0.402	4	14	44	5	2
Dozer	1	6	3	299	0.58	0.68	2.7	8.38	0.93	0.402	5	19	58	6	3
Dump truck (12 CY)	2	5	9	275	0.21	0.68	2.7	8.38	0.89	0.402	8	31	96	10	5
										Subtotal	169	514	222	24	21

Demolition 48,437 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	4	8	55	90	0.59	0.99	3.49	6.9	0.93	0.722	204	719	1,422	192	149
Skid steer loader	4	8	55	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	31	141	335	56	28
Crane	1	8	5	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	2	4	26	4	1
										Subtotal	237	864	1,782	251	178

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	4	8	28	98	0.21	0.99	3.49	6.9	0.85	0.722	40	142	281	35	29
Skid steer loader	4	8	28	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	16	72	170	28	14
Dump truck	16	0.5	28	275	0.21	0.68	2.7	8.38	0.89	0.402	19	77	239	25	11
										Subtotal	76	291	690	88	55

Cut/Fill/Borrow 91,493 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	50	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	7	32	76	13	6
Dump truck (40 CY)	14	5	50	710	0.59	0.68	2.7	8.38	0.89	0.402	2,198	8,727	27,087	2,877	1,299
Backhoe/loader	1	8	100	98	0.21	0.99	3.49	6.9	0.85	0.722	36	127	250	31	26
Excavator	1	8	100	513	0.59	0.68	2.7	8.38	0.93	0.402	363	1,441	4,473	496	215
Dozer	1	8	100	620	0.59	0.68	2.7	8.38	0.93	0.402	439	1,742	5,406	600	259
Small diesel engines	3	8	50	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	9	47	59	11	5
										Subtotal	3,051	12,116	37,353	4,027	1,811

Excavation 5,563 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	3	1	0
Dump truck (40 CY)	1	5	17	710	0.59	0.68	2.7	8.38	0.89	0.402	53	212	658	70	32
Backhoe/loader	1	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	1	4	8	1	1
Excavator	1	8	3	513	0.59	0.68	2.7	8.38	0.93	0.402	11	43	134	15	6
Dozer	1	8	3	620	0.59	0.68	2.7	8.38	0.93	0.402	13	52	162	18	8
Small diesel engines	1	8	6	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	2	0	0
										Subtotal	79	314	967	105	47

MCAS Cherry Point 2013

Trenching 283 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	6	98	0.21	0.99	3.49	6.9	0.85	0.722	2	8	15	2	2
Excavator	1	8	2	90	0.21	0.99	3.49	6.9	0.85	0.722	1	2	5	1	0
Dump truck	1	0.5	9	275	0.21	0.68	2.7	8.38	0.89	0.402	0	2	5	1	0
Delivery truck	1	2	2	180	0.21	0.68	2.7	8.38	0.89	0.402	0	1	3	0	0
Small diesel engines	1	8	5	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	2	0	0
Trencher	1	8	2	100	0.21	0.99	3.49	6.9	0.85	0.722	1	3	5	1	1
										Subtotal	4	17	34	4	3

Building Construction 56,892 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	10	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	11	27	4	2
Concrete truck	19	4	6	250	0.21	0.68	2.7	8.38	0.89	0.402	36	143	442	47	21
Dump truck	13	0.5	5	275	0.21	0.68	2.7	8.38	0.89	0.402	3	11	35	4	2
Delivery truck	3	1	8	180	0.21	0.68	2.7	8.38	0.89	0.402	1	5	17	2	1
Backhoe/loader	3	8	7	98	0.21	0.99	3.49	6.9	0.85	0.722	8	27	53	6	6
Small diesel engines	9	4	9	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	2	13	16	3	1
										Subtotal	52	210	589	66	33

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	6	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	7	8	1	1
Delivery truck	2	2	7	180	0.21	0.68	2.7	8.38	0.89	0.402	2	6	20	2	1
Skid steer loader	7	8	7	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	7	32	75	12	6
Concrete truck	7	4	5	250	0.21	0.68	2.7	8.38	0.89	0.402	11	44	136	14	7
Crane	1	8	6	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	2	5	31	5	2
										Subtotal	23	93	269	35	16

Grading 22,264 SY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	5	90	0.59	0.99	3.49	6.9	0.93	0.722	3	12	24	3	3
Skid steer loader	2	4	13	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	8	20	3	2
Backhoe/loader	2	6	10	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Small diesel engines	1	4	13	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	0	0
Dump truck	6	0.5	7	275	0.21	0.68	2.7	8.38	0.89	0.402	2	7	22	2	1
										Subtotal	13	49	107	14	9

Gravel Work 3,958 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	31	135	0.58	0.68	2.7	8.38	0.93	0.402	44	173	538	60	26
Skid steer loader	6	4	29	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	12	56	132	22	11
Small diesel engines	3	4	31	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	3	15	18	3	2
Dump truck (12 CY)	10	0.5	29	275	0.21	0.68	2.7	8.38	0.89	0.402	13	50	155	16	7
										Subtotal	71	294	844	101	46

MCAS Cherry Point 2013

Concrete Work 2,346 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	2	2	35	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	11	27	4	2
Concrete truck (9 CY)	6	1	43	250	0.21	0.68	2.7	8.38	0.89	0.402	20	81	250	27	12
Dump truck (12 CY)	4	0.5	43	275	0.21	0.68	2.7	8.38	0.89	0.402	7	30	92	10	4
Delivery truck	8	1	4	180	0.21	0.68	2.7	8.38	0.89	0.402	2	7	22	2	1
Backhoe/loader	4	2	7	98	0.21	0.99	3.49	6.9	0.85	0.722	3	9	18	2	2
										Subtotal	35	138	409	45	22

Paving 2,093 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	6	150	0.59	0.68	2.7	8.38	0.93	0.402	3	13	39	4	2
Roller	2	4	6	30	0.59	1.8	5	6.9	1	0.8	3	9	13	2	1
Paver	1	8	6	107	0.59	0.68	2.7	8.38	0.93	0.402	5	18	56	6	3
Delivery truck	2	2	3	180	0.21	0.68	2.7	8.38	0.89	0.402	1	3	8	1	0
										Subtotal	12	43	117	13	6

Volume of hot mix asphalt	56511	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0.04	lb/ton
VOC emissions from HMA paving	164	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	0.5	118	1	0.1	0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
125	165	10	0.00136798	0.02101	0.0010957	1.8078E-05	0.000055	282.14	4333.35	225.99	3.728587	11.30

2013 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
2.1	9.6	21.8	2.4	2.0	1.2

CORE AND GTF COMBINED

2013 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
3.4	15.5	32.4	3.6	3.5	1.9

MCAS Cherry Point 2014

MCAS Cherry Point Construction Emissions — 2014

CORE ONLY

Total Footprint 1.5 Acres

Demo Buildings 12,916 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	8	43	90	0.59	0.99	3.49	6.9	0.93	0.722	40	141	278	37	29
Skid steer loader	1	8	43	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	6	28	65	11	6
Crane	1	4	1	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	0	0	3	0	0
										Subtotal	46	169	346	49	35

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	14	12	98	0.21	0.99	3.49	6.9	0.85	0.722	8	27	53	6	6
Skid steer loader	1	14	12	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	14	32	5	3
Dump truck	4	0.5	12	275	0.21	0.68	2.7	8.38	0.89	0.402	2	8	26	3	1
										Subtotal	13	48	110	15	9

Cut/Fill/Borrow 327 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	2	1	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	0	0	0	0
Dump truck (40 CY)	1	5	2	710	0.59	0.68	2.7	8.38	0.89	0.402	6	25	77	8	4
Backhoe/loader	1	4	1	98	0.21	0.99	3.49	6.9	0.85	0.722	0	1	1	0	0
Excavator	1	4	1	513	0.59	0.68	2.7	8.38	0.93	0.402	2	7	22	2	1
Dozer	1	4	1	620	0.59	0.68	2.7	8.38	0.93	0.402	2	9	27	3	1
Small diesel engines	3	4	1	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	1	0	0
										Subtotal	11	42	129	14	6

Excavation 1,542 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	1	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	2	0	0
Dump truck (40 CY)	7	5	1	710	0.59	0.68	2.7	8.38	0.89	0.402	22	87	271	29	13
Backhoe/loader	1	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	1	3	5	1	1
Excavator	1	8	2	513	0.59	0.68	2.7	8.38	0.93	0.402	7	29	89	10	4
Dozer	1	8	2	620	0.59	0.68	2.7	8.38	0.93	0.402	9	35	108	12	5
Small diesel engines	1	8	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	1	1	0	0
										Subtotal	39	155	476	52	23

Trenching 133 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	1	4	8	1	1
Excavator	1	6	2	90	0.21	0.99	3.49	6.9	0.85	0.722	0	2	3	0	0
Dump truck	1	0.5	5	275	0.21	0.68	2.7	8.38	0.89	0.402	0	1	3	0	0
Delivery truck	1	1	3	180	0.21	0.68	2.7	8.38	0.89	0.402	0	1	2	0	0
Small diesel engines	1	5	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	1	1	0	0
Trencher	1	8	3	100	0.21	0.99	3.49	6.9	0.85	0.722	1	4	8	1	1
										Subtotal	3	12	24	3	2

MCAS Cherry Point 2014

Building Construction 8665 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	2	10	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	2	4	1	0
Concrete truck	1	4	15	250	0.21	0.68	2.7	8.38	0.89	0.402	5	19	58	6	3
Dump truck	1	0.5	34	275	0.21	0.68	2.7	8.38	0.89	0.402	1	6	18	2	1
Delivery truck	1	1	14	180	0.21	0.68	2.7	8.38	0.89	0.402	1	3	10	1	0
Backhoe/loader	1	8	13	98	0.21	0.99	3.49	6.9	0.85	0.722	5	16	33	4	3
Small diesel engines	1	4	20	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	3	4	1	0
										Subtotal	13	49	126	14	8

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	1	4	22	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	3	4	1	0
Delivery truck	1	2	8	180	0.21	0.68	2.7	8.38	0.89	0.402	1	4	11	1	1
Skid steer loader	1	8	31	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	4	20	47	8	4
Concrete truck	1	4	18	250	0.21	0.68	2.7	8.38	0.89	0.402	6	23	70	7	3
Crane	1	8	3	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1	2	15	3	1
										Subtotal	13	52	148	20	9

Grading 7,260 SY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	4	1	90	0.59	0.99	3.49	6.9	0.93	0.722	0	2	3	0	0
Skid steer loader	1	4	6	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	2	5	1	0
Backhoe/loader	1	6	5	98	0.21	0.99	3.49	6.9	0.85	0.722	1	5	9	1	1
Small diesel engines	1	4	3	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	1	0	0
Dump truck	1	0.5	10	275	0.21	0.68	2.7	8.38	0.89	0.402	0	2	5	1	0
										Subtotal	3	11	23	3	2

Gravel Work 1,145 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	9	135	0.58	0.68	2.7	8.38	0.93	0.402	13	50	156	17	7
Skid steer loader	6	4	8	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	15	37	6	3
Small diesel engines	3	4	9	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	4	5	1	0
Dump truck (12 CY)	10	0.5	8	275	0.21	0.68	2.7	8.38	0.89	0.402	3	14	43	5	2
										Subtotal	20	84	241	29	13

Concrete Work 321 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	2	2	6	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	2	5	1	0
Concrete truck (9 CY)	6	1	7	250	0.21	0.68	2.7	8.38	0.89	0.402	3	13	41	4	2
Dump truck (12 CY)	4	0.5	7	275	0.21	0.68	2.7	8.38	0.89	0.402	1	5	15	2	1
Delivery truck	1	1	4	180	0.21	0.68	2.7	8.38	0.89	0.402	0	1	3	0	0
Backhoe/loader	1	2	5	98	0.21	0.99	3.49	6.9	0.85	0.722	0	2	3	0	0
										Subtotal	6	22	66	7	4

MCAS Cherry Point 2014

Paving 698 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	1	4	3	150	0.59	0.68	2.7	8.38	0.93	0.402	2	6	20	2	1
Roller	2	4	3	30	0.59	1.8	5	6.9	1	0.8	2	5	6	1	1
Paver	1	8	3	107	0.59	0.68	2.7	8.38	0.93	0.402	2	9	28	3	1
Delivery truck	2	2	2	180	0.21	0.68	2.7	8.38	0.89	0.402	0	2	6	1	0
										Subtotal	6	22	60	7	3

Volume of hot mix asphalt	18846	ft^3
Average density of HMA	145	lb/ft^3
CARB EF for HMA	0	lb/ton
VOC emissions from HMA paving	55	lb

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	0.1	51	0.1	0.1	0.0

POV Emissions from Construction Workers

Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
59	80	10	0.00128971	0.021716	0.001031769	1.71961E-05	0.000055	60.87	1024.98	48.70	0.811658	2.58
							Subtotal	61	1,025	49	1	3

2014 Emission Totals:

VOC T/yr	CO T/yr	NOx T/yr	SO2 T/yr	PM_{10} T/yr	$PM_{2.5}$ T/yr
0.1	0.8	0.9	0.1	0.1	0.1

GTF ONLY

Total Footprint 6 **Acres**

Clearing 5 AC

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Chain saw	3	6	14	5	0.7	120.06	351.02	1.82	NA	7.7	233	683	4	N/A	15
Backhoe/loader	1	8	14	98	0.21	0.99	3.49	6.9	0.85	0.722	5	18	35	4	4
Skid/steer Loader	1	8	5	168	0.59	0.68	2.7	8.38	0.93	0.402	6	24	73	8	4
Dozer	1	6	5	299	0.58	0.68	2.7	8.38	0.93	0.402	8	31	96	11	5
Dump truck (12 CY)	2	5	14	275	0.21	0.68	2.7	8.38	0.89	0.402	12	48	149	16	7
										Subtotal	264	803	357	39	34

Demo Buildings 25,306 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	2	8	52	90	0.59	0.99	3.49	6.9	0.93	0.722	96	340	672	91	70
Skid steer loader	2	8	52	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	15	67	158	26	13
Crane	1	8	1	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	0	1	5	1	0
										Subtotal	111	408	835	118	84

MCAS Cherry Point 2014

Equipment	Number	Hr/day	# days	Hp		VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	14	12	98	0.21	0.99	3.49	6.9	0.85	0.722	8	27	53	6	6
Skid steer loader	1	14	12	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	14	32	5	3
Dump truck	4	0.5	12	275	0.21	0.68	2.7	8.38	0.89	0.402	2	8	26	3	1
										Subtotal	13	48	110	15	9

Cut/Fill/Borrow 2354 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	2	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0	1	3	1	0
Dump truck (40 CY)	14	5	2	710	0.59	0.68	2.7	8.38	0.89	0.402	88	349	1,083	115	52
Backhoe/loader	1	8	3	98	0.21	0.99	3.49	6.9	0.85	0.722	1	4	8	1	1
Excavator	1	8	3	513	0.59	0.68	2.7	8.38	0.93	0.402	11	43	134	15	6
Dozer	1	8	3	620	0.59	0.68	2.7	8.38	0.93	0.402	13	52	162	18	8
Small diesel engines	3	8	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	2	0	0
										Subtotal	114	452	1,393	150	67

Excavation 14,645 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	1	8	9	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1	6	14	2	1
Dump truck (40 CY)	7	5	8	710	0.59	0.68	2.7	8.38	0.89	0.402	176	698	2,167	230	104
Backhoe/loader	2	8	8	98	0.21	0.99	3.49	6.9	0.85	0.722	6	20	40	5	4
Excavator	2	8	8	513	0.59	0.68	2.7	8.38	0.93	0.402	58	231	716	79	34
Dozer	2	8	8	620	0.59	0.68	2.7	8.38	0.93	0.402	70	279	865	96	41
Small diesel engines	3	8	8	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	7	10	2	1
										Subtotal	313	1,241	3,811	414	186

Trenching 100 CY

Equipment	Number	Hr/day	days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Backhoe/loader	1	8	2	98	0.21	0.99	3.49	6.9	0.85	0.722	1	3	5	1	1
Excavator	1	6	1	90	0.21	0.99	3.49	6.9	0.85	0.722	0	1	2	0	0
Dump truck	1	0.5	11	275	0.21	0.68	2.7	8.38	0.89	0.402	0	2	6	1	0
Delivery truck	1	1	2	180	0.21	0.68	2.7	8.38	0.89	0.402	0	0	1	0	0
Small diesel engines	1	5	2	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	0	0	0	0
Trencher	1	4	1	100	0.21	0.99	3.49	6.9	0.85	0.722	0	1	1	0	0
										Subtotal	2	7	16	2	1

Building Construction 56,073 SF

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	7	2	10	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	11	27	4	2
Concrete truck	19	4	5	250	0.21	0.68	2.7	8.38	0.89	0.402	30	119	369	39	18
Dump truck	13	0.5	17	275	0.21	0.68	2.7	8.38	0.89	0.402	10	38	118	13	6
Delivery truck	3	1	32	180	0.21	0.68	2.7	8.38	0.89	0.402	5	22	67	7	3
Backhoe/loader	3	8	28	98	0.21	0.99	3.49	6.9	0.85	0.722	30	106	210	26	22
Small diesel engines	9	4	37	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	10	52	66	12	6
										Subtotal	87	348	857	101	56

MCAS Cherry Point 2014

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Small diesel engines	7	4	21	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	4	23	29	5	2
Delivery truck	2	2	28	180	0.21	0.68	2.7	8.38	0.89	0.402	6	25	78	8	4
Skid steer loader	7	8	30	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	30	135	320	53	27
Concrete truck	7	4	17	250	0.21	0.68	2.7	8.38	0.89	0.402	37	149	462	49	22
Crane	1	8	23	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	7	18	118	19	6
										Subtotal	85	350	1007	135	61

Grading 28,072 SY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Dozer	1	6	3	90	0.59	0.99	3.49	6.9	0.93	0.722	2	7	15	2	2
Skid steer loader	2	4	13	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	2	8	20	3	2
Backhoe/loader	2	6	10	98	0.21	0.99	3.49	6.9	0.85	0.722	5	19	38	5	4
Small diesel engines	1	4	13	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0	2	3	0	0
Dump truck	6	0.5	6	275	0.21	0.68	2.7	8.38	0.89	0.402	2	6	19	2	1
										Subtotal	11	43	94	12	8

Gravel Work 1,425 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Grader	3	4	12	135	0.58	0.68	2.7	8.38	0.93	0.402	17	67	208	23	10
Skid steer loader	6	4	11	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	5	21	50	8	4
Small diesel engines	3	4	12	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1	6	7	1	1
Dump truck (12 CY)	10	0.5	11	275	0.21	0.68	2.7	8.38	0.89	0.402	5	19	59	6	3
										Subtotal	27	113	324	39	18

Concrete Work 2,137 CY

Equipment	Number	Hr/day	# days	Hp	LF	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM lb
Skid steer loader	2	2	40	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	3	13	30	5	3
Concrete truck (9 CY)	6	1	50	250	0.21	0.68	2.7	8.38	0.89	0.402	24	94	291	31	14
Dump truck (12 CY)	4	0.5	50	275	0.21	0.68	2.7	8.38	0.89	0.402	9	34	107	11	5
Delivery truck	8	1	4	180	0.21	0.68	2.7	8.38	0.89	0.402	2	7	22	2	1
Backhoe/loader	4	2	9	98	0.21	0.99	3.49	6.9	0.85	0.722	3	11	23	3	2
										Subtotal	40	160	473	52	25

Fugitive Dust Emissions:

PM_{10} tons/acre/mo	acres	days of disturbance	PM_{10} Total	$PM_{2.5}/PM_{10}$ Ratio	$PM_{2.5}$ Total
0.42	0.6	70	0.6	0.1	0.1

MCAS Cherry Point 2014

POV Emissions from Construction Workers
Assume 10 miles per day per vehicle (one vehicle per worker)

On-base POV emissions

			VOC	CO	NOx	SOx	PM	VOC	CO	NOx	SOx	PM
# vehicles	# days	mi/day	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi	lb	lb	lb	lb	lb
98	122	10	0.00128971	0.021716	0.001031769	1.71961E-05	0.000055	154.20	2596.32	123.36	2.055971	6.54
							Subtotal	154	2,596	123	2	7

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.6	3.3	4.7	0.5	0.9	0.3

CORE AND GTF COMBINED

2014 Emission Totals:

VOC	CO	NOx	SO2	PM_{10}	$PM_{2.5}$
T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
0.8	4.1	5.6	0.6	1.0	0.4

Operational Emissions - Transportation

Baseline
MCB Camp Lejeune/MCAS New River

2006 = 40,361 Total

POV Emissions from Comuting Working Military and Civilians
Assume 20 miles per day per vehicle (one vehicle per worker)

Commuting POV emissions

			VOC	CO	NOx	SOx	PM	VOC	CO	NOx	SOx	PM
# vehicles	# days	mi/day	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi	lb	lb	lb	lb	lb
40,361	240	20	0.001933	0.025618	0.001576	1.8078E-05	0.000055	374575	4963018	305384	3502	10699
							Subtotal	374,575	4,963,018	305,384	3,502	10,699
							Tons per Year	187	2482	153	2	5

MCAS Cherry Point

2006 = 13,099

POV Emissions from Comuting Working Military and Civilians
Assume 15 miles per day per vehicle (one vehicle per worker)

Commuting POV emissions

			VOC	CO	NOx	SOx	PM	VOC	CO	NOx	SOx	PM
# vehicles	# days	mi/day	lb/mi	lb/mi	lb/mi	lb/mi	lb/mi	lb	lb	lb	lb	lb
13,099	240	15	0.001497	0.013925	0.001489	0.000009	0.000080	70593.13	656652.87	70215.88	424.4076	3756.54
							Subtotal	70,593	656,653	70,216	424	3,757
							Tons per Year	35	328	35	0	2

Alternative 4
MCB Camp Lejeune/MCAS New River

2007 = 47,546 Total

POV Emissions from Comuting Working Military and Civilians
Assume 20 miles per day per vehicle (one vehicle per worker)

Commuting POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
47,546	240	20	0.001933	0.025618	0.001576	1.8078E-05	0.000055	441257	5846526	359748	4126	12604
							Subtotal	441,257	5,846,526	359,748	4,126	12,604
							Tons per Year	221	2923	180	2	6

MCAS Cherry Point

2007 = 13,843

POV Emissions from Comuting Working Military and Civilians
Assume 15 miles per day per vehicle (one vehicle per worker)

Commuting POV emissions

# vehicles	# days	mi/day	VOC lb/mi	CO lb/mi	NOx lb/mi	SOx lb/mi	PM lb/mi	VOC lb	CO lb	NOx lb	SOx lb	PM lb
13,843	240	15	0.001497	0.013925	0.001489	0.000009	0.000080	74602.70	693949.59	74204.02	448.5132	3969.90
							Subtotal	74,603	693,950	74,204	449	3,970
							Tons per Year	37	347	37	0	2

APPENDIX F
NATURAL RESOURCES

Ecological Areas Impacted at MCB Camp Lejeune/MCAS New River

Ecological Area	Total in Area of Construction	Maximum Amount Potentially Impacted	Percent of Basewide
MCB Camp Lejeune			
Courthouse Bay			
Maritime Dunes, Swales, and Marshes	14.2	14.2	0.4%
Maritime Influenced Woodlands and Savannas	394.4	184.5	2.5%
Mesic Pine Savannas	3.9	3.9	0.0%
Other Altered Lands	30.5	30.5	1.8%
Small Stream Swamps and Streamhead Pocosins	49.7	49.7	0.6%
Urban Areas	81.3	81.3	0.9%
Water	7.0	7.0	0.0%
Wet-Mesic and Wet Pine Savannas	10.4	10.4	0.1%
Hadnot Point			
Drainage Slopes	258.4	248.4	2.8%
Interstream Flats	6.1	6.1	0.1%
Mesic Pine Savannas	108.1	108.1	0.8%
Other Altered Lands	18.9	18.9	1.1%
Small Stream Swamps and Streamhead Pocosins	80.1	80.1	0.9%
Urban Areas	334.6	248.4	25.4%
Urban-Woodland Complex	895.1	248.4	5.0%
Xeric and Dry-Mesic Pine Savannas	222.4	222.4	0.9%
Wallace Creek			
Drainage Slopes	128.6	118.5	1.4%
Interstream Flats	61.0	61.0	0.7%
Mesic Pine Savannas	28.5	28.5	0.2%
Small Stream Swamps and Streamhead Pocosins	175.4	118.5	1.4%
Water	6.3	6.3	0.0%
Xeric and Dry-Mesic Pine Savannas	360.5	118.5	0.5%
French Creek			
Drainage Slopes	266.7	153.8	1.8%
Mesic Pine Savannas	124.0	124.0	0.9%
Other Altered Lands	11.3	11.3	0.7%
Small Stream Swamps and Streamhead Pocosins	146.3	146.3	1.7%
Urban Areas	8.5	8.5	0.9%
Urban-Woodland Complex	280.8	153.8	3.1%
Xeric and Dry-Mesic Pine Savannas	635.8	153.8	0.6%
Stone Bay			
Drainage Slopes	416.7	26.0	0.3%
Inland Tidal Marshes and Tidal Swamps	6.5	6.5	0.5%

Ecological Areas Impacted at MCB Camp Lejeune/MCAS New River

Ecological Area	Total in Area of Construction	Maximum Amount Potentially Impacted	Percent of Basewide
Other Altered Lands	3.3	3.3	0.2%
Small Stream Swamps and Streamhead Pocosins	103.4	26.0	0.3%
Urban-Woodland Complex	77.9	26.0	0.5%
Water	0.3	0.3	0.0%
Wet-Mesic and Wet Pine Savannas	32.7	26.0	0.1%
Xeric and Dry-Mesic Pine Savannas	499.3	26.0	0.1%
Camp Devil Dog			
Drainage Slopes	0.6	0.6	0.0%
Mesic Pine Savannas	41.4	12.0	0.1%
Small Stream Swamps and Streamhead Pocosins	0.2	0.2	0.0%
Xeric and Dry-Mesic Pine Savannas	70.5	12.0	0.0%
Camp Geiger			
Drainage Slopes	0.1	0.1	0.0%
Interstream Flats	46.5	46.5	0.5%
Mesic Pine Savannas	0.1	0.1	0.0%
Pocosin Fringes	2.5	2.5	0.0%
Small Stream Swamps and Streamhead Pocosins	5.1	5.1	0.1%
Urban-Woodland Complex	314.2	95.6	1.9%
Wet-Mesic and Wet Pine Savannas	22.3	22.3	0.1%
Xeric and Dry-Mesic Pine Savannas	48.9	48.9	0.2%
Camp Johnson			
Drainage Slopes	45.2	45.2	0.5%
Interstream Flats	33.2	33.2	0.4%
Mesic Pine Savannas	129.4	117.9	0.8%
Pocosin Fringes	15.5	15.5	0.2%
Small Stream Swamps and Streamhead Pocosins	36.1	36.1	0.4%
Urban-Woodland Complex	222.2	117.9	2.4%
Wet-Mesic and Wet Pine Savannas	68.5	68.5	0.4%
Xeric and Dry-Mesic Pine Savannas	234.9	117.9	0.5%
PPV Housing Area			
Drainage Slopes	116.2	116.2	1.3%
Interstream Flats	95.5	95.5	1.1%
Mesic Pine Savannas	140.1	140.1	1.0%
Pocosin Fringes	25.4	25.4	0.3%
Small Stream Swamps and Streamhead Pocosins	15.6	15.6	0.2%
Urban-Woodland Complex	44.2	44.2	0.9%
Water	0.3	0.3	0.0%

Ecological Areas Impacted at MCB Camp Lejeune/MCAS New River

Ecological Area	Total in Area of Construction	Maximum Amount Potentially Impacted	Percent of Basewide
Wet-Mesic and Wet Pine Savannas	23.2	23.2	0.1%
Xeric and Dry-Mesic Pine Savannas	427.5	427.5	1.8%
Base Entry Road			
Drainage Slopes	19.3	19.3	0.2%
Interstream Flats	9.7	9.7	0.1%
Mesic Pine Savannas	47.2	47.2	0.3%
Other Altered Lands	7.7	7.7	0.5%
Pocosin Fringes	1.3	1.3	0.0%
Small Stream Swamps and Streamhead Pocosins	15.2	15.2	0.2%
Urban Areas	0.4	0.4	0.0%
Urban-Woodland Complex	0.1	0.1	0.0%
Water	9.3	9.3	0.0%
Wet-Mesic and Wet Pine Savannas	6.4	6.4	0.0%
Xeric and Dry-Mesic Pine Savannas	72.3	72.3	0.3%
TO Gate			
Mesic Pine Savannas	2.1	2.1	0.0%
Xeric and Dry-Mesic Pine Savannas	1.7	1.7	0.0%
Hadnot Point WWTP			
Drainage Slopes	2.5	2.5	0.0%
Xeric and Dry-Mesic Pine Savannas	11.2	11.2	0.0%
Marston Pavilion			
Small Stream Swamps and Streamhead Pocosins	4.4	4.4	0.1%
Urban-Woodland Complex	8.2	8.2	0.2%
MCAS New River			
Broad Pocosins	8.0	8.0	0.0%
Drainage Slopes	99.9	99.9	1.1%
Inland Tidal Marshes and Tidal Swamps	28.2	28.2	2.0%
Interstream Flats	135.6	135.6	1.6%
Mesic Pine Savannas	326.8	188.7	1.4%
Other Altered Lands	12.2	12.2	0.7%
Pocosin Fringes	2.8	2.8	0.0%
Small Stream Swamps and Streamhead Pocosins	10.5	10.5	0.1%
Urban Areas	367.3	188.7	19.3%
Urban-Woodland Complex	763.9	188.7	3.8%
Water	14.6	14.6	0.1%
Wet-Mesic and Wet Pine Savannas	45.9	45.9	0.3%
Xeric and Dry-Mesic Pine Savannas	378.7	188.7	0.8%

Ecological Areas Impacted at MCB Camp Lejeune/MCAS New River

Ecological Area	Total in Area of Construction	Maximum Amount Potentially Impacted	Percent of Basewide
MCB Camp Lejeune/MCAS New River Totals			
Broad Pocosins	8.0	8.0	0.0%
Drainage Slopes	1,354.2	1,354.2	15.5%
Inland Tidal Marshes and Tidal Swamps	34.6	34.6	2.5%
Interstream Flats	387.5	387.5	4.6%
Maritime Dunes, Swales, and Marshes	14.2	14.2	0.4%
Maritime Influenced Woodlands and Savannas	394.4	394.4	5.3%
Mesic Pine Savannas	951.4	951.4	6.8%
Other Altered Lands	83.9	83.9	5.1%
Pocosin Fringes	47.5	47.5	0.6%
Small Stream Swamps and Streamhead Pocosins	641.9	641.9	7.4%
Urban Areas	792.2	792.2	81.1%
Urban-Woodland Complex	2,606.5	1,890.0	38.3%
Water	37.9	37.9	0.2%
Wet-Mesic and Wet Pine Savannas	209.4	209.4	1.2%
Xeric and Dry-Mesic Pine Savannas	2,963.7	1,890.0	7.8%

Source*: MCB Camp Lejeune 2008d.*

Total Ecological Area Acreages for MCB Camp Lejeune/MCAS New River

Ecological Area	Acreage
Broad Pocosins	16822.6400
Drainage Slopes	8763.3500
Inland Tidal Marshes and Tidal Swamps	1398.7900
Interstream Flats	8462.5600
Maritime Dunes, Swales, and Marshes	3594.4300
Maritime Influenced Woodlands and Savannas	7399.7000
Mesic Pine Savannas	13916.1200
Other Altered Lands	1656.7500
Pocosin Fringes	7725.9400
Small Stream Swamps and Streamhead Pocosins	8692.6500
Urban Areas	977.3400
Urban-Woodland Complex	4938.7500
Water	18918.3000
Wet-Mesic and Wet Pine Savannas	17826.0400
Xeric and Dry-Mesic Pine Savannas	24315.0200

Source: MCB Camp Lejeune 2008d.

Ecological Areas Impacted at MCAS Cherry Point

Ecological Area	Total in Area of Construction	Maximum Amount Potentially Impacted	Percent of Basewide
Ordnace Area			
Hardwood	6.2	6.2	0.9%
Hardwood Pine	66.2	61.0	11.7%
Military Facilities	158.3	61.0	2.4%
Pine	583.4	61.0	1.4%
Pine Hardwood	108.4	61.0	4.1%
West Quadrant			
Airfiled	4.0	4.0	0.8%
Grasslands	48.1	48.1	3.0%
Hardwood	0.1	0.1	0.0%
Hardwood Pine	0.2	0.2	0.0%
Military Facilities	1,025.1	85.0	3.3%
Pine	48.8	48.8	1.2%
Pine Hardwood	10.9	10.9	0.7%
North Quadrant			
Military Facilities	38.2	31.0	1.2%
Pine	97.5	31.0	0.7%
Pine Hardwood	9.0	9.0	0.6%
Grasslands	59.2	31.0	1.9%
Airfield	29.2	29.2	6.0%
MCAS 2 Compound			
Military Facilities	32.7	2.0	0.1%
Pine	2.5	2.0	0.0%
MCAS Cherry Point Total			
Airfield	33.2	33.2	6.8%
Grasslands	107.3	107.3	6.6%
Hardwood	6.3	6.3	0.9%
Hardwood Pine	66.4	66.4	12.7%
Military Facilities	1254.3	179.0	7.0%
Pine	732.3	179.0	4.2%
Pine Hardwood	128.3	128.3	8.6%

Source*: MCB Camp Lejeune 2008d.*

Total Ecological Area Acreages for MCB Camp Lejeune/MCAS New River

Ecological Area	Acreage
Airfield	484.9302
Grasslands	1630.7237
Hardwood	670.0327
Hardwood Pine	522.3439
Military Facilities	2570.5972
Pine	4221.9549
Pine Hardwood	1499.3253

Source: MCB Camp Lejeune 2008d.

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
1	PIED-B GREBE (*Podilymbus podiceps*) Status: NAWCP Family: *Podicipedidae*	X	X	X	Breeds on seasonal or permanent ponds or lakes with dense stands of emergent vegetation, bays and sloughs. Uses most types of wetlands or sheltered saltwater bays in winter.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in southern US
2	HORNED GREBE (*Podiceps auritus*) Status: NAWCP Family: *Podicipedidae*	X	X	X	Breeds on small to moderate-sized, shallow freshwater ponds and marshes. Winters along coasts and on large bodies of water.	Migratory (in area for winter non-breeding)	
3	LEAST BITTERN (*Ixobrychus exilis)* Status: NAWCP Family: *Ardeidae*	X	X	X	Freshwater or brackish marshes with tall, dense emergent vegetation including sedges and cattails.	Migratory (in area for summer breeding)	
4	GT. BLUE HERON (*Ardea herodias*) Status: NAWCP Family: *Areidae*	X	X	X	Found along marshes, swamps, rivers, lake edges, tidal flats, mangroves, and seacoasts. Usually nests in trees near water, but colonies can be found away from water.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in southern US
5	LITTLE BLUE HERON (*Egretta caerulea*) Status: NCWRC-SC, BCC, NAWCP Family: *Areidae*	X	X	X	Swamps, inland marshes, estuaries, rivers, ponds, lakes, and coastal areas.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
6	TRICOLOR HERON (*Egretta tricolor*) Status: NCWRC-SC, NAWCP Family: *Areidae*	X	X	X	Marshes, shores, mudflats, and tidal creeks.	Year Round	
7	GREEN HERON (*Butorides virescens*) Status: NAWCP Family: *Areidae*	X	X	X	Breeds in swampy thickets. Forages in swamps, along creeks and streams, in marshes, ponds, lake edges, salt marshes, ponds and pastures. Winters mostly in coastal areas, especially mangrove swamps.	Migratory (in area for summer breeding)	
8	BLK-CRWN NGT-HERON (*Nycticorax nycticorax*) Status: NAWCP Family: *Areidae*	X	X	X	Various wetland habitats, including salt, brackish, and freshwater marshes, swamps, streams, lakes, and agricultural fields.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
9	GREAT EGRET (*Ardea alba*) Status: NAWCP Family: *Ardeidae*	X	X	X	Nests in colonies with other species, in shrubs and trees over water, and on islands. Feeds in variety of wetlands, including marshes, swamps, streams, rivers, ponds, lakes, tide flats, seashores, canals, and flooded fields.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
10	SNOWY EGRET (*Egretta thula*) Status: NCWRC-SC, NAWCP Family: *Areidae*	X	X	X	Coastal areas, marshes, river valleys, lake edges.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
11	CATTLE EGRET (*Bubulcus ibis*) Status: NAWCP Family: *Areidae*	X	X	X	Breeds in colonies with other herons on islands, isolated woods, and swamps. Found foraging in many habitats, terrestrial and aquatic, such as ponds, cattle pasture, roadsides, farmland, dumps, parks, sports fields, and lawns.	Migratory (in area for summer breeding)	
12	SANDHILL CRANE (*Grus canadensis*) Status: NAWCP Family: *Gruinae*	X			Breeds in open marshes or bogs, and in wet grasslands and meadows. Feed in marshes and grain fields. Summers on praires and tundra; during winter, roosts on shallow water and feeds in agricultrual fields.	Not present at all in area	
13	WIILD TURKEY (*Meleagris gallopavo*) Status: Family: *Phasianidae*		X	X	Found in hardwood forests with scattered openings, wooded swamps, mesquite grassland, ponderosa pine, anc chaparral	Year Round	
14	N. BOB-WHITE (*Colinus virginianus*) Status: Family: Odontophoridae			X	Found in farmland, bushy fields, and open woodland.	Year Round	
15	WHITE IBIS (*Eudocimus albus*) Status: NAWCP Family: *Threskiornithidae*	X	X	X	Salt, brackish, and fresh marshes, rice fields, mangroves. May forage in any kind of shallow water, commonly flying to feed in fresh water even in coastal regions. Foraging sites include marshes, mudflats, flooded pastures, lake edges, mangrove lagoons, grassy fields. Nests in mangroves, trees in swamps, dense thickets, sometimes on ground on islands or in marshes.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
16	GLOSSY IBIS (*Plegadis falcinellus*) Status: NCWRC-SC, NAWCP Family: *Threskiornithidae*	X	X	X	At edges of fresh, brackish, and salt water.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
17	CANADA GOOSE (*Branta canadensis*) Status: NAWMP, GBBDC Family: *Anatidae*	X	X	X	Breeds in a broad range of habitats from low Arctic tundra to prairies and parklands, including lakes, meadows, golf courses, and city parks.	Migratory (in area for winter non-breeding)	
18	SNOW GOOSE *(Chen caerulescens)* Status: GBDC Family: *Anatidae*	X	X	X	Breeds on subarctic and arctic tundra, near ponds or streams. Winters in coastal marshes and bays, wet grasslands, freshwater marshes, and cultivated fields.	Migratory (in area for winter non-breeding)	
19	WOOD DUCK (*Aix sponsa*) Status: GBBDC Family: *Anatidae*	X	X	X	Found in forested wetlands, including along rivers, swamps, marshes, ponds, and lakes.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in southern US
20	AM. BLACK DUCK *(Anas rubripes)* Status: NAWMP, GBBDC Family: *Anatidae*	X	X	X	Breeds in a variety of wetland habitats, from salt marshes to beaver ponds, river islands, and boreal bogs. Winters primarily in salt water along coasts, but in a variety of freshwater areas inland.	Migratory (in area for winter non-breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
21	MALLARD (*Anas platyrhynchos*) Status: NAWMP, GBBDC Family: *Anatidae*	X	X	X	Found in all wetland habitats, lakes, rivers, bays, and parks.	Migratory (in area for winter non-breeding)	
22	BLUE-WINGED TEAL (*Anas discors*) Status: NAWMP Family: *Anatidae*	X	X	X	Shallow ponds, small lakes and open grasslands, and seasonal and permanent wetlands; winters on marshes and protected coastal areas.	Year Round	Year round in eastern NC, but migratory elsewhere
23	GREEN-WINGED TEAL (*Anas crecca*) Status: NAWMP Family: *Anatidae*	X	X	X	Shallow freshwater ponds and lakes with lots of emergent vegetation. Along the coast in winter, it prefers tidal creeks, rivers, mudflats, and sheltered marshes to more open water.	Migratory (in area for winter non-breeding)	
24	CINNAMON TEAL (*Anas cyanoptera*) Status: NAWMP Family: *Anatidae*	X	X	X	Uses freshwater (including highly alkaline) seasonal and semipermanent wetlands of various sizes, including large marshes, open shallow lakes, reservoirs, sluggish streams, ditches, and stock ponds.	Not present at all in area	
25	LONG-TAILED DUCK (*Clangula hyemalis*) Status: NAWMP Family: *Anatidae*	X	X	X	Breeds in tundra lakes, ponds, streams, coastal inlets, and other arctic wetlands . Winters on open ocean or on large freshwater lakes.	Not present at all in area	
26	NORTHERN PINTAIL (*Anas acuta*) Status: GBBDC, NAWMP Family: *Anatidae*	X	X	X	Nests in open country with shallow, seasonal wetlands or ponds and low vegetation. Winters in wide variety of shallow inland freshwater and intertidal habitats such as coastal bays, lakes, and agricultural fields.	Migratory (in area for winter non-breeding)	
27	N. SHOVELER (*Anas clypeata*) Status: NAWMP Family: *Anatidae*	X	X	X	Breeds in open, shallow wetlands and lakes. In winter, inhabits both freshwater and saline marshes as well as protected coastal areas.	Migratory (in area for winter non-breeding)	
28	AM. WIGEON (*Anas americana*) Status: GBBDC, NAWMP Family: *Anatidae*	X	X	X	Shallow freshwater wetlands, including ponds, lakes, marshes, and rivers. Winters on wet meadows, lakes, protected coastal waters.	Migratory (in area for winter non-breeding)	
29	GADWALL (*Anas strepera*) Status: NAWMP Family: *Anatidae*	X	X	X	Open lakes and marshes.	Migratory (in area for winter non-breeding)	
30	LESSER SCAUP (*Aythya affinis*) Status: NAWMP, GBBDC Family: *Anatidae*	X	X	X	Summers on prairie lakes and marshes; winters on lakes, sheltered coastal areas, freshwater ponds.	Migratory (in area for winter non-breeding)	
31	HOODED MERGANSER (*Lophodytes cucullatus*) Status: NAWMP Family: *Anatidae*	X	X	X	Breeds in forested wetlands and wooded rivers and lakes. In migration and in winter found in wider range of open waters, along coasts, and in shallower waters than other mergansers.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in eastern US

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
32	RED-BR MERGANSER (*Mergus serrator*) Status: NAWMP Family: *Anatidae*	X	X	X	Summers on rivers and lakes; winters along sheltered coastal waters, preferring salt water.	Migratory (in area for migration)	
33	MOTTLED DUCK (*Anas fulvigula*) Status: GBBDC Family: *Anatidae*	X	X	X	Freshwater wetlands, ditches, wet prairies, and seasonally flooded marshes.	Not present at all in area	
34	RING-NECKED DUCK (*Aythya collaris*) Status: GBBDC Family: *Anatidae*	X	X	X	Summers on open lakes, marshes; winters on large lakes and coastal areas.	Migratory (in area for winter non-breeding)	
35	REDHEAD (*Aythya americana*) Status: NAWMP, GBBDC Family: *Anatidae*	X	X	X	Nests in marshes, open lakes, and bays; often winters on saltwater.	Migratory (in area for winter non-breeding)	
36	RUDDY DUCK (*Oxyura jamaicensis*) Status: NAWMP Family: *Anatidae*	X	X	X	Summers on open lakes and freshwater marshes, marshy lakes, and ponds; winters along coast, marshes, and shallow coastal bays.	Migratory (in area for winter non-breeding)	
37	CLAPPER RAIL (*Rallus longirostris*) Status: NAWCP Family: *Rallidae*	X	X	X	Salt marshes and mangrove swamps.	Year Round	
38	VIRGINA RAIL (*Rallus limicola*) Status: NAWCP Family: *Rallidae*	X	X	X	Freshwater marshes; occasionally inhabits salt marshes. Lives in dense emergent vegetation.	Migratory (in area for winter non-breeding)	
39	SORA (*Porzana carolina*) Status: NAWCP Family: *Rallidae*	X	X	X	Breeds in shallow salt and freshwter marshes with lots of emergent vegetation.	Migratory (in area for winter non-breeding)	
40	COMMON MOORHEN (*Gallinula chloropus*) Status: NAWCP Family: *Rallidae*	X	X	X	Freshwater or brackish marshes with tall emergent vegetation, ponds, canals, and rice fields.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
41	AMERICAN COOT (*Fulica americana*) Status: NAWCP Family: *Rallidae*	X	X	X	Summers on marshy lakes; winters also along the coast.	Migratory (in area for winter non-breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
42	WHIMBREL (*Numenius phaeopus*) Status: BCC, USSCP Family: *Scolopacidae*	X			Breeds in various tundra habitat, from wet lowlands to dry heath. In migration, frequents various coastal and inland habitats, including fields and beaches. Winters in tidal flats and shorelines, occasionally visiting inland habitats.	Migratory (in area for winter non-breeding)	
43	BLACK- BELLIED. PLOVER (*Pluvialis squatarola*) Status: NAWCP Family: *Charadriidae*	X	X	X	Nests in Arctic lowlands on dry tundra. Winters on coastal beaches, mudflats, and estuaries. May use flooded pasture and agricultural land.	Migratory (in area for winter non-breeding)	
44	WILSON'S PLOVER (*Charadrius wilsonia*) Status: NAWCP Family: *Charadriidae*	X	X	X	Sandy beaches, shell beaches, barrier islands, borders of salt ponds, tidal mudflats, and savanna pools, rarely far from coastal areas.	Migratory (in area for winter non breeding)	
45	SEMIPALMATED PLOVER (*Charadrius semipalmatus)* Status: Family: *Charadriidae*	X	X	X	The semipalmated plover breeds from Alaska to Newfoundland and Nova Scotia. It winters along the coasts from California and the Carolinas south. Common on beaches, lakeshores, and tidal flats.	Migratory (in area for winter non breeding)	
46	RUDDY TURNSTONE (*Arenaria interpres*) Status: USSCP Family: *Scolopacidae*	X			Breeds on rocky arctic coasts and tundra. On migration and in winter, mostly along rocky shores, but also sand beaches and mudflats.	Migratory (in area for winter non-breeding)	
47	BLACK-NECKED STILT (*Himantopus mexicanus*) Status: USSCP (Hawaiian population) Family: *Recurvirostridae*	X	X	X	Shallow fresh and saltwater wetlands, including salt ponds, rice fields, shallow lagoons, mangrove swamps, ditches, ponds salt ponds, or fields.	Migratory (in area for summer breeding)	
48	AMERICAN AVOCET (*Recurvirostra americana*) Status: Family: *Recurvirostridae*	X	X	X	Preferred habitats include freshwater marshes and shallow, marshy lakes. Breeds locally in salt or brackish marshes; often moves to coasts during winter.	Migratory (in area for winter non-breeding)	
49	GREATER YELLOWLEGS (*Tringa melanoleuca*) Status: Family: *Scolopacinae*	X	X	X	Breeds in muskeg, wet bogs with small wooded islands ,and subarctic forests (usually coniferous) with abundant clearings. Winters in wide variety of shallow fresh and saltwater habitats.	Migratory (in area for winter non-breeding)	
50	LESSER. YELLOWLEGS (*Tringa flavipes*) Status: Family: *Scolopacidae*	X	X	X	Breeds in open boreal forest with scattered shallow wetlands. Winters in wide variety of shallow fresh and saltwater habitats.	Migratory (in area for winter non-breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
51	SOLITARY SANDPIPER (*Tringa solitaria*) Status: USSCP Family: *Scolopacidae*	X	X	X	Breeds in taiga or boreal bogs, nesting in trees in deserted songbird nests. In migration and winter found along freshwater ponds, stream edges, temporary pools, flooded ditches and fields, more commonly in wooded regions, less frequently on mudflats and open marshes.	Migratory (in area for migration)	
52	WILLET (*Catoptrophorus semipalmatus*) Status: Family: *Scolopacidae*	X	X	X	Summers on coastal marshes in East and prairie marshes in West; winters on coastal marshes, beaches, and mudflats.	Migratory (in area for winter non-breeding)	
53	SPOTTED SANDPIPER (*Actitis macularius*) Status: Family: *Scolopacidae*	X	X	X	Breeds in a variety of habitats, such as shoreline (rivers, lakes, seashore), sagebrush, grassland, forest, lawn, or park. Territories must include some shoreline of a stream, lake, or pond. Winters wherever water is present.	Migratory (in area for migration)	
54	RED KNOT (*Calidris canutus*) Status: BCC, USSCP Family: *Scolopacidae*	X	X	X	Breeds in drier tundra areas, such as sparsely vegetated hillsides. Outside of breeding season, it is found primarily in intertidal, marine habitats, especially near coastal inlets, estuaries, and bays.	Migratory (in area for winter non-breeding)	
55	SANDERLING (*Calidris alba*) Status: USSCP Family: *Scolopacidae*	X	X	X	Nests on islands and coastal tundra of high Arctic. On migration and in winter prefers sandy beaches.	Migratory (in area for winter non-breeding)	
56	SEMIPLAMATED SANDPIPER (*Calidris pusilla*) Status: BCC Family: *Scolopacidae*	X	X	X	Breeds on open tundra, generally near water. Winters and migrates along mudflats, sandy beaches, shores of lakes and ponds, and wet meadows.	Migratory (in area for migration)	
57	WESTERN SANDPIPER (*Calidris mauri*) Status: USSCP Family: *Scolopacidae*	X	X	X	Breeds in coastal sedge-dwarf tundra. Migrates and winters along mudflats, beaches, shores or lakes and ponds, and flooded fields.	Migratory (in area for winter non-breeding)	
58	LEAST SANDPIPER (*Calidris minutilla*) Status: Family: Scolopacidae	X	X	X	Breeds in mossy or wet grassy tundra and tundra near tree line, occasionally in drier areas with scattered scrubby bushes. Migrates and winters in wet meadows, mudflats, flooded fields, shores of pools and lakes, and, less frequently, sandy beaches.	Migratory (in area for winter non-breeding)	
59	WHITE-RUMP. SANDPIPER (*Calidris fuscicollis*) Status: Family: *Scolopacidae*	X	X	X	Breeds in mossy or grassy tundra near water. On migration and during winter found in grassy marshes, mudflats, sandy beaches, flooded fields, and shores of ponds and lakes.	Migratory (in area for migration)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
60	DUNLIN (*Calidris alpina*) Status: USSCP (Alaska-East Asian and Alaska-Pacific Coast populations) Family: *Scolopacidae*	X	X	X	Breeds in wet coastal tundra. Winters along mudflats, estuaries, marshes, flooded fields, sandy beaches, and shores of lakes and ponds.	Migratory (in area for winter non-breeding)	
61	STILT SANDPIPER *(Calidris himantopus)* Status: BCC Family: *Scolopacidae*	X	X	X	Breeds in sedge tundra near water, often near wooded borders of the taiga. On migration and in winter found along mudflats, flooded fields, shallow ponds and pools, and marshes.	Migratory (in area for migration)	
62	COMMON SNIPE (*Gallinago gallinago*) Status: Family: *Scolopacidae*	X	X	X	Breeds in bogs, fens, swamps, and around the marshy edges of ponds, rivers, and brooks. Forages in marshes, wet meadows, wet fields, and the marshy edges of streams and ditches.	Migratory (in area for winter non-breeding)	
63	AMERICAN WOODCOCK (*Scolopax minor*) Status: USSCP, GBBDC Family: *Scolopacidae*	X	X	X	Forests and thickets with openings, shrubby areas, meadows.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in south eastern US
64	LAUGHING GULL (*Larus atricilla*) Status: NAWCP Family: *Laridae*	X	X	X	Nests in marshes, on beaches, and on islands along coast. Found along coasts, in estuaries, bays, and inland lakes. Feeds along the ocean, on rivers, at landfills, and in urban parks.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
65	BONAPART'S GULL (*Larus philadelphia)* Status: NAWCP Family: *Laridae*	X	X	X	Summers in northern coniferous forests. Breeds around lakes and marshes in boreal forest. Winters along lakes, rivers, marshes, bays, beaches along coasts, and inland waterways.	Migratory (in area for migration)	
66	RING-BILLED GULL (*Larus delawarensis*) Status: NAWCP Family: *Laridae*	X	X	X	Nests on islands. Found around fresh water, landfills, golf courses, farm fields, shopping areas, and coastal beaches.	Migratory (in area for winter non-breeding)	
67	HERRING GULL (*Larus argentatus*) Status: NAWCP Family: *Laridae*	X	X	X	Breeds on islands. Forages and winters at sea, along beaches and mudflats, lakes, rivers, fields, at dumps, and other areas where human-produced food is available. Rests in open areas, including parking lots, fields, and airports.	Year Round	Year round residents for the north eastern and mid-Atlantic coastal US, but migratory elsewhere
68	GRT.BLK-BK GULL (*Larus marinus*) *Staus: NAWCP Family: *Laridae*	X	X	X	Breeds on small islands, salt marshes, spoil islands, and barrier beaches. Most common throughout the year along coast. Travels far out to sea in winter.	Migratory (in area for winter non-breeding)	
69	CASPIAN TERN (*Sterna caspia*) Status: NAWCP Family: *Laridae*	X	X	X	Breeds in wide variety of habitats along water, such as salt marshes, barrier islands, dredge spoil islands, freshwater lake islands, and river islands. During migration and winter found along coastlines, large rivers and lakes. Roosts on islands and isolated spits.	Migratory (in area for migration)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
70	ROYAL TERN (*Sterna maxima*) Status: NAWCP Family: *Laridae*	X	X	X	Coast.	Migratory (in area for winter non-breeding)	
71	SANDWICH TERN (*Sterna sandvicensis*) Status: NAWCP Family: *Laridae*	X	X	X	Seacoasts, bays, estuaries, and mudflats, occasionally ocean far from land.	Migratory (in area for summer breeding)	
72	COMMON TERN (*Sterna hirundo*) Status: NCWRC-SC, BCC, NAWCP Family:*Laridae*	X	X	X	Nests on islands, marshes, and sometimes beaches of lakes and ocean.	Migratory (in area for migration)	
73	FORSTER'S TERN (*Sterna forsteri*) Status: NAWCP Family: *Laridae*	X	X	X	Breeds in marshes, generally with lots of open water and large stands of island-like vegetation. Winters in marshes, coastal beaches, lakes, and rivers.	Migratory (in area for winter non-breeding)	
74	LEAST TERN (*Sterna antillarum*) Status: NCWRC-SC, E, BCC, NAWCP Family: *Laridae*	X	X	X	Seacoasts, beaches, bays, estuaries, lagoons, lakes and rivers, breeding on sandy or gravelly beaches and banks of rivers or lakes, rarely on flat rooftops of buildings.	Migratory (in area for summer breeding)	
75	BLACK TERN (*Chlidonias niger*) Status: BCC, NAWCP Family: *Laridae*	X	X	X	Summers on wet meadows, marshes, ponds; winters on coast and at sea.	Migratory (in area for migration)	
76	KILLDEER (*Charadrius vociferus*) Status: Family: *Charadriidae*	X	X	X	Open areas, especially sandbars, mudflats, pastures, cultivated fields, athletic fields, airports, golf courses, gravel parking lots, and graveled rooftops. Suburban or rural.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
77	EAST.WOOD-PEWEE (*Contopus virens*) Status: Family: *Tyrannidae*	X	X	X	Breeds in all woodland types in the east. Winters in partially cleared shrubby habitats and secondary forests.	Migratory (in area for summer breeding)	
78	ACADIAN FLYCTHR (*Empidonax virescens*) Status: Family: *Tyrannidae*	X			Breeds in mature forest, especially deciduous woods, along streams, in ravines, and in swamps. Winters in lowland tropical forest and second growth.	Migratory (in area for summer breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
79	EASTERN PHOEBE (*Sayornis phoebe*) Status: Family: *Tyrannidae*	X	X	X	Found in woodlands and along forest edges, often near water, farmlands, suburbs; nests on bridges, outbuildings.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in parts of southern US
80	GT.CRST FLYCTCHR (*Myiarchus crinitus*) Status: Family: *Tyrannidae*	X	X		Breeds in open deciduous woodlands, old orchards, riparian corridors, wooded swamps, parks, cemeteries, and urban areas with large shade trees. Winters in humid forests and second growth.	Migratory (in area for summer breeding)	
81	EASTERN KINGBIRD (*Tyrannus tyrannus*) Status: Family: *Tyrannidae*	X		X	Breeds in open environments with scattered perches, such as fields, orchards, shelterbelts, and forest edges. Uses urban parks and golf courses. Winters in river- and lake-edge habitats and canopy of tropical forests.	Migratory (in area for summer breeding)	
82	LOGGERHEAD SHRIKE (*Lanius ludovicianus*) Status: NCWRC-SC Family: *Laniidae*	X			Open country with some shrubs and trees.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of southern US
83	PURPLE MARTIN (*Progne subis*) Status: Family: *Hirundinidae*	X			Breeds near human settlements where nest houses are provided, especially near water and large open areas. Also in saguaro cactus, and in western montane forests around beaver ponds. In winter, feeds in rainforest, clearings, and agricultural areas; may roost in village plazas.	Migratory (in area for summer breeding)	
84	TREE SWALLOW (*Tachycineta bicolor*) Status: Family: *Hirundinidae*	X			Open areas near water and fields, especially wooded swamps and shorelines.	Migratory (in area for migration)	
85	N. RGH-WING SWAL (*Stelgidopteryx serripennis*) Status: Family: *Hirundinidae*	X			Breeds in a wide variety of open habitats, with openings in various vertical surfaces, including banks, gorges, and human structures, especially near water and cutaway banks.	Migratory (in area for summer breeding)	
86	BANK SWALLOW (*Riparia riparia*) Status: Family: *Hirundinidae*	X			Open areas near water with cutaway banks.	Migratory (in area for migration)	
87	CLIFF SWALLOW (*Petrochelidon pyrrhonota*) Status: Family: *Hirundinidae*	X			Breeds in a variety of habitats with open foraging areas and cliffs or buildings for nesting. Avoids heavy forest, desert, or high mountains.	Migratory (in area for migration)	
88	BARN SWALLOW (*Hirundo rustica*) Status: Family: *Hirundinidae*	X			Found in many habitats with open areas for foraging and structures for nesting, including agricultural areas, cities, and along highways. Needs mud for nest building.	Migratory (in area for summer breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
89	CAVE SWALLOW (*Petrochelidon fulva*) Status: Family: *Hirundinidae*	X			Nests in some natural or human-made structure (cave, sinkhole, building, silo, bridge, culvert). During the day forages over nearby open areas, often near water.	Not present at all in area	
90	CAROLINA CHICKADEE (*Poecile carolinensis*) Status: Family: *Paridae*	X	X	X	Deciduous and mixed deciduous/coniferous woodlands, swamps, riparian areas, open woods and parks. Also in suburban and urban areas.	Year Round	
91	TUFTED TITMOUSE (*Baeolophus bicolor*) Status: Family: *Paridae*	X	X		Deciduous forest, swamps, orchards, parks, and suburban areas.	Year Round	
92	WHT-BRSTD NTHTCH (*Sitta carolinensis*) Status: Family: *Sittidae*	X		X	Found in mature deciduous forests or mixed woods, especially near openings and edges. Also parks and suburbs with large trees.	Year Round	
93	BROWN-HD.NTHTCH (*Sitta pusilla*) Status: BCC, PIF Family: *Sittidae*	X		X	Pine forests, especially in open, mature forests with periodic fires.	Year Round	
94	RED-BRST NTHTCH (*Sitta canadensis*) Status: Family: *Sittidae*	X			Mature and diverse stands of coniferous forests, especially spruce, fir, larch, and cedar. Also suburban habitat with sufficient conifers.	Migratory (in area for winter non-breeding)	
95	BROWN CREEPER (*Certhia americana*) Status: NCWRC-SC Family: *Certhiidae*	X	X	X	Coniferous and mixed coniferous-deciduous forests.	Migratory (in area for winter non-breeding)	
96	CAROLINA WREN (*Thryothorus ludovicianus*) Status: Family: *Troglodytidae*	X	X		Found in a wide range of habitats, from swamps to forest to rural or residential areas. Requires moderately dense shrub or brushy cover, such as forest understory or vines.	Year Round	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
97	HOUSE WREN (*Troglodytes aedon*) Status: Family: *Troglodytidae*	X	X		Breeds along forest edges and in open woodlands, city parks, and residential areas with trees. Also in mountain forests and clearings, and aspen groves. Winters in thickets, shrubby areas, residential yards and gardens, chaparral, and riparian areas.	Migratory (in area for winter non-breeding)	
98	MARSH WREN (*Cistothorus palustris*) Status: Family: *Troglodytidae*	X			Nests in variety of marshes, especially with dense cattails and rushes.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
99	WINTER WREN (*Troglodytes troglodytes*) Status: Family: *Troglodytidae*	X			Breeds in many different habitat types, from cliff faces to rocky woodland streams to various forests; occurs in greatest densities in coniferous forests. Prefers areas with fallen logs and other dead wood. Winters in woods, wood piles, and tangles.	Migratory (in area for winter non-breeding)	
100	SEDGE WREN (*Cistothorus platensis*) Status: Family: *Troglodytidae*	X			Nests in dense tall sedges and grasses in wet meadows, hayfields, and marshes, often with sedges. Avoids cattails. Winters in grassy marshes, coastal marshes, and dry grass fields.	Migratory (in area for winter non-breeding)	
101	RUBY-CRWN KINGLET (*Regulus calendula*) Status: Family: *Regulidae*	X			Summers in coniferous woods; winters in woods and brushy edges.	Migratory (in area for winter non-breeding)	
102	GOLDEN-CRWN KINGLET (*Regulus satrapa*) Status: Family: *Regulidae*	X			Breeds in spruce and fir forests, as well as some mixed coniferous-deciduous forests. Winters in woods and brushy edges.	Migratory (in area for winter non-breeding)	
103	BLU-GRAY GNTCTCHR (*Polioptila caerulea*) Status: Family: Sylviidae	X		X	Breeds in variety of deciduous wooded habitats from shrubland to mature forest, especially near water. Also in swamps.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
104	EASTERN BLUEBIRD (*Sialia sialis*) Status: Family: *Turdidae*	X			Open habitat with little or no understory and sparse groundcover, such as orchards, clear-cuts, parks, and large lawns in suburban and urban areas.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in south eastern US
105	WOOD THRUSH (*Hylocichla mustelina*) Status: BCC, PIF Family: *Turdidae*	X	X		Breeds in the interior and edges of deciduous and mixed forests, in rural to urban areas, generally in cool, moist sites, often near water.	Migratory (in area for summer breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
106	HERMIT THRUSH (*Catharus guttatus*) Status: Family: *Turdidae*	X			Breeds in interior of deciduous, mixed, and coniferous forest, favoring internal forest edges. Winters in moist and dense cover of woody growth, forests, open woodlands, and in the northern part of range especially in ravines and sheltered sites.	Migratory (in area for winter non-breeding)	
107	LA.WATERTHRUSH (*Seiurus motacilla*) Status: Family: *Parulidae*	X			Breeds along w ooded ravines near mountain, gravel-bottomed brooks and streams flowing through hilly, deciduous forest. Winters in similar habitat.	Migratory (in area for migration)	
108	N. WATERTHRUSH (*Seiurus noveboracensis*) Status: Family: *Parulidae*	X			Breeds in willow thickets near slow-moving streams or rivers, lake shores, wooded ponds, swamps, and bogs; in migration and winter, uses a variety of wooded habitats, generally near water, often in mangroves.	Migratory (in area for migration)	
109	BELT. KINGFISHER (*Megaceryle alcyon*) Status: Family: *Alcedinidae*	X			Breeds along streams, rivers, lakes, estuaries, and coastal bays with banks for nest holes. Winters along coast, streams, and lakes.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
110	AMERICAN ROBIN (*Turdus migratorius*) Status: Family: *Turdidae*	X			Found in from woods to open lawns and plains to timberline, especially where short-grass areas are interspersed with shrubs and trees. Common in urban and suburban areas.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
111	GRAY CATBIRD (*Dumetella carolinensis*) Status: Family: *Mimidae*	X			Found in dense, shrubby habitats with tangled thickets, such as abandoned farmland, fencerows, roadsides, streamsides, forest edges, and some residential areas.	Year Round	Year round residents for the eastern coastal US, but migratory elsewhere
112	N. MOCKINGBIRD (*Mimus polyglottos*) Status: Family: *Mimidae*	X			Found in areas with open ground and shrubby vegetation, such as in parkland, cultivated land, and suburbs.	Year Round	
113	BROWN THRASHER (*Toxostoma rufum*) Status: Family: *Mimidae*	X			Breeds in brushy open country in thickets, shelter belts, riparian areas, and suburbs. Winters in hedgerows, gardens, thickets, and brushy woodland edges.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in south eastern US
114	CEDAR WAXWING (*Bombycilla cedrorum*) Status: Family: B*ombycillidae*	X			Breeds in open woodland, old fields with shrubs and small trees, riparian areas, farms, and suburban gardens. Winters in areas with fruit-bearing trees and shrubs, especially open woodlands, parks, gardens, and forest edges.	Migratory (in area for winter non-breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
115	EUR. STARLING (*Sturnus vulgaris*) Status: Family: *Sturnidae*	X			Uses a variety of habitats with open country, fields, and trees for nesting; especially near people in agricultural and urban areas.	Year Round	
116	WHITE-EYED VIREO (*Vireo griseus*) Status: Family: *Vireonidae*	X			Found in deciduous scrub, dense understory, thickets, hedgerows, overgrown pastures, old fields, wood margins, streamside thickets, and mangroves.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
117	SOL. (BLU-HD) VIREO (*Vireo solitarius*) Status: Family: *Vireonidae*	X			Cool forests.	Migratory (in area for winter non-breeding)	
118	YEL-THRT VIREO (*Vireo flavifrons*) Status: Family: *Vireonidae*	X			Breeds in a variety of edge habitats in mature deciduous and mixed deciduous forests.	Migratory (in area for summer breeding)	
119	RED-EYED VIREO (*Vireo olivaceus*) Status: Family: *Vireonidae*	X			Breeds in deciduous and mixed deciduous forests. More abundant in forest interior. Lives in urban areas and parks with large trees.	Migratory (in area for summer breeding)	
120	YEL-BRSTED CHAT (*Icteria virens*) Status: Family: *Parulidae*	X			Dense second-growth, riparian thickets, and brushy edges in dry or moist areasj.	Migratory (in area for summer breeding)	
121	ORCHARD ORIOLE (*Icterus spurius*) Status: BCC Family: *Icteridae*	X			Nests in gardens, orchards, open woods, wetlands, suburban areas, parks, along streams and lakes, and in large planted trees near houses. In winter found in tropical forests.	Migratory (in area for summer breeding)	
122	BLUE JAY (*Cyanocitta cristata*) Status: Family: Corvidae	X		X	Found in deciduous, coniferous, and mixed forests and woodlands. Found more along forest edges than in deep forest. Common in urban and suburban areas, especially where large oaks are present.	Year Round	
123	N. CARDINAL (*Cardinalis cardinalis*) Status: Family: Cardinalidae	X		X	Areas with shrubs and small trees, including forest edges, hedgerows, and suburbs.	Year Round	

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No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
124	AMERICAN CROW (*Corvus brachyrhynchos*) Status: Family: *Corvidae*	X			Variety of habitats. Requires open ground for feeding and scattered trees for roosting, nesting, and refuge.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
125	FISH CROW (*Corvus ossifragus*) Status: Family: *Corvidae*	X		X	Primarily coastal, along beaches and marshes into forests. Usually near water, but breeds in urban areas and farmland away from coast and large bodies of water. Common at dumps and in urban areas.	Year Round	
126	ROS-BRSTD GRSBK (*Pheucticus ludovicianus*) Status: Family: Cardinalidae	X			Breeds in deciduous and mixed woodlands, especially at the edges, mixed shrubs and trees, second-growth woodlands, orchards, suburban parks and gardens. Winters in open tropical forest.	Migratory (in area for migration)	
127	RED-WING BLACKBIRD (*Agelaius phoeniceus*) Status: Family: *Icteridae*	X			Breeds in a variety of wetland and grassy areas, including marshes, meadows, alfalfa fields, and open patches in woodlands.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
128	RUSTY BLKBIRD (*Euphagus carolinus*) Status: Family: *Icteridae*	X			Breeds in wet forests, including areas with fens, bogs, muskeg, and beaver ponds. Winters in swamps, wet woodlands, pond edges, and woods or fields near water.	Migratory (in area for winter non-breeding)	
129	BOBOLINK (*Dolichonyx oryzivorus*) Status: Family: Icteridae	X			Breeds in open grasslands and hay fields. In migration and in winter uses freshwater marshes, grasslands, rice and sorghum fields.	Migratory (in area for migration)	
130	EAST. MEADOWLARK (*Sturnella magna*) Status: Family: *Icteridae*	X		X	Grasslands, meadows, pastures, and hayfields, as well as croplands, golf courses, and other open habitat.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of eastern US
131	BOAT-TAIL GRACKLE (*Quiscalus major*) Status: Family: *Icteridae*	X			Found in freshwater and salt marshes, open upland habitats, parks, lakes, cities, and agricultural fields, usually near the coast. Nests in marshes.	Year Round	
132	COMMON GRACKLE (*Quiscalus quiscula*) Status: Family: *Icteridae*	X			Found in a variety of open areas with scattered trees, including open woodland, boreal forest, swamps, marshes, agricultural areas, urban residential areas, and parks.	Year Round	Migrate in the winter from the northern and western extent of their range, but stay year round in most of eastern US

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
133	BRN-HEAD COWBIRD (*Molothrus ater*) Status: Family: *Icteridae*	X			Breeds in areas with grassland and low or scattered trees, such as woodland edges, brushy thickets, fields, prairies, pastures, orchards, and residential areas.	Year Round	Migrate in the winter from the northern and western extent of their range, but stay year round in most of eastern US
134	NORTH. PARULA W. (*Parula americana*) Status: BCC, PIF Family: *Parulidae*	X			Deciduous and coniferous foressts, usually near water.	Migratory (in area for summer breeding)	
135	YELLOW WARBLER (*Dendroica petechia*) Status: Family: *Parulidae*	X			Breeds in wet, deciduous thickets, especially in willows. Also in shrubby areas and old fields, yards and gardens. In southern Florida and farther south, found in mangroves.	Migratory (in area for migration)	
136	CAPE MAY WARBLER (*Dendroica tigrina*) Status: Family: *Parulidae*	X			Breeds in coniferous (spruce) forest. Winters in various habitats, including settled areas.	Migratory (in area for migration)	
137	YELL-RUMP WARBLER (*Dendroica coronata*) Status: Family: *Parulidae*	X			Breeds in mature coniferous and mixed coniferous-deciduous woodlands. Winters in open areas along woodland edge, second growth, dunes, marshes, and residential areas. Only warbler able to digest the waxes found in bayberries and wax myrtles. Its ability to use these fruits allows it to winter farther north than other warblers	Migratory (in area for winter non-breeding)	
138	YELL-THRTD WARB. (*Dendroica dominica*) Status: Family: *Parulidae*	X			Breeds in pine forest, sycamore-baldcypress swamp, live oak woodland, floodplain forest and riparian woodland. Found in migration and winter in a variety of woodland, scrub, brush and thicket situations but most frequently in pine woodland if such habitat is available.	Migratory (in area for summer breeding)	
139	PINE WARBLER (*Dendroica pinus*) Status: Family: *Parulidae*	X			Breeds in a variety of pine forests or mixed woodlands and plantations. Winters in similar habitats.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in south eastern US
140	PALM WARBLER (*Dendroica palmarum*) Status: Family: *Parulidae*	X			Breeds in spruce bogs, open boreal coniferous forest, and partly open situations with scattered trees and heavy undergrowth, usually near water. Found in migration and winter in a variety of woodland, second growth and thicket habitats, on the ground in savanna and open fields, beaches, lawns, and in mangroves.	Migratory (in area for winter non-breeding)	

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No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
141	PRAIRIE WARBLER (*Dendroica discolor*) Status: BCC, PIF Family: *Parulidae*	X			Various shrubby habitats, including regenerating forests, dry brushy areas, open fields, old fields, young pine plantations, mangrove swamps, and Christmas-tree farms. Florida residents live in mangrove forests.	Migratory (in area for summer breeding)	
142	BLACKPOLL WAR. (*Dendroica striata*) Status: Family: *Parulidae*	X			Breeds in boreal coniferous forest (primarily spruce or spruce-fir) and woodland, mixed coniferous-deciduous second growth, tall shrubs, and alder thickets; in migration and winter found in a variety of forest, woodland, scrub and brushy habitats.	Migratory (in area for migration)	
143	BLK & WHT WARB. (*Mniotilta varia*) Status: Family: *Parulidae*	X			Breeds in mature and second-growth deciduous and mixed forests. Winters in variety of habitats from disturbed areas to mature forests.	Migratory (in area for summer breeding)	
144	PROTHONOTARY WARB. (*Protonotaria citrea*) Status: Family: *Parulidae*	X			Breeds in wooded areas near water, especially flooded bottomland hardwood forests, cypress swamps, and along large lakes and rivers. Winters in mangrove swamps and coastal tropical forests.	Migratory (in area for summer breeding)	
145	WORM-EATING WARB. (*Helmitheros vermivorum*) Status: PIF Family: *Parulidae*	X			Breeds in mature deciduous or mixed deciduous-coniferous forest with patches of dense understory, usually on steep hillside. Winters in tropical forests.	Migratory (in area for summer breeding)	
146	ORANGE-CRWN WARB (*Vermivora celata*) Status: Family: *Parulidae*	X			Breeds in streamside thickets and woodland groves with moderately dense foliage, forest edges, brushy fields, and in understory of forests and chaparral. Winters in thickets and shrubs along streams, forests, weedy fields, and dense tangles of shrubs and vines.	Migratory (in area for winter non-breeding)	
147	SWAINSON'S WARB. (*Limnothlypis swainsonii*) Status: BCC, PIF Family: *Parulidae*	X			Breeds in swamps and southern forests with thick undergrowth, especially canebrakes and floodplain forests in lowlands and rhododendron-mountain laurel in Appalachians. Winters in tropical scrub, evergreen, and gallery forests.	Migratory (in area for summer breeding)	
148	KENTUCKY WARBLER (*Oporornis formosus*) Status: Family: *Parulidae*	X			Ravines and bottomlands of moist deciduous or mixed woodlands.	Migratory (in area for summer breeding)	

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No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
149	COM. YEL-THROAT WARBLER *Geothlypis trichas*) Status: Family: *Parulidae*	X			Common in thick vegetation from wetlands to prairies to pine forests with dense understory.	Year Round	Year round residents for the southern coastal US, but migratory elsewhere
150	HOODED WARBLER (*Wilsonia citrina*) Status: PIF Family: *Parulidae*	X			Dense shrubbery in mature deciduous woodlands, especially near streams.	Migratory (in area for summer breeding)	
151	OVENBIRD (*Seiurus aurocapilla*) Status: Family: *Parulidae*	X			Breeds in mature deciduous and mixed deciduous and coniferous forests. Winters in primary and second growth forests.	Migratory (in area for migration)	
152	SUMMER TANAGER (*Piranga rubra*) Status: Family: *Thraupidae*	X			Breeds in deciduous forests in eastern part of range, especially open woods and near gaps. In Southeast, breeds in pine-oak forests, willows, and cottonwoods along streams. In West, uses riparian woodlands. Winters in wide range of open and second-growth habitats.	Migratory (in area for summer breeding)	
153	SCARLET TANAGER (*Piranga olivacea*) Status: Family: *Thraupidae*	X			Breeds in deciduous and mixed deciduous/coniferous woodlands, especially mature forests. Occasionally in suburban areas with large trees. Winters in montane evergreen forests.	Migratory (in area for migration)	
154	INDIGO BUNTING (*Passerina cyanea*) Status: Family: *Cardinalidae*	X			Breeds in brushy and weedy areas along edges of cultivated land, woods, roads, power line rights-of-way, and in open deciduous woods and old fields. Winters in weedy fields, citrus orchards, and weedy cropland.	Migratory (in area for summer breeding)	
155	PAINTED BUNTING (*Passerina ciris*) Status: BCC, PIF Family: *Cardinalidae*	X			Open brushlands, thickets, and scattered woodlands. Along Atlantic coast, also in hedges and yards.	Migratory (in area for summer breeding)	
156	EASTERN (RUF-SIDE) TOWHEE (*Pipilo erythrophthalmus*) Status: Family: *Emberizidae*	X			Breeds in shrub habitats or open woods with a shrub understory, often in dry environments and open ground. Old fields and forest edges, dune scrub, oak scrub, riparian thickets, and pine flatwoods with saw palmetto. Winters in similar areas and in residential areas.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in the eastern US
157	BACHMAN'S SPARROW (*Aimophila aestivalis*) Status: NCWRC--SC and FSC; BCC, PIF Family: *Emberizidae*	X			Open pine or oak woods, brushy fields. Found primarily in open pine woods with understory of wiregrass, palmettos, and weeds, and in oak-palmetto scrub, grasslands.	Year Round	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
158	CHIPPING SPARROW (*Spizella passerina*) Status: Family: *Emberizidae*	X			Breeds in open woodlands with grass, along river and lake shorelines, orchards, farms, and in urban and suburban parks. Winters in similar areas.	Migratory (in area for summer breeding)	
159	FIELD SPARROW (*Spizella pusilla*) Status: Family: *Emberizidae*	X			Breeds in old fields, woodland openings, open areas with scattered shrubs and small trees, and edges. Winters in fields and forest edges.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in the eastern US
160	SAVANNAH SPARROW (*Passerculus sandwichensis*) Status: Family: *Emberizidae*	X			Inhabits a wide range of open country or moist tallgrass areas, including meadows, agricultural fields, pastures, salt marshes, beaches, lake and river edges, and tundra. Varied habitats in winter.	Migratory (in area for winter non-breeding)	
161	FOX SPARROW (*Passerella iliaca*) Status: Family: *Emberizidae*	X			Deciduous for coniferous woods, brushy areas, woods edges or second-growth forests or chaparral.	Migratory (in area for winter non-breeding)	
162	GRASSHOPPER SPAR (*Ammodramus savannarum)* Status: Family: *Emberizidae*	X			Open grasslands, prairies, dry weedy fields, old pastures, hayfields with patches of bare ground.	Migratory (in area for winter non-breeding)	
163	SALTMARSH SHARP-TAIL SPARROW (*Ammodramus caudacutus*) Status: BCC Family: *Emberizidae*	X			Salt and fresh-water marshes, wet meadows, lakeshores.	Migratory (in area for winter non-breeding)	
164	NELSON'S SHARP-TAIL SPARROW. (*Ammodramus nelsoni)* Status: BCC Family: *Emberizidae*	X			Freshwater marshes, lakeshores, and wet meadows in interior and brackish marshes along coast; in winter in salt and brackish marshes.	Migratory (in area for winter non-breeding)	
165	SEASIDE SPARROW (*Ammodramus maritimus*) Status: BCC Family: Emberizidae	X			Salt marshes, especially spartina grass, rushes, and tidal reeds; "Cape Sable" Seaside Sparrow in marsh prairie.	Migratory (in area for summer breeding)	
166	WHITE-CRWN SPARROW (*Zonotrichia leucophrys*) Status: Family: *Emberizidae*	X			Breeds in tundra, boreal forest, and alpine meadows over most of range. On West Coast is found in suburban areas and near the ocean in areas with bare ground and shrubs, woods, gardens, and parks.	Migratory (in area for winter non-breeding)	
167	SWAMP SPARROW (*Melospiza georgiana*) Status: Family: *Emberizidae*	X			Various wetlands, including freshwater and tidal marshes, bogs, meadows, and swamps. Winters also in damp fields with tall grass.	Migratory (in area for winter non-breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
168	SONG SPARROW (*Melospiza melodia*) Status: Family: *Emberizidae*	X			Dense shrubs at the edge of open areas such as fields, lawns, or streams. Especially near water in arid regions	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of northern US
169	WHT-THROAT SPARROW (*Zonotrichia albicollis*) Status: Family: *Emberizidae*	X			Breeds in coniferous and mixed forests with numerous openings and low, dense vegetation. In winter and in migration found in dense cover, along woodlots, in fence rows, swamps, weedy fields, parks, and in urban areas.	Migratory (in area for winter non-breeding)	
170 171	HOUSE SPARROW (*Passer domesticus*) Status: Family: *Passeridae*	X			Found in human modified habitats: parks, farms, residential, and urban areas.	Year Round	
172	PINE SISKIN (*Carduelis pinus*) Status: Family: *Fringillidae*	X			Breeds in open coniferous forests. Also in shrub thickets, suburban yards, parks, cemeteries, and in mixed coniferous-deciduous tree associations. Prefers conifers in migration and winter.		
173	BLUE GROSBEAK (*Passerina caerulea*) Status: Family: *Cardinalidae*	X			Forest edge, fields, roadsides, power-line cuts, riparian areas, hedgerows, prairies, and other areas with medium-sized trees and low shrub density.	Migratory (in area for summer breeding)	
174	HOUSE FINCH (*Carpodacus mexicanus*) Status: Family: *Fringillidae*	X			In the East, found almost exclusively in urban and suburban habitats, especially in areas with buildings, lawn, and small conifers. In West, found around people, but also in desert, chaparral, oak savanna, riparian areas, and open coniferous forests.	Year Round	
175	AMERICAN GOLDFINCH (*Carduelis tristis*) Status: Family: *Fringillidae*	X			Breeds in weedy fields, roadsides, orchards, farns, and gardens. Winters in weedy, open areas with some shrubs and trees, and moves into urban and suburban areas to eat at feeders.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of eastern US
176	ROCK DOVE (*Columba livia*) Status: Family: *Columbidae*	X			Found around rocky cliffs, urban areas, parks, and agricultural areas.	Year Round	
177	MOURNING DOVE (Zenaida macroura) Status: Family: *Columbidae*	X			Breeds in variety of open habitats, including agricultural areas, open woods, deserts, forest edges, cities and suburbs.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
178	EUR. COLLARED DOVE (*Streptopelia decaocto*) Status: Family: *Columbidae*	X			Open country with trees and scrub, usually near cultivated area; also towns. Found in urban, suburban, and agricultural areas where grain is available.	Not present at all in area	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
179	CHIMNEY SWIFT (*Chaetura pelagica*) Status: Family: *Apodidae*	X			Nests in variety of habitats, especially common in urban or rural areas. More rarely in hollow trees. Forages over open areas.	Migratory (in area for summer breeding)	
180	EASTERN SCREECH-OWL (*Megascops asio*) Status: Family: *Strigidae*	X	X		Found in most habitats with trees--woods, swamps, parks, suburbs or urban areas.	Year Round	
181	GREATT HORNED OWL (*Bubo virginianus*) Status: Family: *Strigidae*	X	X		Found in a wide variety of habitats, but prefers open and secondary-growth woodlands and agricultural areas. Also in boreal forest, desert, and suburban and urban areas.	Year Round	
182	BARRED OWL (*Strix varia*) Status: Family: *Strigidae*	X	X		Forested areas, from swamps and riparian areas to uplands. Prefers large blocks of forest.	Year Round	
183	COMMON NIGHTHAWK (*Chordeiles minor*) Status: Family: *Caprimulgidae*	X			Forests, plains, urban areas	Migratory (in area for summer breeding)	
184	CHUK-WIL'S-WIDOW (*Caprimulgus carolinensis*) Status: BCC Family: *Caprimulgidae*	X	X		Along edges of coniferous or mixed forests; often along rivers.	Migratory (in area for summer breeding)	
185	WHIP-POOR-WILL (*Caprimulgus vociferus*) Status: Family: *Caprimulgidae*	X	X		Breeds in deciduous or mixed forests with little or no underbrush--open woods, canyons, dry, brushy areas. Winters in mixed woods near open areas.	Migratory (in area for migration)	
186	YELLOWE-BILL CUCKOO (*Coccyzus americanus*) Status: Family: *Cuculidae*	X			Open woodlands with clearings and dense scrubby vegetation, thickets, often along water.	Migratory (in area for summer breeding)	
187	RED-THROATED HUMMINGBIRD (*Archilochus colubris*) Status: Family: *Trochilidae*	X	X		Breeds in mixed woodlands and eastern deciduous forest, streams, parks, gardens, and orchards. Winters in tropical deciduous forest, tropical dry forests, scrubland, citrus groves, and second growth.	Migratory (in area for summer breeding)	
188	RED-HEAD.WOODPECKER (*Melanerpes erythrocephalus*) Status: Family: *Picidae*	X	X		Breeds in deciduous woodlands, especially beech or oak, river bottoms, open woods, groves of dead and dying trees, farmlands, orchards, parks, open country with scattered trees, forest edges, and open wooded swamps with dead trees and stumps. Attracted to burns and recent clearings. Winters in mature stands of forest, especially those with oaks.	Year Round	Migrate in the winter from the northern and western extent of their range, but stay year round in the eastern US

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
189	RED-BELL.WOODPECKER (*Melanerpes carolinus)* Status: Family: *Picidae*	X		X	Lives in a variety of dry or damp forests (deciduous or pine) and in suburban areas.	Year Round	
190	DOWNY WOODPECKER (*Picoides pubescens*) Status: Family: *Picidae*	X	X		Open deciduous woodlands, especially in riparian areas. Common in human-modified habitats, such as orchards, farmland, parks, and residential areas.	Year Round	
191	HAIRY WOODPECKER *(Picoides villosus)* Status: Family: *Picidae*	X	X		Found in mature woods, small woodlots, wooded parks, and residential areas with large trees.	Year Round	
192	RED-COCKADADED WOODPECKER (*Picoides borealis*) Status: NCWRC-E, PIF Family: *Picidae*	X			Open pine forest maintained by frequent fires, especially longleaf pine forests.	Year Round	
193	PILEATED WOODPECKER (*Dryocopus pileatus*) Status: Family: *Picidae*	X	X	X	Found in deciduous or coniferous forests with large trees, suburbs.	Year Round	
194	YELLOW-BELLIED SAPSUCKER (*Sphyrapicus varius*) Status: NCWRC-SC, FSC Family: *Picidae*	X		X	Breeds in young forests and along streams, especially in aspen and birch; also in orchards. Winters in variety of forests, especially semi-open woods.	Migratory (in area for winter non-breeding)	
195	NORTHERN FLICKER (Colaptes auratus) Status: Family: *Picidae*	X		X	Found in open woodlands and forest edge, including cities, parks, suburbs, and farmlands.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
196	BLACK VULTURE (*Coragyps atratus*) Status: NCWRC-SC Family: *Cathartidae*	X			Open country, dumps, and urban areas.	Year Round	
197	TURKEY VULTURE (*Cathartes aura*) Status: Family: *Cathartidae*	X	X	X	Prefers rangeland and areas of mixed farmland and forest. Roosts in large trees or on large urban buildings.	Year Round	Migrate from year round areas to summer breeding grounds further north

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
198	OSPREY (*Pandion haliaetus*) Status: Family: *Accipitridae*	X			Breeds in variety of habitats with shallow water and large fish, including boreal forest ponds, desert salt-flat lagoons, temperate lakes, and tropical coasts. Winters along large bodies of water containing fish.	Migratory (in area for summer breeding)	
199	BALD EAGLE (*Haliaeetus leucocephalus*) Status:Camp Lejeune's INRMP-T, NCWRC-T Family: *Accipitridae*	X		X	Breeds in forested areas near large bodies of water. Winters in coastal areas, along large rivers, and large unfrozen lakes.	Migratory (in area for summer breeding)	
200	AM. SWALLOW TAIL KITE (*Elanoides forficatus*) Status: BCC, PIF Family: *Accipitridae*	X			Forested regions near marshes or swamps, often bottomland, or riverine forest, also open pine woodland.	Not present at all in area	
201	NORTHERN HARRIER (*Circus cyaneus*) Status: Family: *Accipitridae*	X		X	Open fields, wetlands, meadows, pastures, prairies, grasslands, croplands, and riparian woodlands.	Migratory (in area for winter non-breeding)	
202	AMERICAN KESTREL (*Falco sparverius*) Status: BCC, PIF Family: *Falconidae*	X		X	Breeds in a variety of open habitats, including meadows, grasslands, deserts, parkland, agricultural fields, urban and suburban areas.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
203	SHARP-SHIN HAWK (*Accipiter striatus*) Status: Family: *Accipitridae*	X	X	X	Nests in forests, usually with conifers. Generally not present in small woodlots and open areas. Winters in larger variety of habitats, including urban and suburban areas.	Migratory (in area for winter non-breeding)	
204	COOPERS HAWK (*Accipiter cooperii*) Status: NCWRC-SC Family: *Accipitridae*	X	X	X	Breeds in deciduous, mixed, coniferous forests and open woodland. Becoming more common in suburban and urban areas.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
205	RED-SHOLDER HAWK (*Buteo lineatus*) Status: Family: *Accipitridae*	X		X	Forests with open understory, especially bottomland hardwoods, riparian areas, and flooded swamps.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in eastern US
206	BROAD WING HAWK (*Buteo platypterus*) Status: Family: *Accipitridae*	X	X	X	Breeds in continuous deciduous or mixed-deciduous forest. Winters in tropical forests.	Migratory (in area for summer breeding)	

Migratory Birds – MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point

No.	Species, Status, Family	MCB Camp Lejeune	MCAS New River	MCAS Cherry Point	Habitat	Migratory/Year Round	Comment
207	RED-TAILED HAWK (*Buteo jamaicensis*) Status: Family: *Accipitridae*	X		X	Found in open areas with scattered elevated perches, including agricultural areas, fields, pasture, parkland, broken woodland, and scrub desert.	Year Round	Migrate in the winter from the northern extent of their range, but stay year round in most of US
208	MERLIN (*Falco columbarius*) Status: Family: *Falconidae*	X			Breeds in open country from open coniferous woodland to prairie; also forest edges and farmland, occasionally in adjacent suburbs or urban areas. Winters in open woodland, grasslands, prairies, open cultivated fields, coastal lowlands, marshes, and estuaries.	Migratory (in area for migration)	

NAWMP: North American Waterfowl Management Plan

GBBDC: Game Birds Below Desired Condition (MBTA: Migratory Bird Treaty Act)

NCWRC: NC Wildlife Resources Commission

FSC-Federal Species of Concern, SC-State Species of Concern, E-endangered, or T-threatened)

BCC: Birds of Conservation Concern

PIF: Partners in Flight

USSCP: U.S. Shorebird Conservation Plan

NAWCP: North American Waterbird Conservation Plan

Scientific Names of Fish Species Discussed in the Text

Common Name	Scientific Name
American eel	*Anguilla rostrata*
American shad	*Alosa sapidissima*
Atlantic bumper	*Chloroscombrus chrysurus*
Atlantic croaker	*Micropogonias undulatus*
Atlantic cutlassfish	*Trichiurus lepturus*
Atlantic menhaden	*Brevoortia tyrannus*
Atlantic needlefish	*Strongylura marina*
Atlantic sharpnose shark	*Rhizoprionodon terraenovae*
Atlantic silverside	*Menidia menidia*
Atlantic stargazer	*Uranoscopus scaber*
Atlantic stingray	*Dasyatis sabina*
Atlantic sturgeon	*Acipenser oxyrinchus oxyrinchus*
Atlantic thread herring	*Opisthonema oglinum*
Atlanic midshipmen	*Porichthys plectrodon*
Banded drum	*Larimus fasciatus*
Baracuda	*Sphyraena barracuda*
Bay anchovy	*Anchoa mitchilli*
Bay whiff	*Citharichthys spilopterus*
Bighead searobin	*Prionotus tribulus*
Black drum	*Pogonias cromis*
Black sea bass	*Centropristis striata*
Blackcheek tonguefish	*Symphurus plagiusa*
Blue catfish	*Ictalurus furcatus*
Blueback herring	*Alosa aestivalis*
Bluespotted coronet fish	*Fistularia tabacaria*
Bluefish	*Pomatomus saltatrix*
Butterfish	*Peprilus triacanthus*
Chain pickerel	*Esox niger*
Chain pipefish	*Syngnathus louisianae*
Clearnose skate	*Raja eglanteria*
Cobia	*Rachycentron canadum*
Conger eel	*Conger oceanicus*
Cownose ray	*Rhinoptera bonasus*
Crevalle jack	*Caranx hippos*
Darter goby	*Ctenogobius boleosoma*

Scientific Names of Fish Species Discussed in the Text

Common Name	Scientific Name
Dusky pipefish	*Syngnathus floridae*
Fat sleeper	*Dormitator maculatus*
Feather blenny	*Hypsoblennius hentz*
Florida pompano	*Trachinotus carolinus*
Freckled blenny	*Hypsoblennius ionthas*
Freshwater goby	*Ctenogobius shufeldti*
Fringed flounder	*Etropus crossotus*
Gag grouper	*Mycteroperca microlepis*
Gizzard shad	*Dorosoma cepedianum*
Green goby	*Microgobius thalassinus*
Gray snapper	*Lutjanus griseus*
Guaguanche	*Sphyraena guachancho*
Gulf flounder	*Paralichthys albigutta*
Halfbeak	*Hyporhamphus sp.*
Hardhead catfish	*Ariopsis felis*
Harvestfish	*Peprilus paru*
Hickory shad	*Alosa mediocris*
Highfin goby	*Gobionellus oceanicus*
Hogchoker	*Trinectes maculatus*
Horse eye jack	*Caranx latus*
Inland silverside	*Menidia beryllina*
Inshore lizardfish	*Synodus foetens*
King mackerel	*Scomberomorus cavalla*
Ladyfish	*Elops saurus*
Lane snapper	*Lutjanus synagris*
Leatherjacket	*Oligoplites saurus*
Leopard searobin	*Prionotus scitulus*
Lined seahorse	*Hippocampus erectus*
Longnose gar	*Lepisosteus osseus*
Longspine porgy	*Stenotomus caprinus*
Lookdown	*Selene vomer*
marsh killifish	*Fundulus confluentus*
Moonfish	*Selene setapinnis*
Mummichog	*Fundulus heteroclitus heteroclitus*
Naked goby	*Gobiosoma bosc*

Scientific Names of Fish Species Discussed in the Text

Common Name	Scientific Name
Northern kingfish	*Menticirrhus saxatilis*
Northern pipefish	*Syngnathus fuscus*
Northern Puffer	*Sphoeroides maculatus*
Northern searobin	*Prionotus carolinus*
Northern sennet	*Sphyraena borealis*
Ocellated flounder	*Ancylopsetta ommata*
Orange filefish	*Aluterus schoepfii*
Oystertoad fish	*Opsanus tau*
Permit fish	*Trachinotus falcatus*
Pigfish	*Orthopristis chrysoptera*
Pinfish	*Lagodon rhomboides*
Planehead filefish	*Stephanolepis hispidus*
Red drum	*Sciaenops ocellatus*
Red grouper	*Epinephelus morio*
Rock sea bass	*Centropristis philadelphica*
Sailfin molly	*Poecilia latipinna*
Sand perch	*Diplectrum formosum*
Scrawled cowfish	*Acanthostracion quadricornis*
Seaboard goby	*Gobiosoma ginsburgi*
Sharptail goby	*Oligolepis acutipennis*
Sheepshead minnow	*Cyprinodon variegatus variegatus*
Shrimp eel	*Ophichthus gomesii*
Silver jenny	*Eucinostomus gula*
Silver perch	*Bairdiella chrysoura*
Silver sea trout	*Cynoscion nothus*
Skilletfish	*Gobiesox strumosus*
Smooth butterfly ray	*Gymnura micrura*
Smooth puffer	*Lagocephalus laevigatus*
Southern flounder	*Paralichthys lethostigma*
Southern hake	*Urophycis floridana*
Southern kingfish	*Menticirrhus americanus*
Southern stingray	*Dasyatis americana*
Spadefish	*Chaetodipterus faber*
Spanish mackerel	*Scomberomorus maculatus*
Speckled worm eel	*Myrophis punctatus*

Scientific Names of Fish Species Discussed in the Text

Common Name	Scientific Name
Spot	*Leiostomus xanthurus*
Spotfin butterfly fish	*Chaetodon ocellatus*
Spotfin mojarra	*Eucinostomus argenteus*
Spottail pinfish	*Diplodus holbrookii*
Spotted hake	*Urophycis regia*
Spotted sea trout	*Cynoscion nebulosus*
Star drum	*Stellifer lanceolatus*
Striped anchovy	*Anchoa hepsetus*
Striped bass	*Morone saxatilis*
Striped blenny	*Chasmodes bosquianus*
Striped burrfish	*Chilomycterus schoepfii*
Striped cusk eel	*Ophidion galeoides*
Striped killifish	*Fundulus majalis*
Striped mullet	*Mugil cephalus*
Striped searobin	*Prionotus evolans*
Summer flounder	*Paralichthys dentatus*
Tarpon	*Megalops atlanticus*
Tautog	*Tautoga onitis*
Threadfin shad	*Dorosoma petenense*
Weakfish	*Cynoscion regalis*
White catfish	*Ameiurus catus*
White mullet	*Mugil curema*
Windowpane flounder	*Scophthalmus aquosus*

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

October 8, 2003

Mr. Scott A. Brewer, PE
Director, Environmental Management Division
Marine Corps Base
PSC 20004
Camp Lejeune, North Carolina 28542-0004

Dear Mr. Brewer:

The U.S. Fish and Wildlife Service (Service) has reviewed your letter of August 25, 2003 regarding the proposed construction of a new security gate facility to be installed at the intersection of Lyman Road and N. C. Highway 172 on Marine Corps Base, Camp Lejeune, in Onslow County, North Carolina. The proposed construction would require the removal of pine timber within the ½ mile radius foraging partitions of the federally listed, endangered red-cockaded woodpecker (*Picoides borealis*; RCW). Our comments are provided in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 USC 1531 et seq.).

The new gate facility will be built along NC 172 between the intersections of NC 172 and Lyman Road and NC 172 and Bear Creek Road. A portion of Lyman Road and a paralleling tank trail will be shifted to the south to accommodate the new structures. The facility will include guard houses, booths, traffic islands, canopies, visitor's pass offices, waiting shelters, vehicle parking spaces and dog kennels. Construction would require rerouting Lyman Road and a nearby tank trail. The total acreage of suitable foraging habitat to be removed is approximately 2.5 acres. An additional 0.25 acre of non-suitable RCW habitat will also be affected. The project site contains no suitable habitat for the federally listed, endangered rough-leaved loosestrife (*Lysimachia asperulaefolia*) and Camp Lejeune has determined that completion of this project will have no effect on this species.

Your August 25, 2003 letter provides a background of the RCW groups closest to the project location. Historically, the site chosen for the facility was contained within the foraging partition for Cluster 24. In 2001, two new clusters, clusters 71 and 72 budded from Cluster 24. These new clusters have remained occupied with breeding groups since their discovery. At least two home range follows (between five and eight hours each) were conducted between March and April 2003 for Cluster 24. No use of the project area by this group was detected during this field work. Although no home range data currently exists for Cluster 71, the project site is not within a ½ mile radius of this cluster. Based on this information, your letter indicates that Cluster 72 is the only cluster that might be affected by the proposed construction.

Of the 2.75 acres to be removed, 1.5 acres are forested in 48-year-old loblolly pine (*Pinus taeda*) averaging less than two trees ≥ 14 inches diameter at breast height (dbh) per acre with an average total pine basal area of 73 square feet (ft^2) per acre. The remaining 1.0 acre to be cleared is forested in 63-year-old longleaf (*Pinus palustris*) and loblolly pines averaging 14.2 pine trees ≥ 14 inches dbh per acre. This stand, Stand 14 has an average total pine basal area of approximately 63 ft^2 per acre. Project removals would total approximately 17 pine stems ≥ 14 inches dbh and 172.5 ft^2 of total pine basal area.

According to the table provided with your letter, Cluster 72's foraging partition contains 259 pine-forested acres over 42 years old. Three timber stands: 14, 37, and 38, comprise 142.3 acres of this total and provide the highest quality foraging habitat for the birds residing in this cluster. Together, these three stands average 16 pines ≥ 14 inches dbh per acre, with an average of 22 ft^2/acre in this diameter class. Post project, Cluster 72's foraging partition will be comprised of approximately 256 acres forested in pine stands at least 42 years old. Over 2,900 pine stems ≥ 14 inches dbh and 4,010 ft^2 of basal area in this diameter class will be retained post-project.

The closest cavity tree to the project site will be approximately 300 feet from the tank trail, once it has been realigned. Your letter notes that the home range for Cluster 72 includes timber stands on the east side of NC 172 and the resident group readily crosses this highway to access foraging habitat. Based on this information, Camp Lejeune has concluded that the breaks in contiguous habitat caused by the project are not likely to impede RCWs from using forested stands on the opposite side of the project site from the cluster.

Of the components of good quality habitat identified in the Recovery Plan for the Red-cockaded Woodpecker (Service 2000), the most important and most difficult to attain relate to the numbers and distribution of pine trees ≥ 14 inches dbh that are available for foraging and nesting. Cluster 72 appears to possess adequate numbers of these resources. We note that according to the table provided in your correspondence, Stand 14, which contributes nearly 1/3 of the foraging substrate for Cluster 72 averages a high density (126 stems/acre; 27.6 ft^2/acre basal area) of pines < 10 inches dbh. In accordance with the foraging habitat guidelines contained in the Recovery Plan, the desirable stocking of pine stems in these smaller diameters should be reduced to < 20 stems/acre and 10 ft^2/acre basal area. We anticipate that Camp Lejeune will strive to further improve RCW habitat within this partition. These recommended timber thinnings are not a condition of our concurrence on the installation's proposal to construct the security gate facility as currently proposed.

Base on the information contained in your August 25, 2003 letter, the Service concurs with your determination that this project is not likely to adversely affect the RCW or any other federally listed species, their formally designated critical habitat, or species currently proposed for federal listing under the Endangered Species Act, as amended. We believe that the requirements of section 7(a)(2) of the Act have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner that was not considered in this review; or, (3) a new species is listed or critical habitat determined that may be affected by the identified action.

If you have any questions regarding this matter, please contact Mr. John Hammond at (919) 856-4520 (ext. 28). Thank you for your continued cooperation with our agency.

Sincerely,

Dr. Garland B. Pardue
Ecological Services Supervisor

cc: Ralph Costa, USFWS

Literature Cited:

U. S. Fish and Wildlife Service. 2003. Recovery Plan for the red-cockaded woodpecker (Picoides borealis): second revision. U. S. Fish and Wildlife Service, Atlanta, GA 296 pp.

APPENDIX G
CULTURAL RESOURCES BACKGROUND

Appendix G
Cultural Resources Background Information

Information in Appendix G was compiled from Integrated Cultural Resource Management Plans for MCB Camp Lejeune/MCAS New River and MCAS Cherry Point.

Paleoindian Period (11000–8000 BC)

The most widely accepted model for the peopling of North America argues that Asian populations migrated to the western hemisphere over the Bering land bridge that linked Siberia and Alaska, some 12,000 years ago. However, data are mounting in support of migrations that date to before 12,000 years ago. Regardless of the precise timing of the first occupation of North America, it does not appear that North Carolina was inhabited by humans prior to about 12,000 years ago.

The Paleoindian period is divided into Early (12000–10000 BC) and Late (10000–8000 BC) subperiods (Phelps 1983:19). Recent work throughout the Southeast (Anderson 1995), however, has identified Early (10550–8950 BC), Middle (8950–8550 BC), and Late (8550–8050 BC) subperiods. For the Coastal Plain region, these dates are tentative at best as few, if any, radiocarbon dates have been associated with Paleoindian sites (Reid and Simpson 1998a:31). The lack of identified Paleoindian sites in this region is probably the result of rising sea levels, submerging many sites in riverine basins and offshore locales (Phelps 1983:21).

Early and Middle Paleoindian projectile point variants in the North Carolina Coastal Plain include the Hardaway blade and Hardaway- Dalton. Late Paleoindian variants include Hardaway side-notched. Some archaeologists view the Hardaway complex as a manifestation of the Early Archaic period, suggesting that the Hardaway types are the result of synchronic tool modification as opposed to diachronic change. Most agree, however, that the other tools, such as side- and end-scrapers, found in association with Hardaway Complex points are very similar to a Paleoindian tool assemblage (Ward and Davis 1999:42). As such, the Hardaway Complex could be a transitional Late Paleoindian/Early Archaic assemblage.

Settlement models derived from data recovered in the Piedmont suggest a Paleoindian settlement system focused on high-quality lithic material (Gardner 1977). This model, however, may not be applicable to the lithic-deprived Coastal Plain. Reid and Simpson (1998a:33) suggest that a settlement model proposed by Dent (1995) for the Chesapeake region, which includes the Coastal Plain of Virginia, Maryland, and Delaware, is more applicable to the Coastal Plain of North Carolina. The model proposes two sites types: regional residential bases and locations, reminiscent of Binford's (1980) foraging system. The residential bases serve as the "hub of subsistence activities," while the locations function as extractive sites (Binford 1980:9).

Little is known about Paleoindian subsistence in the Southeast. Most of the information regarding subsistence is based on evidence from sites in the western United States. This model essentially holds that Paleoindian groups were highly mobile, big-game hunters. The problem, much like settlement systems, is whether this model is applicable to sites in North Carolina, specifically the Coastal Plain. Flora and fauna remains recovered from a Paleoindian hearth at Shawnee Minisink in Pennsylvania include hawthorne plum, hackberry, wild grapes, and unidentified fish (Department of Anthropology, American University n.d.).

Archaic Period (8000–1000 BC)

Early Archaic (8000–6000 BC) sites, like Paleoindian sites, are typically identified through a series of diagnostic projectile points. As noted, some archaeologists view the Hardaway complex as a transitional Late Paleoindian/Early Archaic lithic assemblage, a viewpoint that is open to debate (Ward and Davis 1999). There are, however, a series of points, based on definitive stratigraphic context in the Piedmont, categorized as Early Archaic, including Palmer Corner Notched and Kirk Corner Notched types. Other tools include end-scrapers, side-scrapers, blades, and drills along with various bone and antler tools (Reid and Simpson 1998a:34). This general tool assemblage is also found at archaeological sites within the Coastal Plain (Phelps 1983:22). Early Archaic sites are typically small with a settlement pattern indicating frequent relocation within both floodplain and upland ecosystems (Steponaitis 1986:371). Daniel (1998:194) suggests that movement was most likely predicated on the availability of knappable stone, as opposed to a drainage basin adaptation proposed by Anderson and Hanson (1988). Phelps (1983:24), however, suggests that Early Archaic site location in the lithic-poor Coastal Plain was based on stream accessibility.

Little is known about Early Archaic subsistence. Based on the recovery of bone and antler tools however, white-tailed deer appears to have been an important species, both for tools and diet, for Early Archaic peoples. Additional terrestrial and aquatic fauna such as small mammals and fish, as well as available floral resources such as nuts and seeds, are suggested dietary staples based on the location of sites within different environmental niches.

The Middle Archaic (6000–3000 BC) is marked by the appearance of the Stanly Stemmed projectile point, along with the Morrow Mountain Stemmed and Guilford Lanceolate points (Ward and Davis 1999:73). The tool assemblage expands to include atlatl weights, grooved axes, and notched pebbles.

Middle Archaic settlement and subsistence patterns were very similar to the previous Early Archaic, as groups continued to utilize local resources as they occupied upland terraces and floodplains.

While earlier periods were marked by primarily by morphological change of projectile points, the Late Archaic (3000–1000 BC) is marked by the advent of pottery. Some of the earliest vessels are carved from steatite. Fiber-tempered, clay ceramics were produced at roughly the same time, predating steatite vessels in some areas (Sassaman 1993:180). The earliest expression of fiber-tempered ceramics in the Coastal Plain is the Stallings series (Ward and Davis 1999:76). Exterior surface treatments included punctations, incising, and finger pinching. Stallings pottery is found throughout the southern Coastal Plain, but is rare north of the Neuse River, leading Phelps (1983:26) to subdivide the Coastal Plain into north and south subregions. The Thom's Creek series, which is similar to the Stallings series in terms of exterior surface treatments, is a sand-tempered ceramic also associated with the Late Archaic.

Late Archaic groups, however, did not abandon lithic technology. In the North Carolina Coastal Plain, the broad-bladed, broad-stemmed Savannah River type is the diagnostic projectile point of the period. Late Archaic groups also continued to use atlatl weights and grooved axes seen during the Middle Archaic.

During this period, settlements seem to shift from the upland terraces and riverine valleys to estuaries and the mouths of major rivers (Ward and Davis 1999:75). In South Carolina, Georgia, and Florida, large coastal shell rings and shell sheet middens have been associated with the Late Archaic. These types of sites are rare along the North Carolina coast (Reid and Simpson 1998a:39). Late Archaic sites in this area are reminiscent of earlier site types including large, residential base camps and smaller resource extraction locations.

Woodland Period (1000 BC–AD 1650)

The Woodland Period is marked by cultural regionalization typically reflected in ceramic assemblages, leading to a division of the Coastal Plain into northern and southern subregions. The northern Coastal Plain extends from the Neuse River north to the Virginia state line, while the southern Coastal Plain extends from the Neuse River south to the South Carolina state line. The Neuse River area functioned as a transitional zone or "melting pot" for northern and southern Coastal Plain cultures.

In the southern Coastal Plain, the Early Woodland (1000–300 BC) Period is known as the New River phase and is identified by the recovery of New River ceramics. Identified by Loftfield (1976), New River pottery is medium to coarse sand tempered with, in order of frequency, cord-marked, net-impressed, and plain surfaces. The Hamp's Landing series, a limestone- or marl-tempered ceramic, has also been associated with Early Woodland contexts (Hargrove and Eastman 1997:92). Surfaces are typically plain, simple stamped, fabric impressed, or cord marked. Lithic tools include the Gypsy point, thought to be a derivation of the Savannah River type, and the Roanoke triangular point (Phelps 1983:29).

Little is known about Early Woodland settlement patterns during the New River phase; however, Phelps (1983:32) speculates that it was similar to that of the Late Archaic period. Reid and Simpson (1998a:41) suggest that the Woodland settlement pattern proposed by Gardner (1982) in the Virginia Coastal Plain may be applicable to the southern Coastal Plain of North Carolina. The settlement model included two site types: large base camps and smaller resource extraction camps.

Subsistence data for the Early Woodland is also lacking. Archaeologists infer, based on the limited recovery of fauna remains and the locations of sites, that Early Woodland groups continued a generalized hunting and gathering lifestyle with an increased utilization of shellfish and other marine and riverine resources (Reid and Simpson 1998a:42). The Middle Woodland (300 BC–AD 800) Period, known as the Cape Fear phase, is marked by the recovery of Cape Fear and Hanover ceramic series. Cape Fear ceramics are medium sand tempered with "an occasional large particle of quartz sand" (South 1976:18). Surfaces were cord marked, fabric impressed, or net impressed. Hanover ceramics are tempered with crushed sherds and/or lumps of fired clay. Exterior surfaces were cord marked or fabric impressed. The Hanover series is identical to the Carteret series developed by Loftfield (1976:154). Information concerning the remainder of the Cape Fear phase artifact assemblage is limited. However, Roanoke points, biface blades, abraders, celts, and shell pendants and gorgets have been associated with the Middle Woodland Mount Pleasant phase in the northern Coastal Plain (Phelps 1983:33). It is expected that these same artifact types, or similar artifact types, can be found south of the Neuse River.

Settlement patterns during the Middle Woodland have been described as "dispersed," marked by "a relatively high rate of residential mobility..." (Herbert 2002:302). Loftfield (1976) notes a shift from upland areas to bottomland sites, perhaps in response to increased plant cultivation, and estuaries. The number of shell midden sites also increases during this period. The most visible sites, however, are low, sand burial mounds associated with Cape Fear groups. These circular, low burial mounds contain secondary burials and cremations (Ward and Davis 1999:206). The mounds are typically found on low, sand ridges some distance from habitation sites. Artifacts recovered from the McLean Mound in Cumberland County included stone smoking pipes, pottery sherds, antler points, shell and bone beads, celts, and paint pigments (Ward and Davis 1999:207).

Subsistence data for the Middle Woodland southern Coastal Plain is limited. During the same period in the northern Coastal Plain, subsistence reflects a greater dependence on estuarine resources than in previous periods. Phelps (1983:33) suggests that small camps located in the estuaries were used as shellfish collecting stations with hunting and fishing relegated to minor activities. Subsistence patterns in the south may be similar.

The Late Woodland/Contact (800–1650 AD) Period in the southern Coastal Plain is referred to as the Oak Island or White Oak phase, named for the associated ceramic types identified by South (1976) and Loftfield (1976), respectively. Phelps (1983) has identified these groups as Siouan speakers, while Loftfield (1990) suggests that, at least as far south as Onslow County, these were Algonquian speakers. Regardless of the language, these would be the people that met European explorers from the east. White Oak and Oak Island series have been used interchangeably. Both types are shell tempered with plain, cordmarked, fabric-impressed, net-impressed, and simple-stamped exterior surfaces. Information regarding the lithic tools is sparse. However, Loftfield (1988) has identified what he believes to be an oyster knife. The "knife," which is used to open oysters, is a small, pebble tool with a series of flakes removed. Additional artifacts include nutting stones and stone and clay pipes.

Late Woodland sites increase in number throughout the estuaries in the southern Coastal Plain. Like their neighbors to the north, White Oak groups lived in long houses. Two types of long house have been identified: a small, rectangular type measuring 24 x 12 feet and a larger type measuring over 50 x 18 feet. Some houses were even partitioned with interior walls (Loftfield and Jones 1995:130). Recent excavations by Mathis (1995) at the Broad Reach Site in Carteret County, adjacent to Marine Corps Auxiliary Landing Field (MCALF) Bogue, discovered a complex of long houses, post holes, and pits behind a coastal shell midden. Mass secondary ossuaries were also common during the White Oak phase. More than 150 individuals in bundled and mixed burial contexts were recovered from the Flynt site (31ON305) in Onslow County (Ward and Davis 1999:218).

Subsistence data from Late Woodland contexts are more plentiful than from previous periods. Recent work by Loftfield (1988) and Loftfield and Jones (1995) have shown a subsistence regime built around estuarine environments. White Oak groups were primarily subsisting on oysters and small fish throughout the year and clams on a seasonal basis. Although deer and other small mammals were recovered from theses sites, quantities suggest that they played a small role in the overall subsistence strategy. Recovered flora included the remains of hickory nuts and acorns with minor quantities of corn, sunflower, and squash (Reid and Simpson 1998a:46). Site 31ON536, located on Northeast Creek in Onslow County, yielded the earliest evidence for maize on the Coastal Plain (Davis and Child 1996). Results indicated a conventional radiocarbon date of 950 BP ± 60.

Historic Setting

Onslow County. Historians have speculated that the earliest European contact with the Native Americans living in what is now Onslow County may have occurred during the 1524 exploratory voyage of Giovanni da Verrazzano (Littleton 1981:19). The plan to reconnoiter the Atlantic coast included a brief foray into the southern coast of North Carolina between Bogue and New River Inlets. After Verrazzano's French superiors failed to utilize the explorer's discoveries, the entire North Carolina coast lay open to colonization efforts by other countries. It has been speculated that the Walter Raleigh and John White expeditions of the 1580s may have included exploration of present-day Onslow County. Following the failure of the Raleigh settlements and the subsequent establishment of the first permanent English colony in Jamestown, in Virginia in 1607, European settlement began to trickle into North Carolina. By the end of the 17th century, settlements had appeared on the coast but Europeans did not begin to expand into the hinterlands until after the Tuscarora War (1711-1712) (Watson 1995:2-3).

The land now encompassing Onslow County had been a part of several different counties prior to its formation in 1731. The county was formed out of Carteret and New Hanover Precincts, both of which were once part of the larger Bath County which was established in 1696 (Watson 1995:3-4). Onslow County was named in honor of a distinguished English politician, Sir Arthur Onslow, who had never actually visited the area or owned land there (Onslow County Historical Society 1983:1).

Initial settlement of Onslow County and the New River region began in the second decade of the eighteenth century and focused on sounds, rivers, and other waterways that provided the most efficient means of transportation. Numerous land grants were issued, but nearly half were to individuals who did not live in the area. Therefore the area remained largely unsettled throughout the century. In the 1730s, approximately 100 people lived in the New River region (Watson 1995:18). One of the earliest roads was constructed in 1723 and stretched from the Beaufort area to the White Oak River. Several years later, a ferry was in operation across the New River (Loftfield 1981:37, 59-61). The first courthouse in the county was located on Jarret's Point at Court House Bay (present-day MCB Camp Lejeune) although it later moved to several private residences (Watson 1995:9). In 1737, a new courthouse, along with a prison, stocks, and a whipping post, was constructed at what is now Paradise Point (also in present-day MCB Camp Lejeune). Seven years later, after the courthouse burned, a new one was built in Johnston that later was destroyed in a hurricane. The seat of government ultimately rested at Wantland's Ferry (now known as Jacksonville) (Watson 1995:10).

Onslow County's early economy was based on agriculture, forest products, fishing, and limited manufacturing (Loftfield 1981:62-64). Agricultural pursuits were focused on corn, peas, and livestock. Abundant pine forests nourished the growth of the naval stores industry in the county. Due to the county's geographic location near the Atlantic Ocean and the New River, fishing was an important occupation. Milling was the principal manufacturing industry in the region. Between 1764 and 1775, two new mills appeared in the county per year (Watson 1995:13-14). These various economic activities attracted settlers to Onslow County in the decades before the American Revolution. By 1776, there were an estimated 1,400 people living in the county. A significant number were indentured servants and some were free blacks. Nearly half of the inhabitants during this period were slaves (Watson 1995:18-19). Onslow County was a staunch supporter of the American Revolution. Residents were spurred into action by external events such as the Boston Tea Party, the Intolerable Acts, and military actions in neighboring provinces.

Local issues—including gubernatorial authority, currency shortages, and the proper jurisdiction of colonial courts—also contributed to the growing anti-British sentiment in Onslow. During the war, numerous men from the county served in the state militia and the Continental Army. However, there remained a sizable number of loyalists who cooperated with the British during several raids in Onslow County (Loftfield 1981:105; Watson 1995:28).

Population growth in Onslow County between the Revolutionary War and the Civil War was slow relative to North Carolina as a whole. During the early nineteenth century, a significant portion of the population was lost on account of out-migration to Georgia, Tennessee, and the Gulf Coast states where land was more plentiful (Watson 1995:30-31). Those who remained lived in emerging towns and villages including French's Mill, Foy's Store, Rich Lands, Stones Bay, and Swansborough (later Swansboro) (Watson 1995:32-34). After the Revolution, slavery became a much more integral part of Onslow County society with the number of slaves doubling between the late eighteenth century and the mid-nineteenth century (Loftfield 1981:113; Watson 1995:36-37).

The community that became Jacksonville was firmly established in the pre-Civil War era. Wantland's Ferry changed its name in 1819 to Onslow Court House and in 1842 it was again changed to Jacksonville (Watson 1995:29). The town was named for Andrew Jackson who had recently served as President of the United States (Watson 1995:33). One of the first institutions of public education in Onslow, a female seminary, was constructed in Jacksonville in 1851. It admitted males several years later and became the Jacksonville Male and Female Seminary (Watson 1995:42).

The backbone of Onslow County's economy in the antebellum era remained, as in years before, agriculture and naval stores (Watson 1995:47). Farms varied in size from small family plots to large plantations. Some wealthy planters engaged in both farming and naval stores (Watson 1995:48-49). Landings along the New River facilitated the export of goods to the markets of the eastern United States coast and the West Indies (Watson 1995:47, 55). Tobacco, which would later become a primary crop in

Onslow, was at this point grown only in small amounts. Cotton had become a valuable crop (Watson 1995:88). Naval stores production was nearly as important as agriculture. By 1840, the county ranked fourth in naval stores production among all counties in North Carolina. Aside from agriculture and naval stores, which were dominant, the county's economy was somewhat diversified. Shipbuilding, fishing, and milling each had a visible presence in the decades before the Civil War (Watson 1995:49-51).

Citing decades of northern infractions against the Constitution, personal liberty laws, and the rights of the Southern people, North Carolina seceded from the United States in 1861 and joined the Confederate cause. Like many other counties in the region whose economy was closely linked to slavery, Onslow stood firmly behind the movement to secede (Loftfield 1981:132-133). Almost one-fifth of the total white population of the county served as soldiers during the conflict. The county itself witnessed its share of Federal incursions. In November of 1862 the Union gunboat *Ellis* steamed up the New River to Jacksonville where it captured two small schooners and intercepted the mail from nearby Wilmington. Upon its escape, the boat ran aground where it was shelled until the Federal force retreated. The main focus of the Federals in the closing years of the war was the saltworks in the area. Onslow citizens suffered tremendously from hunger, poverty, and inflation during and after the war (Watson 1995:70-71).

The aftermath of the Civil War left Onslow County in an economically depressed condition that generally persisted into the twentieth century. The number of people relying on government support increased in the years following the war. In the 1860s and 1870s, the county poorhouse was a major expense in the county budget. Although agriculture was still the mainstay of the county's economy, the value of Onslow County's farms had dropped by 75 percent. Soil depletion, and extensive cultivation in other states, had diminished cotton production. Experiments with different crops, including peanuts and rice, were attempted in the 1870s but both failed to become the new cash crop. Tobacco, however, was successful, and by the beginning of the twentieth century it had improved, but not necessarily invigorated, the county's economy (Loftfield 1981:158). After the arrival of the railroad in the late 1880s, northern capital—and some from the South—was attracted to Onslow County's timber resources. Interest in the industry became much deeper in the twentieth century (Watson 1995:85-89). As prominent as the lumber industry became in the New River region, it was extractive and therefore did not bring economic prosperity to Onslow County (Loftfield 1981:163).

During the closing decades of the nineteenth century, Jacksonville's population was growing as a result of the lumber industry and the town's location on the railroad. In 1883, legislation enlarged its corporate limits and in the following decade a commission-style government was installed. At the turn of the century, Jacksonville, the largest town in Onslow County, could count three corn mills, a cotton gin, nine boardinghouses, and a carriage maker's shop. In 1891, the Wilmington, Onslow, and East Carolina

Railroad, which ran from Wilmington to Jacksonville, was completed and began hauling lumber (Watson 1995:94). The population had more than doubled from 170 residents in 1890 to 309 in 1900 (Watson 1995:98). As these population figures illustrate, Jacksonville was yet to be even a small town.

Aside from agriculture, several other industries that were present in Onslow County in the first half of the twentieth century were dependent on its natural environment. Naval stores had a long history in the area, but by World War I the industry in the county, as well as the rest of North Carolina, was drawing to a close due to the depletion of turpentine resources. In its wake, the lumber industry grew to new proportions and became one of the most significant manufacturing industries in the county (Watson 1995:115). Swansboro grew as a result of the expansion of the lumber industry. New homes and commercial buildings appeared there in the 1920s. In the early twentieth century, there were at least three large sawmills on the New River at Jacksonville (Onslow County Historical Society 1983:43). Fishing, long a traditional source of income for Onlsow County residents, was an important component of the local economy throughout the twentieth century (Watson 1995:115). Along the shores of the New River, resorts and hunting camps were established as the tourist industry began to lay roots in the county (Loftfield 1981:166). Despite these developments, there was no question that agriculture was of paramount importance. On the eve of World War II, Onslow County was, as it had been throughout its history, rural and relatively isolated. As it was becoming clear that the United States would be drawn into World War II, Onslow County attracted interest from the defense industry. The county's proximity to the coast and the availability of land were strong incentives. Holly Ridge, which was an insignificant crossroads settlement, became the location of the 3,200-acre Camp Davis in 1940. One thousand buildings were constructed in several months time in order to facilitate the arrival of trainees. An antiaircraft training facility, the camp was operated by the War Department during World War II. Soldiers at Camp Davis, noting Holly Ridge's amazing growth, often referred to it as "Boom Town" (Watson 1995:106-107; Onslow County Historical Society, 1983:23). Military training facilities were also created at Topsail Island and Fort Fisher. Following the war, Camp Davis was turned over to the Marine Corps (Watson 1995:132-133).

MCB Camp Lejeune/MCAS New River

The construction of MCB Camp Lejeune during World War II was perhaps the most significant event in the history of Onslow County since the Civil War. Despite the fact that hundreds of individuals were dislocated in order for construction to proceed, the New River region quickly became the most populous area in the county following the base's construction. Jacksonville emerged as the urban center of Onslow as the base created numerous new jobs and became a major employer in the central part of the county. The establishment of MCB Camp Lejeune brought economic prosperity to Onslow County and modernization. The largest Marine base in the United States, MCB Camp Lejeune also garnered prestige for the state of North Carolina as a whole (Watson 1995:133-134).

MCB Camp Lejeune, originally known as Marine Barracks at New River, was established in 1941. With war raging in Europe and the United States growing more involved every day, the need for a new Marine training facility became apparent. The War Department had determined that existing bases at Quantico, Virginia and Parris Island, South Carolina were not large enough to accommodate the training of troops. In February of 1941, the War Department's request for a new facility was approved by the House Naval Affairs Committee which then ordered the Secretary of the Navy to proceed with finding a location suitable for a base. Marine officers searched the coast from Norfolk, Virginia to Corpus Christi, Texas before deciding that the New River area was the most desirable (Watson 1995:133-134). The new base spanned 110,000 acres, or 170 square miles, and included 14 miles of oceanfront (Onslow County Historical Society 1983:51-52).

The construction of the base was a massive undertaking such as Onslow County had never seen. Three firms out of Charlotte were employed to fill contracts for over $14 million, the largest defense contract ever awarded in the South at that time (Carraway 1946:17-18). Eight thousand individuals from around the region were employed in the effort that began in April of 1941 and continued throughout the war (Carraway 1946:18-23). Initial construction began on the north side of New River between Hadnot Point and French's Creek (Watson 1995:134). The Civilian Conservation Corps assisted with building roads and draining swamplands (Carraway 1946:18-23). As construction progressed and troops began to arrive, the base was renamed MCB Camp Lejeune in honor of Lt. Gen. John A. Lejeune, a World War I veteran and former commandant of the Marine Corps (Onslow County Historical Society 1983:51-52).

The effect in Jacksonville was immediately felt. Several days after construction began, the local newspaper described the scene. "Already Jacksonville is crowded. Hundreds more people are expected tomorrow and the day after" (*Onslow County News and Views* 1941a). Census figures illustrate the incredible surge in population that the county experienced. In 1940, the census counted 17,939 in Onslow County. By the end of the decade, that number had more than doubled to 42,157 (Watson 1995:105). Following the attack on Pearl Harbor and the United States' entry into World War II, the already remarkable pace of construction at MCB Camp Lejeune was increased (Watson 1995: 134).

By the end of the war, the base was the most modern of its kind in the nation. After President Franklin D. Roosevelt issued Executive Order 8802 barring discrimination in defense programs in 1941, the first African American troops arrived to train at the Montford Point area of MCB Camp Lejeune (Carraway 1946:51). Women were trained at the base in nearly all facets of the military (except fighting) beginning in 1943 (Watson 1995:135). The camp hospital was completed in the same year. There was also a dog training school where hundreds of canines were prepared for war duty (Carraway 1946:35-36). Recreational facilities were expanded midway through the war and included nine movie theaters, a stadium, and a 36-hole golf course (Carraway 1946:23-27). At the end of the war, the base had stocked fish ponds, a bird sanctuary, and recreational beachfront (Carraway 1946:31-37). MCB Camp Lejeune brought enormous residential growth to the Jacksonville area. Before the construction of MCB Camp Lejeune, Jacksonville had a population of 873. In 1950, its population had risen to 3,960 and by 1960, it reached 13,491 (Watson 1995:106).

For MCB Camp Lejeune to become a reality, hundreds of individuals who were living within the area encompassed by the new base were forced to relinquish rights to their land and property. Many residents of the area, which was predominantly rural and agricultural, had lived there for generations and established productive farms. Some had established small businesses, such as the tourist cabins that were beginning to appear around Paradise Point in the 1930s. Churches and cemeteries dotted the landscape. The needs of the national military, however, required that all of these places be emptied. Approximately 720 families living within the New River region had to vacate (Watson 1995:135). Those residing in the northern part of the planned base were given an evacuation deadline of June 1, 1941 (*Onslow County News and Views,* 1941b) while those in other areas that were not slated for immediate construction had until early fall of that year (*Onslow County News and Views* 1941c). Throughout 1941, the US Navy conducted appraisals of land and structural property across the area planned for the base in order to compensate the owners (*Onslow County News and Views* 1941d). There was also the task of documenting and removing hundreds of graves, some of which were solitary burials and others full-fledged cemeteries, in order to make way for military training. Whites were subsequently re-interred in nearby Montfort Point and blacks in Verona (Onslow County Old Cemetery Society 1997).

"The order to evacuate came as a paralyzing shock," wrote historian and longtime resident of Onslow County Joseph Parsons Brown, leaving residents "stunned and hopeless and without money." For this land that had recently become some of the most desirable real estate in the country, the military offered an average of twelve dollars per acre (Brown 1960:188). While not all residents living within the region were opposed to the establishment of a base, many voiced objections to the price offered for their property and the time frame within which they had to leave. The September 1 evacuation deadline conflicted with the way of life of many inhabitants of the New River region. E.B. Smith, a prominent citizen of Marines (a town in the boundaries of the planned base) expressed his opinions in the local newspaper. "You see, our farming isn't over September 1," Smith said, "pigs aren't fat and tobacco ain't mature" (*Onslow County News and Views* 1941e). As a result of complaints, those who were farming in the area were permitted to harvest their crops before they vacated. Still, dissatisfaction concerning the amount of compensation persisted. To combat this resistance, the government chose to condemn the property of those who refused to leave it (Loftfield 1981:168-169). Later in 1941, a group of residents submitted a petition calling the methods of the Navy "cursory, farcical, and un-American" (*Onslow County News and Views* 1941c).

Nevertheless, the thousands of acres that became MCB Camp Lejeune were turned over to the military (mostly through condemnation procedures) and the inhabitants had to find another place to live. The North Carolina Defense Relocation Corporation, which was created by the Farm Security Administration and the State Department of Agriculture, helped dislocated individuals find new farms in Onslow and nearby counties. The organization also provided temporary housing for both white and black residents of what was to become MCB Camp Lejeune (*Onslow County News and Views* 1941f). Compensation was slow in arriving, especially for those whose principal investment was their land. While some, such as Lonnie Spicer, received compensation in the same year that they evacuated, most waited two years before they received their checks (Brown 1960:187). Although it created much needed jobs and economic development, the transformation that came with the creation of MCB Camp Lejeune was nonetheless difficult for many residents of Onslow County.

Craven County. Permanent European settlement of North Carolina began during the 1650s, when colonists began migrating south from Virginia in search of open lands. In 1696, Bath County was organized along the banks of Pamlico Sound, and included the area that today is known as Craven County (Watson 1987:2-4; Thorne 1984:7).

The first recorded exploration of the unsettled southern portion of Bath County occurred in 1700, when John Lawson journeyed inland along the Neuse River. The first large settlement was established in 1710, when Baron Christoph von Graffenried of Bern, Switzerland established a settlement on the Neuse River. The new settlement he laid out was named "Neuse-Bern". The town was later known as New Bern by English settlers in the region (Thorne 1984:3).

The region's developing economy was based primarily on agriculture. Although tobacco was an important crop, it did not dominate North Carolina's agriculture to the extent that it did in Maryland and Virginia. The major commodities produced were corn, peas, wheat, lumber, and livestock (Lefler and Newsome 1973:91, 96-97, 100). However, it was the burgeoning naval stores trade that would dominate southeastern North Carolina's "agricultural" output for the next century.

Naval stores were products essential to wooden ship-building, such as turpentine, spirits of turpentine, rosin, tar, and pitch. These products were derived from the area's dense longleaf pine forests. For example, tar was produced by burning pine trees over earthen covered pits, or in kilns, and then collecting the liquid tar that leached out during this process. Many tar kiln sites have been identified at MCAS Cherry Point.

During the colonial era, the area occupied by the present boundaries of MCAS Cherry Point remained virtually uninhabited until the mid-1700s. The first land grant in the area was awarded in 1707 to William Handcock, who acquired 1,320 acres on the mouth of Hancock Creek. One of the earliest known inhabitants of the area was John Slocum, who, in 1730, acquired 300 acres at the mouth of Slocum Creek, which still bears his name. Affluent planters occupied prime river locations at the mouths of Hancock and Slocum Creeks from where they conducted trade with merchants on the Neuse River; the middle classes occupied tracts along the middle reaches of the creeks, and lower class subsistence farmers occupied the upper reaches of the creeks.

North Carolina joined the Confederacy on May 20, 1861. On March 12 1862, a combined Union expeditionary force, under command of General Ambrose Burnside, entered the Neuse River. At daybreak on March 13, in preparation for disembarking troops, Union gunboats commenced a bombardment of the northern shore above the mouth of Slocum's Creek, on land currently occupied by MCAS Cherry Point. The troops landed unchallenged and advanced along the river, protected by Union gunboats. Burnside's victorious troops occupied New Bern late on the afternoon of March 14, 1862. The Union army occupied the town of New Bern for the remainder of the war.

Economic development and diversification during the period following the Civil War was slow as the entire region began to recover. Black and white citizens of the county accommodated themselves to the changing social structure and depressed economy of the period. The development of the County's industrial base during this period was linked almost entirely to the County's agricultural output. The naval stores industry, already in decline before the Civil War, ceased to exist by the 1890s. This period saw the rise of an extensive lumbering industry in the county, harvesting softwoods and hardwoods.

The timber industry continued to be the economic mainstay of area occupied by the present boundaries of MCAS Cherry Point during the late nineteenth and early twentieth century. An 1878 U.S. Coast and Geodetic Survey chart of the area depicts large tracts of forest and a small number of fields along the rivers and creeks in the project area.

MCAS Cherry Point

The advent of World War II transformed Craven County drastically. On February 19, 1941, the Federal government approved the construction of the Marine Corps Air Station at Cherry Point. Congress authorized $25,000,000 for construction of a main base, six airfields, and four auxiliary airfields. The base was named originally in honor of Lieutenant General Alfred Cunningham, the first Marine pilot, but later was renamed Cherry Point, the name of a near-by post office that closed in 1935. The base served as a training facility for aviators throughout the war. Hangers, runways, barracks, storage and repair buildings, drainage ditches, railroad spurs, and water wells were constructed to support operations at the Air Station. The Third and Ninth Marine Aircraft Wing were formed at the base during this period. The Base population and facilities at MCAS Cherry Point expanded exponentially throughout the war. In 1941, at the time of the battle of Pearl Harbor, 86 people were assigned to MCAS Cherry Point; this number increased to 4,670 within a year. By 1943, the base housed 21,667 personnel, and, by 1944, that number peaked at 23,250 (Coletta 1985:108- 109). By the end of World War II, MCAS Cherry Point was the world's largest Marine Corps Air Station and included Army and Navy personnel and their airplanes (Coletta 1985: 107-109). Following the deactivation of MCAS Cherry Point in 1946, it became the official home of the Second Marine Aircraft Wing (Watson 1987:605).

With the start of the Korean Conflict in 1950, MCAS Cherry Point experienced new growth; runways were extended, fuel storage increased, and additional hangars and warehouses were constructed (Coletta 1985:112). By the mid-1970s, the combined payroll of the 9000 marines and 4000 civilian workers stationed at the base was $135,000,000. Among North Carolina's counties, only Cumberland County had more civilians federally employed (Watson 1987:606).

The primary mission of MCAS Cherry Point has always been to provide facilities for the training and support of Marine aviators. It is a primary aviation supply point and hosts the Naval Aviation Depot (NADEP). The NADEP performs a complete range of rework operations on designated weapon systems, accessories, aviation equipment, and planes. The NADEP at MCAS Cherry Point is one of eastern North Carolina's largest industrial facilities, employing over 3,000 civilian personnel.

APPENDIX H
COMMENTS AND RESPONSES

COMMENTS AND RESPONSES

1.0 Introduction

This appendix contains comments received from federal, state, and local agencies, organizations, and the general public at the public hearing meetings held August 18-20, 2009 for the USMC Grow the Force in North Carolina Draft Environmental Impact Statement (EIS) and during the entire Draft EIS comment period which began on July 17, 2009 and closed on September 8, 2009. In accordance with the National Environmental Policy Act (NEPA), public and agency comments were reviewed and substantive comments incorporated into this final EIS. While there were no oral comments provided by attendees of the hearing meetings, transcripts of the presentations follow the response section.

2.0 Comment Response Process

Comments on the Draft EIS were generated through written correspondence and oral testimony during the public comment period. The following process was used for reviewing and responding to these comments:

- All comment letters, emails, and oral testimony were reviewed carefully and assigned a unique number. This number was also assigned to the commenter.
- Within each letter, email, or testimony, substantive comments were identified and bracketed. These bracketed comments were then reviewed by a resource specialist and provided a response. Three guidelines were used for determining substantive comments:
    1. The comment questioned the proposed action, alternatives, or other components of the proposal.
    2. The methodology of the analysis or results was questioned.
    3. The use, adequacy, and/or accuracy of data were questioned.
- The individual bracketed comments were assigned a response code corresponding to a specific resource and arranged by commenter. The responses to comments appear in the Response section of this volume. Due to the similarity of many comments, some comments were assigned the same response.

A directory of commenter’s last names placed in order of the date of receipt of their comment, with their associated comment number, and page number where the commenter’s letter and/or testimony begins is also provided.

3.0 Locating Your Comment

The directory provides an alphabetical listing of commenter's by last name. After locating your name, note the number in the first column. This number was assigned to your comment document and is found in the upper right-hand corner of the letter or wherever space was provided.

The comments are printed in numerical order and are organized into two sections—from the public and from the government and/or agency. Public comment letters begin with 00001 and government/agency comments begin with 8000 (Table H-1).

Table H-1 Comment Location*

Comment Number	Last Name	Page Number
00001	Anonymous	H-5
00002	Moore	H-6
00003	Duncan	H-7
00004	Sage	H-9
00005	Sage	H-10
00006	Hall	H-11
00007	Kier	H-12
00008	Sutherland	H-13
00009	Hemmingway	H-17
80001	Jones County	H-18
80002	USEPA Region 4	H-19
80003	U.S. Department of Interior (DOI)	H-26
80004	USACE-Wilmington District	H-27
80005	USFWS-Raleigh Field Office	H-29
80006	NC Clearinghouse	H-31
80007	NC SHPO	H-58

** Comments received after the comment period expired are located following public comments.*

4.0 Locating Responses to Comments

All comments were given a response code; the resource categories and the associated response code are listed below. All comments not requiring additional responses were given a "Thank You" (TY) response. Responses are found in the Response section of this volume (Table H-2).

Table 2: Resource Response Codes

Resource	***Response Code***
Air Quality	AQ
Biology	B
Community Services	Cs
Cumulative	Cu
DOPAA	Do
General	G
Land Use	LU
Noise	N
Traffic	T
Thank You	TY
Water Quality/Wetlands	W

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COMMENTS

00001

COMMENT SHEET

USMC Grow the Force at Marine Corps Base (MCB) Camp Lejeune, Marine Corps Air Station (MCAS) New River, and MCAS Cherry Point, North Carolina Draft Environmental Impact Statement (EIS)

Thank you for providing your comments on the Draft EIS for Grow the Force at MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point. Please provide us with your comments no later than September 8, 2009. Comments may be submitted orally or written at the hearing, by visiting the project website at www.GrowTheForceNC.com, or via U.S. Postal Service to the address below. ***All comments, no matter how they are submitted, are considered equally.***

NOTE impacts on traffic @ Cherry Pt? T-001
sewer

Over for more space →

Please Print

Name:
Address:
Email:

Please note, those who submit comments will have their name, city, and state published in the Final EIS.

Please check here if you would like to be on the mailing list ______.

Please check here if you would like your name/address kept private ______.

Would you like to receive a hard copy ____ or CD ____ of the Final EIS?

Please give this form to one of the Marine Corps representatives here at the hearing meeting, place in a comment box, or mail to:

EIS Project Manager
Naval Facilities Engineering Command Mid-Atlantic, Code BMEV31
Building C, Room 3012, 6506 Hampton Blvd
Norfolk, VA 23508-1278

00002

TY

COMMENT SHEET

USMC Grow the Force at Marine Corps Base (MCB) Camp Lejeune, Marine Corps Air Station (MCAS) New River, and MCAS Cherry Point, North Carolina Draft Environmental Impact Statement (EIS)

Thank you for providing your comments on the Draft EIS for Grow the Force at MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point. Please provide us with your comments no later than September 8, 2009. Comments may be submitted orally or written at the hearing, by visiting the project website at www.GrowTheForceNC.com, or via U.S. Postal Service to the address below. ***All comments, no matter how they are submitted, are considered equally.***

In my opinion this projects impact on the affected economies is a great plus. What it can potentially bring far more out weighs ~~the~~ what we will lose environmentally. It will provide great benefits to our armed forces and their quality of life which is very important with the way technology is growing and the potential threat of warfare. Any attempt to support growth in these services not only helps our national security, but also boosts economies where they are allowed to happen. Providing current and future military partners a more family friendly job will not only boost re-enlistments and recruiting, but also stimulate local job growth with schools, roads, construction and law enforcement. This is a step in the direction of getting back to taking action to show the armed services that we care and support them, which is ultimately what stimulated ~~our~~ our economy during the last great recession

Over for more space →

Please Print

Name: Derrick J. Moore

Address: Havelock NC 28532

Email:

Please note, those who submit comments will have their name, city, and state published in the Final EIS.

Please check here if you would like to be on the mailing list ✓.

Please check here if you would like your name/address kept private ______.

Would you like to receive a hard copy ✓ or CD ____ of the Final EIS?

Please give this form to one of the Marine Corps representatives here at the hearing meeting, place in a comment box, or mail to:

EIS Project Manager
Naval Facilities Engineering Command Mid-Atlantic, Code BMEV31
Building C, Room 3012, 6506 Hampton Blvd
Norfolk, VA 23508-1278

COMMENT SHEET

USMC Grow the Force at Marine Corps Base (MCB) Camp Lejeune, Marine Corps Air Station (MCAS) New River, and MCAS Cherry Point, North Carolina Draft Environmental Impact Statement (EIS)

Thank you for providing your comments on the Draft EIS for Grow the Force at MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point. Please provide us with your comments no later than September 8, 2009. Comments may be submitted orally or written at the hearing, by visiting the project website at www.GrowTheForceNC.com, or via U.S. Postal Service to the address below. ***All comments, no matter how they are submitted, are considered equally.***

Based on the needs of Eastern North Carolina and the United States Marine Corps, I strongly believe as the the Military Numbers grow and their families grow, so do their special needs. ~~just as~~ More and more families are faced with raising a special needs child. I applaud the GTF committee in identifying areas of daycare needs for the young families. However, the special needs of a child with developmental, either mental or physical, is a need the family is faced with forever. The child will not be able to attend school as a "normal" youth or teenager and this burden will be placed on the families. The USMC has many families with these

Over for more space →

Please Print

Name: Stephanie Duncan
Address: Havelock, NC 28532
Email:

Please note, those who submit comments will have their name, city, and state published in the Final EIS.

Please check here if you would like to be on the mailing list ✓.

Please check here if you would like your name/address kept private ______.

Would you like to receive a hard copy ____ or CD ✓ of the Final EIS?

Please give this form to one of the Marine Corps representatives here at the hearing meeting, place in a comment box, or mail to:

EIS Project Manager
Naval Facilities Engineering Command Mid-Atlantic, Code BMEV31
Building C, Room 3012, 6506 Hampton Blvd
Norfolk, VA 23508-1278

00003

needs and should ~~identi~~ offer a resource to the families.

CS-001

Ferguson, Emily F.

From: Sage, Ronald
Sent: Wednesday, August 19, 2009 8:24 AM
To: michael.h.jones1@navy.mil; Ferguson, Emily F.
Subject: USMC 202k EIS

Name: Ronald Sage
Email Address:
Company: Havelock Resident
Address 1:
Address 2:
City: Havelock
State: North Carolina
Zip Code: 28532

How does this EIS for Cherry Point meet up with the entire document for GTF? When viewing the website, there is alot of information concerning impacts to the area, and the City of Havelock. In the meeting and this EIS, this is more specific to only Cherry Point, and not the City of Havelock. How do these two documents marry up? Or are they intended to? G-001

I think part of the reason for the low turnout at the Havelock meeting was due to this understanding, that this only pertains to the Base, and has nothing to do with the City.

An analogy would be this presentation was at the 30K foot level, presenting such a broad overview, and the residents are looking for something closer to ground, perhaps at the 5K foot level and how this will impact the City.

Ferguson, Emily F.

From: Sage, Ronald
Sent: Wednesday, August 19, 2009 8:17 AM
To: michael.h.jones1@navy.mil; Ferguson, Emily F.
Subject: USMC 202k EIS

Name: Ronald Sage
Email Address:
Company: Havelock Resident
Address 1:
Address 2:
City: Havelock
State: North Carolina
Zip Code: 28532

Chapter 3, subchapter 3.5. When considering the widening of Roosevelt Blvd. Roosevelt passes by the end of a runway, with one side being that runway and the other being an open field with a paved running path next to.

How will the widening affect this area?

As you progress out, as you pass next to the Slocum Creek waterway, how are you expecting to widen this area?

In consideration for the avid runner who prefers and uses the natural dirt pathway created on the right hand side of the road and next to the woods line, how close to this woods line edge is the widening planned to be? R-001

Will the widening (and subsequent line painting) take into consideration any crosswalk type over the access road leading to the Base Environmental bldg's and Rifle Range Rd (currently the intersection crossover for runners taking the natural trail along side the woods edge along Roosevelt)?

Will the widening (and subsequent line painting) take into consideration any crosswalk type over the compond acces at the last traffic light, on the right hand side of the road (currently the intersection crossover for runners taking the natural trail along side the woods edge)?

Ferguson, Emily F.

From: Hall, Jeff |
Sent: Thursday, August 20, 2009 2:25 PM
To: michael.h.jones1@navy.mil; Ferguson, Emily F.
Subject: USMC 202k EIS

Name: Jeff Hall
Email Address:
Company: NC Wildlife Resources Commission Address 1: Address 2:
City: Greenville
State: North Carolina
Zip Code: 27858

Thank you for the opportunity to comment on this EIS draft. I have been fortunate to work with many wonderful civilian and military staff at these installations. I wanted folks on all 3 installations to strongly consider limiting fragmentation of habitats as much as possible - especially long leaf pine communities.

Many rare and endangered species can be found on all 3 installations mentioned in the EIS and nearly all of these rare species are associated with longleaf pine forest. Not too many specifics are in the EIS about how and where new infrastructure will be placed. I am particularly concerned about two species at MCB Camp Lejeune - the gopher frog and the Eastern diamond-backed rattlesnake. B-001

There are about a dozen or so known gopher frog breeding sites at Camp Lejeune. These need to maintain as much connectivity as possible for this species to survive. Gopher frogs are not doing very well anywhere across the Southeast so anything the military can do to help this species out would be very beneficial.

The Eastern diamond-backed rattlesnake has become an extremely endangered snake in North Carolina. MCB Camp Lejeune appears to have one of the most (if not the only) significant populations of this species in the state. These snakes (as well as many other species) require large blocks of unfragmented longleaf forest.

I would strongly urge planners at all three bases, especially Camp Lejeune, to steer new development projects (including roads) away from existing well-established fire-maintained longleaf pine ecosystems. If roads must be built through some of these systems, I would encourage the use of wildlife underpasses wherever possible, but especially if the road passes between two upland ephemeral wetlands with potential for gopher frogs. B-002

These three installations are real treasures for North Carolinians. I appreciate the efforts of various military staff to mitigate environmental impacts of growth. Thank you again for the opportunity to submit comments.

00007

TY

Ferguson, Emily F.

From: Kier, Kathy
Sent: Saturday, August 29, 2009 7:31 PM
To: michael.h.jones1@navy.mil; Ferguson, Emily F.
Subject: USMC 202k EIS

Name: Kathy Kier
Email Address:
Company: Good Stuff
Address 1: Newport NC 28570
Address 2:
City: Newport
State: North Carolina
Zip Code: 28570

I have been waiting seven years for the Super Hornets to come to Cherry Point MCAS, Havelock, NC.

The 'only environmental impact' Our Super Hornets would have is to damage the egos of those who are still fighting the Civil War here, and the Nazi sympathizers who helped the Germans sink American boats off the NC coast. Beaufort residents have bragged how they could read their newspaper at night out on the porch from the burning of the sunken ships so close to shore (WWII).

And let's not forget the drug smuggling that occurs down at North Shore: so of course they would not want increased federal activity.

The hype and commotion that have followed the original proposal over seven years ago is just a smoke screen for "local feeling".

These people still hate Northerner's {also known as "Damn Yankees}. When you see the "Johnny Reb" flag flown more than the American: you are definitely dealing with generational hatred and ignorance.

The geese (or whatever birds they want to come up with) are just a smokescreen for this anti-federal irrational, illogic.

No one is shutting down La Guardia, or JFK International Airport because of a few geese that get sucked into airplane engines every now and then. It's a fact of life, and oh, well... Life goes on.

I went to the first, original meetings, wrote letters in support of the project: and then could not believe the blarney that followed.

The United States Marines{and all of our Armed Forces}, are supposed to protect its' citizenry. And sometimes that's even against their own illiteracy and ignorance. They don't really care about "the birds": it's simply that it is a federal project coming out of Washington, DC.

Their great-great-great-granddaddy was killed by Union forces, and this has been drilled into them since birth. They know nothing of Andersonville or Fort Sumter. They idolize a rapist, thief and murderer (Blackbeard) and name their college mascots after this icon of wickedness.

To outfox the fox, not only must you be able to think like the fox: but to outwit him means check-mating his predictable maneuvers.

One of the fox's (opponents) favorite tactics is to cry loudly and longly that they {or something weaker than they-the birds} are being taken advantage of. They get maximum publicity {after rounding up some petitions}: and don't forget who owns the local newspaper in Carteret County, and keep crying very loudly how terribly they are being victimized {the birds}. Don't forget it's your locals who decide what story gets put on the evening news.

All the time, of course, they could care less what happens to the birds. What do you think they teach their 8 year olds to practice shooting on Down East?

Sincerely, Kathy Kier

GTF EIS Project Manager
Naval Facilities Engineering Command Mid-Atlantic
Code BMEV31, Building C
Room 3012
6506 Hampton Blvd.
Norfolk, VA 23508-1278

Dear Project Manager,

I have reviewed the wildlife/natural resources component of the Draft EIS, and respectfully make the following comments, pursuant to my expertise in the conservation of reptiles and amphibians:

1. The Draft EIS underestimates the severe threat posed by base expansion to certain rare native wildlife species

The Draft EIS briefly mentions increased road mortality as a likely result of the preferred alternative, but does not adequately address the scope of the likely impact on wildlife populations. The EIS should more clearly acknowledge in the wildlife/natural resources section that under the preferred alternative, traffic growth will result both on the new four lane highway that is proposed for construction, AND on existing roads across the base.

The species that will likely receive the worst impact from this expansion in vehicle-miles travelled will be the eastern diamondback rattlesnake, *Crotalus adamanteus*. Within its former range in North Carolina, this species has in recent years only been documented alive on Camp Lejeune, according to herpetologists at the NC Museum of Natural Sciences and the NC Wildlife Resources Commission. Thus, it seems reasonable to suggest that Camp Lejeune now harbors the most important (and more likely, the only) sizeable population of this snake in North Carolina. The species is state-listed as endangered, and is widely regarded by professional herpetologists to be under serious decline throughout its range in the southeastern USA, primarily due to the same factors that would increase as a result of the Camp Lejeune expansion plan (road traffic, and human contact, since many people kill the snakes whenever they see them). Given the rate of urban expansion in the coastal plain region of the southeastern USA (which once formed the bulk of the snake's historic range), the species probably deserves to be federally listed as Threatened pursuant to the Endangered Species Act.

Eastern diamondback rattlesnakes are especially vulnerable to road mortality for the following reasons: A. they are diurnal and thus cross roads during peak traffic times, B. they are large animals and thus more vulnerable to being struck and killed by any passing cars when stretched across the road, C. they cross roads very slowly, in contrast to common species such as the black racer (*Coluber constrictor*), D. they have a very slow reproductive rate, giving birth to small litters only every other year or every three years, and E. unlike with turtles and other wildlife species, motorists will swerve to hit rattlesnakes they see on the road, even if the collision was otherwise avoidable.

At present, there is no indication that the rattlesnake population on Camp Lejeune is stable under the existing traffic load on base. In fact, the confinement of the snake to the impact zones and their associated buffers on Lejeune may be seen as evidence that the existing levels of road mortality/human contact are too severe on the otherwise apparently suitable habitat that occurs over much of the natural areas on base. Limited survey efforts in recent years by the NC Wildlife Resources Commission, base environmental staff, and volunteers have produced only a handful of sightings of the species, at least one of which was killed during military activities (removal of a vehicle target).

Since there is little reason to expect that the snake population is secure under existing conditions on Camp Lejeune (nor in any other area within its former range in NC), and since the snake is known to be highly sensitive to road mortality and human contact, it follows that any major expansion of human activities on Camp Lejeune will come at the detriment of the eastern diamondback rattlesnake.

The possibility that the Preferred Alternative would result in the extinction of the only known population of eastern diamondback rattlesnakes of any magnitude in North Carolina cannot be ruled out with existing survey data.

In my professional opinion, based on completion of a seven-year Ph.D. dissertation focused on road and urbanization impacts on rare snakes (including eastern diamondbacks) and other wildlife, the proposed expansion does pose a serious extinction threat to the snake on Camp Lejeune. B-001

Given the extremely low encounter rates already observed for the species at Camp Lejeune, there is reason to believe that no more than a few hundred adult eastern diamondbacks remain on base. Given the slow-reproductive rate mentioned above, increased levels of road mortality may certainly be enough to push the small population over the edge to collapse, even if the core occupied habitat for the snake (the impact zones) remains off-limits to vehicle traffic.

My own dissertation research (available on request, in preparation for publication) indicates that roads with greater than 2000 vehicles/day yield significantly reduced snake encounter rates, signaling local population collapse for certain species. Many of the roads on base are already well over this threshold, and it seems likely that additional low traffic roads would be pushed beyond this threshold by the expansion in base activities described in the Preferred Alternative, to the detriment of the rattlesnakes and other rare wildlife species.

The same increase in traffic and human activity also poses a severe threat to the Southern Hognose snake (*Heterodon simus*), which is also a slow-moving diurnal species of conservation concern in North B-003
Carolina and across the southeast. The preferred alternative would also jeopardize the survival of any populations of Carolina Gopher frogs that remain on base, due to the increased road mortality that would be expected for adults and dispersing juveniles of this rare terrestrial frog species. B-001

2. Possible mitigation measures

The draft EIS makes some mention of possible mitigation measures that might be pursued to lessen the impact of the Preferred Alternative. However, simply acknowledging the threat posed to rare wildlife species in the environmental impact statement seems to provide no guarantee that any of the possible mitigation measures listed in the draft EIS will actually be undertaken once the preferred alternative is adopted by the military. Therefore, in my opinion the preferred alternative does in fact pose a strident danger to the persistence of at least one state-endangered vertebrate species in North Carolina, regardless of the casual listing of possible mitigation measures that is provided in the EIS.

Given the immediate danger to the endangered rattlesnake population that is posed by the current description of the preferred alternative, I suggest that the measures listed below be adopted as part of (or at least as preconditions of) the plans for expansion at Camp Lejeune and Cherry Point:

A. generate a more comprehensive analysis of the traffic growth expected on the roads on Camp Lejeune, paying particular attention to the growth that will occur on roads that pass by suitable habitat for the rattlesnake and other rare vertebrates.

B. survey for the rattlesnake (at least in areas outside of the impact zones) in a more effective way, possibly including the use of large drift fences with funnel traps, or trained wildlife detection dogs (I can provide more information on the dogs). The goal should be arriving at a rough estimate of the current distribution of the snake on base, and a total population size. This information would enable a proper assessment of the current conservation status of the rattlesnake on Camp Lejeune, and also a forecast of the impacts of proposed expansions. These surveys should be undertaken prior to the expansion of activities on base.

C. clearly identify the roads (existing and proposed) where existing or additional vehicle traffic poses the worst threat to the rattlesnake population

D. construct wildlife underpasses at a number of strategic points along these priority roads (both existing and new), with fences that are designed to channel snakes to the culverts that pass under the roadway. Essentially, there should be underpasses in all directions from each major block of eastern diamondback rattlesnake habitat (e.g. the impact zones. buffer areas, and large tracts of forest nearby).

E. review the existing road infrastructure surrounding the impact areas, and make a plan for closing certain priority roads to vehicle traffic, at least during the snake active season

F. coordinate with land conservation groups (state and local) and federal agencies to promote broader habitat conservation efforts in the former range of the snake in southeastern NC. Likely target areas would include Croatan National Forest, Hoffman Forest, the Great Sandy Run pocosin area, and western Pender county.

G. Launch a coordinated education effort to promote awareness of the conservation status of this often-vilified snake species amongst base personnel. Goals would be to reduce the rate at which the snake is killed upon human contact (e.g. via an order from the base commanding officer forbidding killing the snake, which is quite easy to avoid once observed), and to increase the rate at which sightings of the rattlesnake are reported in a timely fashion to the environmental management office at the base.

H. Survey for the rattlesnake at the Cherry Point facility as well, as the snake historically occurred in the vicinity of that installation.

These actions would also generally benefit the following species of conservation concern: timber rattlesnake, pygmy rattlesnake, mimic glass lizard, southern hognose snake, and Carolina Gopher frog.

3. Consider other options:
Given the extreme vulnerability of the eastern diamondback rattlesnake in North Carolina, even with the mitigation measures listed above, the snake may still be driven to extinction by the expansion of base activities described in the Preferred Alternative.

From the perspective of maintaining a viable eastern diamondback rattlesnake on Camp Lejeune, clearly the best alternative is either "no expansion" or "contraction" of base activities. Do-001

It is conceivable however that plans for base expansion could be altered in such a way that the negative impacts on rattlesnake habitat and survival rates would be **eliminated** (not just "minimized", a term which is often used as a euphemism for "largely ignored" in this sort of environmental impact analysis).

Preventing the negative impact of base expansion on the rattlesnake would include a combination of the following:

A. Confining the construction of new buildings to existing developed areas on base, as far as possible from the core rattlesnake habitat zones. If natural areas will be disturbed, these should be directly mitigated on base by the equivalent removal of human activity centers (occupied buildings and roads) in more remote parts of the base nearer to rattlesnake core habitat zones.

B. Devising a new traffic management plan that would truly and effectively prevent any increase in vehicle traffic on all roads within the vicinity of the large natural areas on the base. For any roads where traffic will unavoidably increase, numerous wildlife passageways with snake-proof fences would need to be installed and maintained on a regular basis.

C. Devising some way to augment the population size and survival rate of the rattlesnake on base and on surrounding major habitats (e.g. Croatan NF), to make it more resilient to current levels of road mortality. These could include head-starting juvenile snakes produced via captive breeding of locally-derived (e.g. not from South Carolina or Florida) adult rattlesnakes, and also providing additional hibernaculum structures at various remote parts of the base that would not be subject to regular demolition. The eastern diamondback reaches the northern limit of its range in North Carolina, and thus may be particularly sensitive to any lack of appropriate hibernation dens to protect it from winter frost.

D. Finding some way to mitigate the additional residential and commercial development that will occur off of Camp Lejeune as a result of the base expansion plans. Such new development will likely occur in existing privately owned natural and semi-natural landscapes surrounding the base, making the survival and dispersal of the rattlesnake that much more unlikely in the greater Onslow Bight region. I did not see any reference to this additional off-base development in the Draft EIS with respect to wildlife conservation, but clearly if thousands of additional Marines are transferred to Camp Lejeune, even if they all live on base (which seems doubtful), they will support additional economic activity and development (and traffic) off of the base. Indeed, such development is at the heart of why certain political leaders in states such as North Carolina were so eager to receive additional military activities during the BRAC process. The best way to mitigate this additional development from the standpoint of wildlife conservation would be to spend a substantial amount of money (e.g. tens of millions of dollars, given the magnitude of the proposed expansion) buying and permanently protecting the remaining large blocks of private natural lands surrounding the existing major conservation sites in the region. These would include buffer zones around Camp Lejeune, Cherry Point, Croatan NF, Hoffman State Forest, Holly Shelter, etc.

Since there is no evidence that the existing arrangement of natural habitats (public and privately owned) is sufficient to actually maintain a viable population of eastern diamondbacks in southeastern NC, 1:1 mitigation of the base expansion plan footprint via purchase of small parcels of existing habitat should not be construed as sufficient to stabilize the snake population. Road mortality must be addressed in a meaningful and effective way if this species is expected to survive in North Carolina, and in all likelihood, the total amount of low-road-density, wilderness-type environments must be increased, not just stabilized. B-003

Thank you for your consideration, and I will be happy to provide additional information or expertise as needed to facilitate the conservation of rattlesnakes and other rare wildlife species on Camp Lejeune and Cherry Point.

Sincerely,

Ron Sutherland
Ph.D., Nicholas School of the Environment
Duke University

Mailing Address:

From: Fleming CIV Kimberly H
To: Rose, Kathy L; michael.h.jones1@navy.mil
Subject: FW: Camp Lejeune New Base Road
Date: Tuesday, September 08, 2009 11:04:56 AM

For inclusion in our GTF comments.

-----Original Message-----
From: BILL Hemmingway
Sent: Monday, September 07, 2009 15:34
To: Fleming CIV Kimberly H
Cc: Robert Huemme
Subject: Camp Lejeune New Base Road

Ms: Fleming : A friend of mine shared these Fact Sheet and the maps of the new proposed 7 mile ,four (4) lane divided road proposed by CLNC officials . I appreciate the opportunity to see this information.

Frankly ,I am, thrilled to know that the project has been proposed and heard several months ago from a NC Dot official that it was funded as a US. Government Contract. I think that this will relief an awful lot of traffic entering the CLNC main Gate, as well as disbursing the Traffic aboard the base as well. IT IS MY HOPE THAT THE City of Jacksonville will cooperate as well ,regarding the entrance at Bell Fork road and U.S> 24.

Bill Hemmingway

Jacksonville, NC. 28540-8200

County of Jones

POST OFFICE BOX 340
TRENTON, NORTH CAROLINA 28585
(252) 448-7571 FAX (252) 448-1072

August 21, 2009

Mr. Michael H. Jones
EIS Project Manager NAVFAC Mid-Atlantic
Code BMEV31
6505 Hampton Blvd
Building C, Room 3012
Norfolk, VA 23508-1278

Dear Mr. Jones:

I am writing you on behalf of the Jones County Board of County Commissioners. Jones County is positioned on NC Highway 17 between Onslow County and Craven County and is proud to be the home of the MCOLF at Oak Grove near Pollocksville, NC. We have been made aware of the Grow the Force initiative that will impact all the Marine Corps bases at Camp Lejeune, New River and Cherry Point. We are also aware that because of this initiative the United States Marine Crop is in the process of preparing an Environmental Impact Statement (EIS). After reviewing the current EIS and attending a briefing of the EIS, we would like to go on record as submitting the following formal comment:

We in Jones County would like to ensure that MCOLF at Oak Grove be included in the current EIS. The MCOLF at Oak Grove and its presence in Jones County has both a direct and indirect impact on the quality of life of Jones County citizens. Our biggest concern is the possibility of amplified traffic flow of an already congested Highway 17 between Pollocksville and Jacksonville. We hope bringing this to your attention and including MCOLF at Oak Grove in the EIS, will help Jones County with the struggles we have endured in securing adequate funding for the improvements of this particular stretch of Highway 17. We ask that you accept this letter as our formal request to consider impacts of MCOLF at Oak Grove in the current EIS. This will ensure a true conclusion is made as to the local impact of the Grow the Force initiative. Cu-001

We appreciate your time and consideration of our concerns.

Sincerely,

Joseph F. Wiggins, Chairman
Jones County Board of Commissioners

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 1, 2009

Mr. Michael H. Jones
Naval Facilities Engineering Command, Mid-Atlantic
6506 Hampton Boulevard
Building C, Room 3012
Norfolk, Virginia 23508-1278

SUBJECT: Draft Environmental Impact Statement for the U.S. Marine Corps Grow the Force at Marine Corps Base Camp Lejeune, Marine Corps Air Station New River and Marine Corps Air Station Cherry Point, North Carolina; CEQ Number 20090237

Dear Mr. Jones:

The U.S. Environmental Protection Agency (EPA) has reviewed the referenced Draft Environmental Impact Statement (EIS) in accordance with its responsibilities under Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The United States Marine Corps (USMC) proposes to permanently increase USMC forces at three installations: Marine Corps Base (MCB) Camp Lejeune and Marine Corps Air Station (MCAS) New River in Onslow County, and MCAS Cherry Point in Carteret and Craven Counties, North Carolina. MCB Camp Lejeune and MCAS New River are located in south-eastern North Carolina, approximately 50 miles north-northeast of Wilmington. MCAS New River abuts MCB Camp Lejeune and uses services (i.e., utilities and roads infrastructure) provided/maintained by MCB Camp Lejeune. MCAS Cherry Point is located approximately 50 miles east-northeast of MCB Camp Lejeune in Havelock, North Carolina.

The purpose of the proposed action is to provide the infrastructure to support the permanent personnel increases at these three installations. The units proposed for augmentation at the three installations would increase the active duty Marines, civilians, and military school students in the following magnitude: 7,706 at MCB Camp Lejeune, 1,411 at MCAS New River, and 784 at MCAS Cherry Point. The total personnel gain at the three USMC installations due to the proposed action would be approximately 9,900, including military personnel and civilian employees. To support this growth, the USMC proposes a combination of: 1) new infrastructure construction (e.g., buildings, roads, and utility lines); 2) demolition and/or upgrades to existing infrastructure; and 3) relocating existing units and personnel at the installations to consolidate and better support the combat missions. Environmental impacts of the additional training and range operations triggered by the additional personnel were analyzed in two separate Environmental Assessments prepared in January 2009.

Three action alternatives (Alternatives 2-4) were considered in the Draft EIS to accommodate the proposed increase in personnel. All three alternatives include the same amount of personnel increase at the three installations. The differences among alternatives were related to the amount of construction necessary to adequately house and support these new units. Alternative 2, USMC's preferred alternative, includes implementation of new construction to support the permanent increase in base personnel, as well as additional core construction projects, which are currently planned for these installations but not as it relates to the personnel increase. Alternative 3 includes the implementation of only core construction projects. Alternative 4 does not include any new construction projects. The increased personnel would be accommodated within existing facilities or temporary/relocatable buildings already built. The no action alternative (Alternative 1), which does not include any permanent increase in USMC personnel, was also considered.

Based on our review of the Draft EIS, EPA has environmental concerns associated with the proposed action. Development activities have the potential to directly and/or indirectly affect aquatic habitats, wetlands, water quality associated with clearing operations and construction, and the development of new stream/wetland crossings. The Draft EIS identifies approximately 125 acres of estimated wetland impacts within the proposed development areas for the preferred alternative and approximately three acres of wetland impacts for Alternative 3. EPA has concerns about the magnitude of wetland impacts of the preferred alternative, particularly as compared to Alternative 3. Therefore, EPA recommends that the USMC consider a hybrid alternative bracketed by the preferred alternative and Alternative 3 to minimize impacts to wetlands and other jurisdictional waters of the United States. Such an alternative would allow an adaptive management approach in the implementation of certain construction projects by either phasing or delaying construction of certain projects in some of the development areas with greater wetlands impacts until it is necessary to meet specific force requirements. The Final EIS, however, should still address the wetland impacts of a full build-out, should it be needed. Do-002

EPA also recommends several actions that the USMC could implement during construction and long term operations to assist the area in meeting air quality standards in the future. In addition, the specific best management practices identified in the Draft EIS should be applied and adequately enforced to attain appropriate results. Enclosed are our specific review comments which provide greater detail regarding EPA's environmental concerns, additional information requested, and recommendations to address these concerns.

We rate this document EC-2 (Environmental Concerns – with more information requested). We are concerned that the proposed action identifies the potential for impacts to the environment that should be avoided/minimized. Also enclosed is a summary of definitions for EPA's EIS ratings. We appreciate the opportunity to review the proposed action. Please contact Ben West of my staff at (404) 562-9643 if you have any questions or want to discuss our comments further.

Sincerely,

Christian M. Hoberg / for

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

Enclosures

U.S. ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL IMPACT STATEMENT (EIS) RATING SYSTEM CRITERIA

EPA has developed a set of criteria for rating Draft EISs. The rating system provides a basis upon which EPA makes recommendations to the lead agency for improving the draft.

RATING THE ENVIRONMENTAL IMPACT OF THE ACTION

- LO (Lack of Objections): The review has not identified any potential environmental impacts requiring substantive changes to the preferred alternative. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposed action.

- EC (Environmental Concerns): The review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact.

- EO (Environmental Objections): The review has identified significant environmental impacts that should be avoided in order to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). The basis for environmental objections can include situations:

  1. Where an action might violate or be inconsistent with achievement or maintenance of a national environmental standard;
  2. Where the Federal agency violates its own substantive environmental requirements that relate to EPA's areas of jurisdiction or expertise;
  3. Where there is a violation of an EPA policy declaration;
  4. Where there are no applicable standards or where applicable standards will not be violated but there is potential for significant environmental degradation that could be corrected by project modification or other feasible alternatives; or
  5. Where proceeding with the proposed action would set a precedent for future actions that collectively could result in significant environmental impacts.

- EU (Environmentally Unsatisfactory): The review has identified adverse environmental impacts that are of sufficient magnitude that EPA believes the proposed action must not proceed as proposed. The basis for an environmentally unsatisfactory determination consists of identification of environmentally objectionable impacts as defined above and one or more of the following conditions:

  1. The potential violation of or inconsistency with a national environmental standard is substantive and/or will occur on a long-term basis;
  2. There are no applicable standards but the severity, duration, or geographical scope of the impacts associated with the proposed action warrant special attention; or
  3. The potential environmental impacts resulting from the proposed action are of national importance because of the threat to national environmental resources or to environmental policies.

RATING THE ADEQUACY OF THE ENVIRONMENTAL IMPACT STATEMENT (EIS)

- 1 (Adequate): The Draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

- 2 (Insufficient Information): The Draft EIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the Draft EIS, which could reduce the environmental impacts of the proposal. The identified additional information, data, analyses, or discussion should be included in the Final EIS.

- 3 (Inadequate): The Draft EIS does not adequately assess the potentially significant environmental impacts of the proposal, or the reviewer has identified new, reasonably available, alternatives, that are outside of the spectrum of alternatives analyzed in the Draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. The identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. This rating indicates EPA's belief that the Draft EIS does not meet the purposes of NEPA and/or the Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised Draft EIS.

Draft Environmental Impact Statement for the U.S. Marine Corps Grow the Force Actions at Marine Corps Base Camp Lejeune, Marine Corps Air Station New River and Marine Corps Air Station Cherry Point, North Carolina

SPECIFIC EPA REVIEW COMMENTS

Air Quality

A number of important emission reduction practices are identified in the Draft EIS. EPA supports the implementation of a number of the specific measures described, including: 1) idle-reduction practices; 2) switching to ultra low-sulfur diesel fuel; 3) retrofitting equipment to reduce emissions; 4) installing EPA-approved catalysts and filters; and 5) following the Leadership in Energy and Environmental Design (LEED) Green Building Rating System to require that all new construction meet LEED Silver Level certification (or better). Indoor environmental quality should be a priority in the design and construction of these buildings, as much as practicable. EPA also suggests that the USMC consult EPA's Indoor Air Quality website (www.epa.gov/iaq) for suggestions on how to reduce indoor pollution sources.

Given the significant increase in construction and operations-related emissions, EPA proposes an approach for the USMC that focuses on the opportunity to proactively implement some strategies that can reduce particulate pollution. EPA recommends that Camp Lejeune/MCAS New River and MCAS Cherry Point consider and implement all reasonable and appropriate measures to reduce/prevent emissions from the construction and operation activities. EPA recommends that the Final EIS include specific commitments, in the form of mitigation measures, to implement the measures described above, including additional alternative transportation management options (see comments below on "Traffic"), to achieve these emissions reductions. AQ-001

Traffic

The Draft EIS identifies a nearly 20 percent increase in air emissions, as well as potential traffic intersection impacts, resulting from implementation of the preferred alternative. EPA has concerns about localized carbon monoxide (CO) hot-spots that would be created as a result of the proposed action. EPA's primary concern is the lack of discussion considering alternative transportation management strategies for Camp Lejeune/MCAS New River to address the transportation system deficiencies that will be created by the proposed action. For example, the Draft EIS describes limited existing on-base and off-base mass transit options for MCB Camp Lejeune/MCAS New River employees. However, the Draft EIS states that: "The City of Jacksonville and the USMC are working cooperatively to encourage the use of mass transit as a means to reduce existing and potential future traffic. There are possibilities that the existing express service provided by Jacksonville Transit can be expanded in the future…Discussions between the USMC and the City of Jacksonville have advanced the possibility of using a Park and Ride system so that persons who are properly credentialed could use an express shuttle service to MCB Camp Lejeune and MCAS New River and surrounding on-Base areas."

EPA supports the above described potential traffic management measures and recommends that the USMC include these as commitments in the Final EIS. Improvements considered should include congestion management systems, transportation system management projects, corridor management plans focusing on access along entire corridors, and transit improvements. Given the potential air quality concerns associated with significant transportation deficiencies, EPA recommends that MCB Camp Lejeune/MCAS New River develop a comprehensive alternative transportation program, especially for commuters. This program should promote telecommuting, the use of mass transit, and car pooling, and establishing no-cost or low-cost mass transit (possibly hybrid electric or natural gas powered) between popular points on the base and in the surrounding communities. This initiative could be similar to those programs developed by other military installations, such as Fort Bragg and Camp Pendelton. By providing useable and convenient alternatives to driving, these installations have made significant steps toward helping the areas maintain or improve air quality as well as improving level-of-service problems at key intersections by decreasing the expected traffic demand. This type of program would benefit the environment while simultaneously providing a benefit for many in the surrounding MCB/MCAS community. T-002

Noise

The Draft EIS identifies a number of noise sensitive land uses on-base (e.g., residences, medical clinics, and child development centers) that have the potential to be exposed to incompatible noise levels in Zones II and III. The specific sites for these proposed facilities were not clear from the Draft EIS and may still be under consideration. EPA's primary recommendation would be to locate these noise sensitive receptors outside of these incompatible noise zones as part of the final siting and design process. However, EPA understands the land use constraints for siting alternatives based on existing and future training requirements. Therefore, EPA recommends that the USMC strongly consider the use of sound-proofing and other sound insulation measures in new building construction to reduce interior noise levels and minimize the impacts of noise exposure in these noise sensitive sites, especially for the medical facilities and child development centers. Including these measures as part of new construction would likely be less expensive than retrofitting the same buildings at a later point in time. N-001

With regards to off-base noise impacts, EPA recommends that the Final EIS include a more thorough discussion of the cumulative noise impacts of continuing operations, specifically related to monitoring of past noise complaints and identification of affected adjacent communities. EPA also recommends that any residences exposed to noise levels within the 65+ day-night average sound level (DNL) contours (Zone II) be acquired from willing seller residents to help mitigate such noise exposure. EPA supports development of land use plans and ordinances for lands outside MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point to limit possible future complaints from developers and or businesses not compatible with flight and training operations. EPA suggests that all three bases continue to utilize the noise complaint system for affected residents to report any noise complaints or other incidents. Also, EPA recommends that periodic noise monitoring occur with such a frequency to determine any expansion ("creep") of the noise contours over time and possible incorporation of additional residences.

Wetlands

The Draft EIS identifies approximately 125 acres of estimated wetland impacts within the proposed development areas for the preferred alternative and approximately three acres of wetland impacts for Alternative 3. EPA has concerns about the magnitude of wetland impacts of the preferred alternative, particularly as compared to Alternative 3. The Draft EIS does not identify any specific alternatives considered for project locations to avoid or minimize impacts to jurisdictional waters of the United States. EPA understands that layout and design of most of the proposed projects has not yet occurred, and that these wetland impacts represent conservative estimates. The precise locations of project siting within the development areas may change following finalization of design and issuance of the Record of Decision. Therefore, as the overall project continues into later design phases, EPA recommends consideration of siting and design modifications to further minimize the impacts of individual projects to jurisdictional waters, including wetlands. W-001

EPA also recommends that the USMC consider an adaptive management approach in the implementation of the preferred alternative as another mechanism to minimize impacts to wetlands. For example, is it possible to phase or delay construction of certain projects in some of the development areas with greater wetlands impacts until it is necessary to meet specific force requirements? Alternative 3, which includes only "core" construction projects, identified only three acres of potential wetlands impacts at MCB Camp Lejeune. Therefore, it is construction of the additional Grow the Force projects that will lead to the significantly greater wetlands impacts. Are there certain Grow the Force projects with higher wetlands impacts that could be delayed or potentially not constructed, depending on a future needs assessment based on execution of the overall Grow the Force initiative at the three USMC installations? This will be an important consideration to justify selection of a least damaging practicable alternative in accordance with Clean Water Act Section 404(b)(1) Guidelines for Section 404 wetland permitting.

Wetland permits and possible mitigation activities will be defined prior to construction of any projects affecting jurisdictional wetlands in accordance with the regulatory requirements of the U.S. Army Corps of Engineers. EPA reiterates that any land clearing operations involving vegetation removal with mechanized equipment such as front-end loaders, backhoes, or bulldozers with sheer blades, rakes or discs in wetlands; or windrowing of vegetation, land leveling; or other soil disturbances are considered placement of fill material in wetlands and would likely require a Section 404 wetland permit. Any unavoidable wetland impacts should preferably be mitigated within the same watershed to result in no net loss of aquatic functions. W-003

Water Quality Impacts

The Draft EIS identifies a number of waterbodies in the study area, including the New River, which are nutrient-sensitive waters or not meeting their designated uses. EPA is concerned about further secondary and cumulative pollutant loads and exacerbated stormwater problems that can be caused directly or indirectly from development associated with new facilities construction, new parking structures, and roadway improvements. Soil loss and soil erosion could greatly increase due to extensive land clearing and construction activities. Cut-and-fill activities and construction equipment usage, specifically heavy earth-moving equipment, could result in soil loss due to wind erosion and soil compaction.

All appropriate steps should be taken to address potential impacts to water quality within streams and wetlands. Mitigation measures related to protection of water quality should be tailored depending on the condition of the specific water resource as well as the severity of the potential impacts. Specifically, those waterbodies not currently meeting their designated uses should receive additional protection to ensure that water quality problems are not exacerbated. Monitoring commitments should be included to ensure that water quality and in-stream habitat are fully protected. Stormwater controls (e.g., silt fences and hay bales) should be monitored and replaced periodically for the duration of construction to help ensure success.

In particular, EPA suggests employing the use of Low Impact Development (LID) practices in the engineering, design, and construction of support facilities, including parking structures. LID practices are designed to replicate pre-development hydrologic characteristics W-004 and prevent an increase in pollutant loads above pre-development conditions. LID utilizes existing site characteristics to infiltrate, evaporate, and retain increased runoff volumes resulting from site development. The USMC should, at a minimum, integrate stormwater control features on these surface parking lots so that the large impervious features do not add to stormwater problems in the New River or other surface waters. The use of LID activities such as pervious parking lots, stormwater ponds, or other retention devices should be used to maintain hydrographic conditions and prevent further deterioration of environmental quality, including downstream aquatic and riparian habitats. Information on low-impact development can be obtained from: www.lowimpactdevelopment.org.

Specific to construction of the new base road at MCB Camp Lejeune, EPA is concerned about potential impacts to water quality and important nursery areas, essential fish habitat, and related habitat areas of particular concern. EPA recommends that USMC include significant post-construction stormwater management in the design of the new base road to minimize impacts to Northeast Creek, Wallace Creek and Bearhead Creek. Specifically, the use of best management practices in the design of the new bridges to keep stormwater runoff from entering these tributaries directly, and use of enhanced swales, stormwater ponds, and sediment basins to capture and treat post-construction stormwater runoff before entering these important aquatic resources. In addition, several mitigation measures are described in the Draft EIS to minimize impacts to natural resources from the new base road, including: 1) constructing longer bridges to span wetlands and marsh habitat and to allow for wildlife crossing, and 2) constructing specific wildlife crossings for reptiles, amphibians and small mammals. EPA supports these additional measures and recommends that the Final EIS include specific commitments to implement the W-005 mitigation measures described above.

80003

TY

Ferguson, Emily F.

From: Stanley, Joyce [joyce_stanley@ios.doi.gov]
Sent: Monday, August 31, 2009 12:43 PM
To: michael.h.jones1@navy.mil; Ferguson, Emily F.
Subject: USMC 202k EIS

Name: Joyce Stanley
Email Address: joyce_stanley@ios.doi.gov
Company: US Department of the Interior - Office of Environmental Policy and Compliance
Address 1: 75 Spring Street, S.W.
Address 2: Suite 1144
City: Stone Mountain
State: Georgia
Zip Code: 30088

The Department of the Interior (DOI) has reviewed the Draft Environmental Impact Statement for Grow the Force at Marine Corps Base.   We have no comments at this time.

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

REPLY TO
ATTENTION OF:

September 8, 2009

Regulatory Division (1145)

Subject: Draft Environmental Impact Statement, U.S. Marine Corps Grow the Force at MCB Cape Lejeune, MCAS New River and MCAS Cherry Point, North Carolina

USMC Grow the Force in North Carolina
Attn: Michael H. Jones, EIS Project Manager
Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic
Code BMEV31 Building C, Room 3012
6506 Hampton Blvd.
Norfolk, VA 23508-1278

Dear Mr. Jones:

We have completed our Regulatory Division review of the Draft Environmental Impact Statement (DEIS) for the proposed U.S. Marine Corps Grow the Force in North Carolina initiative. The subject DEIS has been reviewed with respect to Department of the Army (DA) regulatory requirements under Section 404 of the Clean Water Act (33 USC 1344), Section 10 of the River and Harbor Act of 1899 (33 USC 403) and National Environmental Policy Act. As of March 10, 2008, the Wilmington District has been participating in the development of the EIS as a cooperating agency with jurisdiction by law and special expertise in the area of aquatic resources, especially wetlands and surface waters.

We are pleased with the effort and analysis that has been conducted to date on the subject Grow the Force initiative. Many of the projects identified in the DEIS will require DA individual permit authorization pursuant to Section 404 of the Clean Water Act and possibly Section 10 of the Rivers and Harbor Act. We are gratified to see that the EIS, as being prepared, will contain sufficient information for us to evaluate the proposed projects identified within the Grow the Force initiative for Section 404 of the Clean Water Act and Section 10 of the River and Harbor Act authorization. Since the majority of the potentially affected wetlands identified within the DEIS have been verified by the Wilmington District, the opportunity to review and evaluate these projects based on a worse-case impact condition would be achievable. Further, the commitment, found within the EIS, to pursue further avoidance and minimization within the final design phase for each project adds additional support for taking this approach for review and authorization of the proposed projects. Therefore, we intend to initiate the permit review process for the proposed projects identified within the EIS. This process will of course involve mandatory public interest review beginning with our public notice. We will identify the projects and their potential impacts based on the information contained within the EIS. This process could result in the issuance of a DA provisional permit, an approach that could greatly expedite and enhance the permit review process. The issuance of a provisional permit would not end our involvement with development of the proposed projects as we would remain involved throughout the design process to provide input into potential avoidance and minimization efforts. If unforeseen conditions were to occur as a result of the design process that resulted in more adverse impacts than originally anticipated, additional public notices may be warranted at the conclusion of final design.

We appreciate this opportunity to provide you with our comments and look forward to our continued involvement in the development of the Grow the Force initiative. Should you have any questions or wish to discuss our comments further, please contact Mr. Richard K. Spencer, Wilmington Regulatory Division, at 910-251-4172.

Sincerely,

for S. Kenneth Jolly
Chief, Regulatory Division

80005

TY

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

September 9, 2009

Capt. J. D. Voltz
Captain, CEC, United States Navy
Marine Corps Installations East
PSC Box 20005
Camp Lejeune, NC 28542-0005

Dear Captain Voltz:

The Fish and Wildlife Service (Service) has reviewed your July 29, 2009, letter regarding the completion of a Draft Environmental Impact Statement (EIS) to evaluate the permanent, incremental increase in personnel at Marine Corps Base (MCB) Camp Lejeune, Marine Corps Air Station (MCAS) New River and MCAS Cherry Point, North Carolina. The study area analyzed in the draft EIS includes all three installations and the surrounding counties of Onslow, Craven and Carteret. In accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 USC 1531 et seq.), your July 29, 2009 letter submits the Draft EIS as the informal consultation package and makes effects determinations on federally listed plants and animals occurring or that may occur in the study area. Our comments are provided in accordance with section 7 of the Act.

Your July 29, 2009, letter refers to information contained in the Draft EIS and states that specific actions related to road construction projects within Camp Lejeune and Cherry Point may affect but are not likely to adversely affect the West Indian manatee. The proposed action on Camp Lejeune is the construction of the New Base Road (P1262); for Cherry Point the proposed action is the construction of the Slocum Road Realignment P134). The Marine Corps proposes to implement manatee protection guidelines provided by the Fish and Wildlife Service to minimize any potential impacts road and bridge construction might have on manatees. Base on the project description and the Marine Corps' implementation of the manatee protection guidelines, the Service concurs with the Marine Corps "may affect, not likely to adversely affect" determination for manatees.

Impacts to the red-cockaded woodpecker have been analyzed for previously proposed facilities and range construction projects underway on Camp Lejeune that would support the Grow the Force initiative. The Draft EIS also states that the Marine Corps would consult with the Fish and Wildlife Service for specific Grow the Force projects that would involve red-cockaded woodpecker clusters and/or foraging habitat. Some construction will extend into forested portions of the installation but this growth may not necessarily completely eliminate these areas from management as suitable red-cockaded woodpecker habitat. Current natural resource management, including implementation of the approved endangered species management plans supports conservation of the red-cockaded woodpecker and reasonably offsets or minimizes impacts to the species associated with the proposed actions. Based on the information contained in the Draft EIS, the Service believes the proposed actions may affect but are not likely to adversely affect the red-cockaded woodpecker.

In your July 29, 2009 letter, the Marine Corps stated the biological conclusion that the proposed Grow the Force initiative would have no effect on any other federally listed threatened or endangered species under the Fish and Wildlife Service's jurisdiction that may occur within the project area. Based on the information contained in the Draft EIS and in the INRMPs for each installation, the Service concurs with the Marine Corps "no effect" determination regarding the proposed project's potential to impact the golden sedge, rough-leaved loosestrife, Cooley's meadowrue, nesting sea turtles, piping plover, rough-leaved loosestrife, nesting loggerhead or green sea turtles, seabeach amaranth, or any other federally listed threatened or endangered species or species proposed for listing under the Act.

The Service recognizes the vital functions the Marine Corps provides in maintaining the combat readiness of our Marines and Sailors and as a steward of quality natural resources for the benefit of the American people. If you have any questions regarding this matter, please contact Mr. John Hammond at (919) 856-4520 (ext. 28). Thank you for your continued cooperation with our agency.

Sincerely,

John S. Hammond for
Pete Benjamin
Field Supervisor

Cc: Mr. Will McDearman, U.S. Fish and Wildlife Service, 6578 Dogwood View Parkway, Suite A, Jackson, Mississippi 39213-7856

North Carolina
Department of Administration

Beverly Eaves Perdue, Governor

Britt Cobb, Secretary

September 9, 2009

Capt. J.D. Voltz
U.S. Marine Corps
Marine Corps Installation East
PSC Box 20005
Camp Lejeune, NC 28542-0005

Re: SCH File # 10-E-0000-0019; DEIS; Assess the potential impacts associated with permanently increasing United States Marine Corps (USMC) forces at three USMC installations. View document at http://www.Grow TheForceNC.com

Dear Capt. Voltz:

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are the comments made by agencies in the course of this review.

If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

Should you have any questions, please do not hesitate to call.

Sincerely,

Valerie McMillan (SJW)

Valerie W. McMillan, Director
State Environmental Review Clearinghouse

Attachments

cc: Region P

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919)807-2425
Fax (919)733-9571
State Courier #51-01-00
e-mail valerie.w.mcmillan@doa.nc.gov

Location Address:
116 West Jones Street
Raleigh, North Carolina

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NCDENR

North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

SEP 2009
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Secretary's Office
DOA

MEMORANDUM

TO: Valerie McMillan
State Clearinghouse

FROM: Melba McGee
Environmental Review Coordinator

RE: 10-0019 Draft Environmental Impact Statement(DEIS) USMC Grow the Force in NC, Onslow, Carteret and Craven Counties

DATE: August 31, 2009

The Department of Environment and Natural Resources has reviewed the proposed DEIS. The attached comments reflect specific concerns of our divisions that should be addressed prior to circulating the Final Environmental Impact Statement (FEIS). The department also recommends that the applicant communicate closely with the Division of Water Quality in relation to avoidance and minimization issues. This will help to avoid any unnecessary delays.

Thank you for the opportunity to respond.

Attachments

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 Internet: www.enr.state.nc.us

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North Carolina Department of Environment and Natural Resources
Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

August 28, 2009

MEMORANDUM

TO: Melba McGee
Department of Environment and Natural Resources

THRU: Dianne Reid, Supervisor
Basinwide Planning Unit and SEPA Program

FROM: Hannah Stallings, SEPA Coordinator
Basinwide Planning Unit and SEPA Program

SUBJECT: Onslow, Carteret, and Craven Counties
USMC Grow the Force in North Carolina Draft EIS
DWQ#14185; DENR#10-0019

The Division of Water Quality (DWQ) has reviewed the subject project. We greatly appreciate the significant amount of information provided about the potential environmental impacts of the proposed Marine facility expansions and applaud the fair and straightforward assessment by the preparers. However, there are some issues that must be addressed and/or clarified:

1. Compliance with Section 438 of the Energy Independence and Security Act of 2007
   a. It is very important that the document acknowledge the requirements of Section 438 of the Energy Independence and Security Act of 2007 and set forth specifications for its implementation. This Act requires that all Federal development projects over 5,000 square feet in size "assure that in planning, design, construction and maintenance that, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow" be maintained or restored. Although the *Draft EIS* discusses how the State coastal stormwater rules will be used to provide stormwater protection, the 2007 Federal Act sets a much higher and significantly different standard for stormwater runoff than has been required in the past for Federal facilities development and from what is still required for private or State development. DWQ believes that reliance on the standard stormwater best management practices (BMPs) will not consistently achieve the hydrology goals of the Federal Act. W-006
   In order to meet the provisions of Section 438 of the Energy Independence and Security Act of 2007, each proposed development site should include planning that provides for mimicking the natural hydrological conditions to the maximum extent practicable. Some of the major considerations and planning elements that are necessary to meet this goal and which should be addressed in this document are:
      - a detailed natural resource inventory and assessment to identify each site's unique natural resources and how they can be used or preserved in maximizing infiltration and controlling volume;
      - where on the site stormwater infiltration can be best achieved;
      - how work on the site will minimize the areas of disturbance (especially on sloped areas) and minimize areas of imperviousness;

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Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
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Internet: www.ncwaterquality.org

- how each site will provide for a disconnection of impervious areas where possible;
- how vegetated conveyances can be used to the maximum extent practicable;
- how to maximize small-scale practices and controls distributed throughout the site and minimize the use of centralized structural stormwater runoff controls; and
- identify reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the environment.

It is important that the EIS show how these and other related low impact development planning elements will be incorporated in all future development on these Federal Installations.

b. Although the EIS states that "stormwater systems would all be constructed using Low Impact Development procedures" (page 3-329), this goal is not very clear and there were very little additional specifications provided on how this would be achieved. Most of the discussion pointed to reliance on the North Carolina's stormwater rules, which do not require LID hydrology and do not limit stormwater BMPs to LID practices. LID measures should maintain a site's hydrology to the maximum extent technically feasible by creating a landscape that mimics the natural hydrologic functions of infiltration, runoff, and evapotranspiration. If the intent is to require that LID hydrology goals be achieved for all stormwater, then it should be more clearly stated in the document. W-004

c. Text on pages 3-327, 3-334, and 3-335 states that the USMC will "Collect rooftop run-off into properly sized cisterns or rain barrels and construct all uncovered driveways, walkways, patios, and parking areas out of permeable pavement or pervious materials." On first impression, this statement seems like a mandate. However, since it is preceded by the statement "Compliance practices include," it is not clear if it's a mandate or a suggestion of an option. DWQ recommends that rainwater harvesting be employed and permeable surfaces are used to the greatest extent feasible at all three Installations. W-007

2. DWQ is concerned about protection of shellfish (Class SA) and other High Quality Waters in the vicinity of some of the proposed impact sites. Specifically, we are concerned by the damage sediment runoff during construction can cause if timely BMPs are not implemented. We strongly suggest that a goal of covering all disturbed areas to the maximum extent practicable with some type of temporary ground cover within seven days of disturbance be set as this provides for lower sediment pollution levels and provides backup protection for situations where BMP failure might occur. Provisions for temporary ground cover are particularly important on sloped landscapes, and keeping a large percentage of a flat area covered also provides for significantly increased stream protection. B-005
3. Page 2-10
   a. Text states that the "wastewater/stormwater drainage systems" at the Installations may need to be modified. Please confirm that the Installations have separated their wastewater and stormwater collection systems so that stormwater flows are not being sent to a wastewater treatment plant for treatment and discharge. Do-003
   b. Please clarify whether "waste disposal systems" refers to methods of disposing of wastewater effluent or solid waste.
4. Page 2-21, Table 2.2-6: It appears that there is double-counting of construction footprints for the mess hall and its parking deck with three entries in the table: Do-004

Project Title	Estimated Construction Footprint (acres)
Mess Hall	4
Mess Hall and Parking Deck	6.5
Parking Deck	2.5

   Please amend the table as appropriate.
5. Page 3-2 states that the USMC has gathered data from "other NEPA documents" in its impact analyses. USMC should also determine whether its plans correspond with projects completed under SEPA that will impact growth related to BRAC, such as projects mentioned in comments 10 and 11.
6. If possible, please amend section 3.15 to provide greater detail on the projected stream impact(s), including amount of projected stream impact at each Installation. W-008
7. Page 3-318: Text states that "The application for a stormwater permit under NPDES Phase II has been submitted and approval is expected in 2009." Please clarify the status of this application.

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8. Page 3-151 and 3-158: Please clarify why the environmental impacts associated with "a series of upgrades and modifications to the existing wastewater collection and treatment system at MCB Camp Lejeune" are being evaluated in a separate EA if the purpose is this EIS is "to assess the potential impacts associated with permanently increasing USMC forces at three USMC Installations in North Carolina" (page 1-1). It would seem that if these upgrades and modifications are currently planned that they should be covered in this document, especially since the cumulative impacts of these actions are covered in section 4.10 of the document. W-009
9. Pages 3-151-152, 3-155, 3-158: Please be aware that ONWASA's contract with Camp Lejeune guarantees treatment of up to 3.5 MGD of wastewater flow from the Piney Green area of Onslow County until the year 2030.
10. DWQ has reviewed proposals from the Onslow Water and Sewer Authority (ONWASA) as well as Privately Owned Public Utilities under SEPA for the construction of wastewater collection and treatment facilities that are intended to serve both off-site housing for military personnel and civilian wastewater flow that will be treated at the MCBCL French's Creek WWTP. We encourage the USMC to continue its cooperation with ONWASA and other utilities to ensure that its personnel as well as civilians can be provided with adequate water and sewer service, both at the Installations and in off-base residences dependent upon infrastructure at an Installation.
11. Page 3-155 states that "There are currently no capacity concerns with the county-wide [wastewater] system or the system in Jacksonville" and page 3-167 states that ONWASA's purchase of 3.5 MGD of treatment capacity at the French's Creek WWTP addresses any potential concerns on wastewater treatment capacity. However, on page 3-167 the document states that "The projected increase in wastewater discharge for Onslow County (0.912 mgd) would exceed the current available capacity of the county system (approximately 0.292 mgd is available)." Please clarify. W-010
12. Please amend the text on pages 3-332, 3-333, and 3-337 to indicate that a Section 401 permit from DWQ will also be required for wetland impacts. W-011
13. We suggest that the 3rd sentence of the first paragraph and the 4th sentence of the third paragraph on page 3-335 and the 1st sentence of the first paragraph on page 3-336 be amended to include a statements about impacts related to upgrading/expanding potable water and wastewater facilities to serve the increased population related to BRAC measures at the Installations. W-012
14. Page 5-1Table 5.1-1: Please address the NPDES and/or non-discharge wastewater permits in use by wastewater collection and treatment infrastructure on the Installations in compliance with the Clean Water Act. These permits should also be discussed in section 3.15.1, as indicated in the table. W-013
15. DWQ encourages the USMC not to construct buildings within 100-year floodplains. W-014
16. DWQ supports the future master planning efforts at Cherry Point so that planned projects are sited in such a manner to coincide with existing facilities and lessen the detrimental environmental impacts of development.

Please contact me at 807-6434 if I can be of any additional help.
Thank you.

Cc: Charlie Stehman, Rick Shiver – WiRO
Al Hodge, David May – WaRO

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NCDENR

North Carolina Department of Environment and Natural Resources

Division of Coastal Management

Beverly Eaves Perdue
Governor

James H. Gregson
Director

Dee Freeman
Secretary

August 26, 2009

Melba McGee
Environmental Coordinator
Office of Legislative & Intergovernmental Affairs
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

SUBJECT: Comments on the Draft Environmental Impact Statement, US Marine Corps Grow the Force at MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point, Onslow and Craven Counties, North Carolina (SCH#10-0019 and DCM#20090095)

Dear Ms. McGee:

Thank you for the opportunity to review the "*Draft Environmental Impact Statement, US Marine Corps Grow the Force at MCB Camp Lejeune, MCAS New River, and MCAS Cherry Point*" (DEIS, July 2009), North Carolina. The proposed action under this DEIS is an increase of approximately 8,000 active duty Marines and 1,300 civilians including associated infrastructure improvements to support the Marines, the civilians, their respective dependents. The purpose of this increase in personnel is to provide the US Marine Corps (USMC) with enhanced training opportunities. The purpose of this review is to assess the adequacy of the environmental analysis contained in the DEIS.

The DEIS correctly notes that the proposed action (increased population, infrastructure, and training activities) under the DEIS will be one of many actions that will have a continuing incremental cumulative effect on the environment. A proposed action of this scope and magnitude also generates a potential for "*offsite*" effects. For example, that increased training activity could: necessitate the temporary closing of the Atlantic Intracoastal Waterway (AIWW), detract from the visitor experience at recreational facilities (Hammocks Beach State Park), and in the diminution of fishing opportunities (BT-11). Furthermore some residents adjacent to the bases may have an unenthusiastic reaction to increased intensity of use. To minimize "*offsite*" effects, DCM encourages the USMC to continue to implement and/or acquire buffer areas. Moreover, consistent with 15A NCAC 07M .0301, DCM encourages the USMC to monitor its activities to assure that public is able to enjoy and freely use the ocean beaches, recreation areas, and public trust waters. Thank you for your consideration of the North Carolina Coastal Management Program. LU-001

Sincerely,

Stephen Rynas, AICP
Federal Consistency Coordinator

cc: Jim Gregson, Division of Coastal Management
Doug Huggett, Division of Coastal Management
Tere Barrett, Division of Coastal Management

400 Commerce Ave., Morehead City, NC 28557-3421
Phone: 252-808-2808 \ FAX: 252-247-3330 Internet: www.nccoastalmanagement.net

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Beverly Eaves Perdue
Governor

Dr. Louis B. Daniel III
Director

Dee Freeman
Secretary

August 26, 2009

MEMO TO: Melba McGee

FROM: Rich Carpenter RC KD

SUBJECT: Draft EIS USMC Grow the Force Camp Lejeune, MCAS New River and MCAS Cherry Point

The Division of Marine Fisheries (DMF) has reviewed the Draft EIS USMC Grow the Force Camp Lejeune, MCAS New River and MCAS Cherry Point and offers the following comments.

The DMF has been in contact with the consultants for the USMC regarding the proposed new bridges over Northeast and Wallace Creeks and our comments are currently being addressed.

The EIS does not discuss the shellfish resources, oyster, hard clams and bay scallops in New River other than a mention that they are present. These populations occur throughout the Intracoastal Waterway and New River especially downstream of Grey Point in New River. They are the most vulnerable species in the River to impacts from upland development and training exercises. Upland development increases runoff from the land and bacteria present in the runoff are washed into the adjoining waters. The State of North Carolina maintains an intensive sampling program to monitor bacterial levels in coastal waters to insure that shellfish are not contaminated. When these levels exceed an established standard the area must be closed to shellfish harvest. Runoff from the development proposed at Courthouse Bay, Stone's Bay, French's Creek, and Hadnot Point has the greatest potential to cause a closure of adjacent open shellfishing waters. In addition to the naturally produced populations of oysters, DMF also maintains eleven Oyster Management Areas (OMAs) in New River (map attached). DMF seeds these areas with oyster shell on which new oysters can attach and grow. MCB Camp Lejeune has been a partner with the Division in this endeavor by providing a site to temporarily stockpile oyster shells, prior to planting. Several of these areas are adjacent to B-005

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Courthouse Bay and Stones Bay and have the greatest potential to be impacted by the proposed activities.

Although training is not specifically addressed in the EIS, DMF has commented on the effects of training exercises on the marine and estuarine resources in the vicinity of New River. Copies of the comments for two other projects at Camp Lejeune are attached.

The draft discusses Federal Fishery Management Plans but there is no mention of State Fishery Management Plans that have been completed on species that occur in New River, the Intracoastal Waterway and the Atlantic Ocean and may be affected by activities on the Base. The most notable of these are oyster, hard clam and bay scallop populations that occur in New River and were discussed above. Other species that occur in New River for which FMPs have been completed are southern flounder, shrimp, blue crabs, striped mullet and red drum. The shrimp fishery, both inshore and offshore, and the inshore fisheries for blue crabs, southern flounder, striped mullet and red drum are valuable to recreational and commercial fishermen and have the potential to be impacted.

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DMF SUBLANDS/APPEALS Fax:2522275127 Aug 27 '09 10:53 P.04

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NCDENR
North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Michael F. Easley, Governor
William G. Ross Jr., Secretary

Louis B. Daniel III, Director

April 1, 2009

MEMO TO: Stephen Rynas

FROM: Rich Carpenter

SUBJECT: MCB Camp Lejeune Training Activities

The Division of Marine Fisheries (DMF) has reviewed the Camp Lejeune Training Activities document and offers the following comments.

The document does not discuss the shellfish resources, oyster, hard clams and bay scallops, in New River other than a discussion of the landings. Information about these resources was provided in comments on the Draft EA, Version 3, Camp Lejeune Firing Range Operations in 2008. To restate these populations occur throughout the Intracoastal Waterway and New River especially downstream of Grey Point in New River. The most vulnerable of these to training impacts is the oyster population that forms large intertidal and subtidal rocks or reefs that have been impacted by amphibious vehicle operations in the past especially in the New River Inlet area. These are cited as Essential Fish Habitat (EFH) in the document but never discussed or recognized in Section 4 of the document or in Table 4.2-2. In discussion of other EFH and Table 4.2-2 the potential impacts on estuarine emergent wetlands, submerged aquatic vegetation and intertidal flats from training exercises are described as "direct" and "temporary". Damage observed in the field on oyster rocks from amphibious vehicles in the past has taken years to recover and while not permanent is certainly not as temporary as indicated in the document. The Division also maintains eleven Oyster Management Areas (OMAs) in New River (map attached) which are areas that DMF seeds with oyster shell on which new oysters can attach and grow. Several of these areas are adjacent to splash points identified in the document making them vulnerable to impacts associated with launching amphibious vehicles. MCB Camp Lejeune has been a partner with the Division in this endeavor by providing a site to stockpile the oyster shells which are used to enhance these areas.

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The document discusses Federal Fishery Management Plans but there is no mention of State Fishery Management Plans that have been completed on species that occur in New River, the Intracoastal Waterway and the Atlantic Ocean and may be affected by operations on the Base. The most notable of these are oyster, hard clam and bay scallop populations that occur in New River and were discussed above. Other species that occur in New River for which FMPs have been completed are southern flounder, shrimp, blue crabs, striped mullet and red drum. The shrimp fishery, both inshore and offshore, and the inshore fisheries for blue crabs, southern flounder, striped mullet and red drum have been interrupted by closures due to training exercises and in the case of the blue crab fishery in the Brown and Bear Inlet area eliminated.

There is an active hook and line fishery in New River, the Intracoastal Waterway and the Atlantic Ocean. These fisheries are conducted by both recreational and commercial fishermen primarily for king and Spanish mackerel, speckled trout, red drum and southern flounder. A growing number of guides and charter operations also target these species in their operations. These activities are also interrupted by area closures for water based training.

As far as impacts for the proposed operation in 2009 the Division feels that accesses to the estuarine shoreline in New River and the Intracoastal Waterway should be limited and located to avoid concentrations of oysters, both natural beds and plantings maintained by the Division. A map of areas that will be planted this year has also been provided.

NCDENR

North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor
William G. Ross Jr., Secretary

Division of Marine Fisheries

Louis B. Daniel III, Director

November 19, 2008

MEMO TO: Melba McGee

FROM: Rich Carpenter

SUBJECT: Draft EA, Version 3, MCB Camp Lejeune Range Operations

The Division of Marine Fisheries (DMF) has reviewed the Draft EA for Camp Lejeune Range Operations and offers the following comments.

The EA does not discuss the shellfish resources, oyster, hard clams and bay scallops, in New River other than a discussion of the landings. These populations occur throughout the Intracoastal Waterway and New River especially downstream of Grey Point in New River. The most vulnerable of these to training impacts is the oyster population that forms large intertidal and subtidal rocks or reefs that have been impacted by amphibious vehicle operations in the past especially in the New River Inlet area. In the Essential Fish Habitat discussion and Table 4.2-2 the potential impacts on estuarine emergent wetlands, submerged aquatic vegetation and intertidal flats from training exercises are described as "direct" and "temporary". Damage observed in the field on oyster rocks from amphibious vehicles in the past has taken years to recover and while not permanent is certainly not as temporary as indicated in the document. The Division also maintains eleven Oyster Management Areas (OMAs) in New River (map attached) which are areas that DMF seeds with oyster shell on which new oysters can attach and grow. MCB Camp Lejeune has been a partner with the Division in this endeavor by providing a site to stockpile the oyster shells which are used to enhance these areas. Several of these areas are either totally or partially in the firing fans for the Stones Bay area (map attached) and are subject to being closed without warning impacting the ability of commercial fishermen to use these areas.

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The draft discusses Federal Fishery Management Plans but there is no mention of State Fishery Management Plans that have been completed on species that occur in New River, the Intracoastal Waterway and the Atlantic Ocean and may be affected by operations on the Base. The most notable of these are oyster, hard clam and bay scallop populations that occur in New River and were discussed above. Other species that occur in New River for which FMPs have been completed are southern flounder, shrimp, blue crabs, striped mullet and red drum. The shrimp fishery, both inshore and offshore, and the inshore fisheries for blue crabs, southern flounder, striped mullet and red drum have been interrupted by closures due to training exercises and in the case of the blue crab fishery in the Brown and Bear Inlet area eliminated.

There is an active hook and line fishery in New River, the Intracoastal Waterway and the Atlantic Ocean. These fisheries are conducted by both recreational and commercial fishermen primarily for king and Spanish mackerel, speckled trout, red drum and southern flounder. A growing number of guides and charter operations also target these species in their operations. These activities are also interrupted by area closures for water based training.

In the document the economic effects of these interruptions and closures are dismissed by the statement "Because the fishing industry is such a small part of the Onslow County economy, the economics effect of this loss of fishing is minor.". While the effect may seem minor to those who prepared the EA the loss to individual fishing operations can have a significant impact on their livelihood.

80006

State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: Washington

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Project Number: 10-0019 Due Date: 8-27-09

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
X	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
X	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
☐	Permit to construct & operate Transportation Facility as per 15 A NCAC (2D.0800, 2Q.0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
X	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☐	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.		
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
X	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of $65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
☐	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
☐	Mining Permit	On-site inspection usual. Surety bond filed with ENR Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
☐	Oil Refining Facilities	N/A	90-120 days (N/A)
☐	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of $200.00 must accompany the application. An additional processing fee based on a percentage or the total project cost will be required upon completion.	30 days (60 days)

PERMITS		SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to drill exploratory oil or gas well	File surety bond of $5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.	10 days N/A
☐	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
☐	State Lakes Construction Permit	Application fees based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days N/A
☒	401 Water Quality Certification	N/A	60 days (130 days)
☐	CAMA Permit for MAJOR development	$250.00 fee must accompany application	55 days (150 days)
☐	CAMA Permit for MINOR development	$50.00 fee must accompany application	22 days (25 days)
☐	Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, NC 27611		
☐	Abandonment of any wells, if required must be in accordance with Title 15A. Subchapter 2C.0100.		
☐	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☒	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
☒	Tar Pamlico or Neuse Riparian Buffer Rules required.		
*	Other comments (attach additional pages as necessary, being certain to cite comment authority)		

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**
2090 US Highway 70
Swannanoa, NC 28778
(828) 296-4500

☐ **Mooresville Regional Office**
610 East Center Avenue, Suite 301
Mooresville, NC 28115
(704) 663-1699

☐ **Wilmington Regional Office**
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215

☐ **Fayetteville Regional Office**
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300

☐ **Raleigh Regional Office**
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200

☐ **Winston-Salem Regional Office**
585 Waughtown Street
Winston-Salem, NC 27107
(336) 771-5000

☒ **Washington Regional Office**
943 Washington Square Mall
Washington, NC 27889
(252) 946-6481

Hardison, Lyn

From: Fisher, Robert
Sent: Thursday, August 13, 2009 2:53 PM
To: Mcgee, Melba
Cc: Hardison, Lyn; Bishop, Bob; Hodge, Al; Barnes, Kyle; Tankard, Robert; May, David; Peed, Richard; Belvin, Robert; Mcclain, Pat; Overcash, Keith; Vandervaart, Donald
Subject: RE: Draft EA for USMC "GROW THE FORCE NC" PROJECT
Attachments: image001.jpg

Melba,
Robert Bright, one of WaRO's AQ Engineers attended the meeting here. Cherry Point is the only site in our region about which WaRO DAQ has a concern. WE believe they may increase air pollution source emissions however, we also believe that they will go through the proper permit application process. The sources that may be added or modified that would fall into our jurisdiction would be boilers and electricity generators. Cherry Point already has a number of these sources permitted. AQ-002
If I can be of further assistance, please feel free to holler.

--
Robert P. Fisher, Regional Air Quality Supervisor
NC DENR, Division of Air Quality
Washington Regional Office
943 Washington Sq. Mall, Washington, NC 27889
Phone: 252-341-5351
Fax: 252-975-3716
www.ncair.org
As of April 2009 my email address is robert.fisher@ncdenr.gov

---

From: Hardison, Lyn
Sent: Tuesday, August 11, 2009 1:23 PM
To: Fisher, Robert; Bishop, Bob; Hodge, Al; Barnes, Kyle; Tankard, Robert; May, David; Peed, Richard; Belvin, Robert; Mcclain, Pat
Subject: Draft EA for USMC "GROW THE FORCE NC" PROJECT

Melba Mcgee just sent a request for your comments on the draft EA for this project. USMC folks were just here today to hear your comments.

For our Department requirements can you review the draft EA found at this website: http://www.growtheforcenc.com/ and provide any comments back to me ASAP (no later than 8/27/09) for Ms. Melba.

Thanks,
Lyn

PLEASE NOTE MY E-MAIL ADDRESS HAS CHANGED TO: **lyn.hardison@ncdenr.gov**

80006

Hardison, Lyn

From: Tankard, Robert
Sent: Thursday, August 20, 2009 3:48 PM
To: Mcgee, Melba
Cc: Hardison, Lyn; Hodge, Al; Barnes, Kyle; Tankard, Robert; May, David; Peed, Richard; Belvin, Robert; Mcclain, Pat
Subject: Draft EA for USMC "GROW THE FORCE NC" PROJECT

Melba,

APS-WaRO has reviewed the applicable sections of the EIS document that reference USMC Cherry Point and have no concerns. According to Scott Brewer, ninety percent of the people have been on-site for some time and the present infrastructure is accommodating the loads. However, if new potable wells should be needed then well permits shall be required. Also, a collections permit will be required to extend any and all sanitary sewer lines that will service the new buildings that are proposed under the different alternatives. W-015

If you should have any questions, please feel free to contact me by email or at 252-948-3921.

Robert Tankard
NC DENR DWQ APS
943 Washington Square Mall
Washington, NC 27889
Tel: 252-948-3921
Fax: 252-975-3716
Web Address: http://h20.enr.state.nc.us

80006

State of North Carolina
Department of Environment and Natural Resources

Reviewing Office: W.RO

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Project Number: 10-0019 Due Date: 8/27/09

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
☐	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
☐	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
☐	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
☐	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
☐	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
☑	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
☐	Permit to construct & operate Transportation Facility as per 15 A NCAC (2D.0800, 2Q.0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
☑	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900	N/A	60 days (90 days)
☑	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.		
☐	Complex Source Permit required under 15 A NCAC 2D.0800		
☐	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of $65 for the first acre or any part of an acre. An express review option is available with additional fees.		20 days (30 days)
☐	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
☐	Mining Permit	On-site inspection usual. Surety bond filed with ENR Bond amount varies with type mine and number of acres of affected land. Any are mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
☐	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
☐	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
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80006

PERMITS		SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
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☐	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
☑	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
☐	Tar Pamlico or Neuse Riparian Buffer Rules required.		

★ Other comments (attach additional pages as necessary, being certain to cite comment authority) THE CLMCB NEEDS TO ADDRESS/FIX THE PROBLEMS THAT LIMIT BIOLOGICAL NUTRIENT REMOVAL AT IT'S WASTEWATER TREATMENT PLANT. CURRENTLY, IT CAN ONLY REMOVE NUTRIENTS FROM 10 OF ITS 15 MILLION GALLON PER DAY CAPACITY. RICK Shiver 07.23.09

W-016

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

☐ **Asheville Regional Office**
2090 US Highway 70
Swannanoa, NC 28778
(828) 296-4500

☐ **Mooresville Regional Office**
610 East Center Avenue, Suite 301
Mooresville, NC 28115
(704) 663-1699

☒ **Wilmington Regional Office**
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215

☐ **Fayetteville Regional Office**
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300

☐ **Raleigh Regional Office**
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200

☐ **Winston-Salem Regional Office**
585 Waughtown Street
Winston-Salem, NC 27107
(336) 771-5000

☐ **Washington Regional Office**
943 Washington Square Mall
Washington, NC 27889
(252) 946-6481

Department of Environment and Natural Resources
Project Review Form

Project Number: 10-0019 **County: Onslow** **Date Received: 07/18/2009**

Due Date: 8/27/2009

Project Description: **Draft Environmental Impact Statement - Assess the potential impacts associated with permanently increasement of United States Marine Corps (USMC) forces at three USMC installations. View document at http://www.Grow TheForceNC.com**

This Project is being reviewed as indicated below:

Regional Office	Regional Office Area	In-House Review	
___ Asheville	✓ Air	___ Soil & Water	✓ Marine Fisheries
___ Fayetteville	✓ Water	✓ Coastal Management	___ Water Resources
___ Mooresville	✓ Aquifer Protection	✓ Wildlife	✓ Environmental Health
___ Raleigh	✓ Land Quality Engineer	___ Wildlife - DOT	___ Solid Waste Mgmt
___ Washington		___ Forest Resources	___ Radiation Protection
✓ Wilmington		___ Land Resources	___ Other
___ Winston-Salem		✓ Parks & Recreation	
		___ Water Quality	
		___ Water Quality - DOT	
		___ Air Quality	

Manager Sign-Off/Region:	Date:	In-House Reviewer/Agency:
	7-24-09	E. Imhof

Response (check all applicable)

___ No objection to project as proposed. ___ No Comment

✓ Insufficient information to complete review ✓ Other (specify or attach comments)

Any expansion of the community water systems will require public water supply plan approval. Eric Imhof

If you have any questions, please contact:
Melba McGee, Environmental Coordinator at melba.mcgee@ncmail.net

James McRight DEH
7/29/09

JUL 21 2009

JUL 27 2009

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Inter-Agency Project Review Response

Project Number
10-0019

County
Onslow

Project Name United States Marine Corps

Type of Project Draft Environ. Impact Statement - Assess potential impacts associated with permanently increasement of US Marine Corps (USMC) forces at 3 USMC installations. Http://www.GrowTheForceNC.com.

Comments provided by:

☐ Regional Program Person

☒ Regional Supervisor for Public Water Supply Section

☐ Central Office program person

Name Debra Benoy-Wilmington RO El Date 07/22/2009

Telephone number: 910-796-7215

Program within Division of Environmental Health:

☒ Public Water Supply

☐ Other, Name of Program: ______________

Response (check all applicable):

☐ No objection to project as proposed

☐ No comment

☐ Insufficient information to complete review

☒ Comments attached

☐ See comments below

Any expansion or changes of the community water systems will require public water supply plan approval. El

Return to:
Public Water Supply Section
Environmental Review Coordinator for the
Division of Environmental Health

JUL 27 2009

80006

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

Project Number
10-0019
County
Onslow

Inter-Agency Project Review Response

Project Name **United States Marine Corps**

Type of Project **Draft Environ. Impact Statement - Assess potential impacts associated with permanently increasement of US Marine Corps (USMC) forces at 3 USMC installations. Http://www.GrowTheForceNC.com.**

☒ The applicant should be advised that plans and specifications for all water system improvements must be approved by the Division of Environmental Health prior to the award of a contract or the initiation of construction (as required by 15A NCAC 18C .0300et. seq.). For information, contact the Public Water Supply Section, (919) 733-2321. W-017

☐ This project will be classified as a non-community public water supply and must comply with state and federal drinking water monitoring requirements. For more information the applicant should contact the Public Water Supply Section, (919) 733-2321.

☐ If this project is constructed as proposed, we will recommend closure of _____ feet of adjacent waters to the harvest of shellfish. For information regarding the shellfish sanitation program, the applicant should contact the Shellfish Sanitation Section at (252) 726-6827.

☐ The soil disposal area(s) proposed for this project may produce a mosquito breeding problem. For information concerning appropriate mosquito control measures, the applicant should contact the Public Health Pest Management Section at (919) 733-6407.

☐ The applicant should be advised that prior to the removal or demolition of dilapidated structures, an extensive rodent control program may be necessary in order to prevent the migration of the rodents to adjacent areas. For information concerning rodent control, contact the local health department or the Public Health Pest Management Section at (919) 733-6407.

☐ The applicant should be advised to contact the local health department regarding their requirements for septic tank installations (as required under 15A NCAC 18A. 1900 et. sep.). For information concerning septic tank and other on-site waste disposal methods, contact the On-Site Wastewater Section at (919) 733-2895.

☐ The applicant should be advised to contact the local health department regarding the sanitary facilities required for this project.

☒ If existing water lines will be relocated during the construction, plans for the water line relocation must be submitted to the Division of Environmental Health, Public Water Supply Section, Technical Services Branch, 1634 Mail Service Center, Raleigh, North Carolina 27699-1634, (919) 733-2321. W-018

☒ For Regional and Central Office comments, see the reverse side of this form.

Jim McRight	PWSS	07/22/2009
Reviewer	Section/Branch	Date

JUL 27 2009

FAX

NORTH CAROLINA

DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES

NCDENR

Agency Information: www.enr.state.nc.us/

Sheila Green

To:	From:
Fax:	Date:
Phone:	Pages:
Re:	CC:

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

•Comments:

NCDENR

North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

June 2, 2009

Dee Freeman
Secretary

GTF EIS Project Manager
Naval Facilities Engineering Command Mid-Atlantic
Code BMEV31, Building C
Room 3012
6506 Hampton Blvd.
Norfolk, VA 23508-1278

SUBJECT: Review of DEIS For the U. S. Marine Corps Grow the Force at Marine Corps Base Camp Lejeune, Marine Corps Air Station New River and Marine Corps Air Station Cherry Point, North Carolina

Dear Project Manager:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS). We appreciate the need to increase military personnel, and we would hope to continue collaboration to assist North Carolina's military bases in meeting both military mission and conservation goals. In reviewing the DEIS, we would offer a few comments:

The Draft EIS states that "[t]he single most irreversible and irretrievable commitment of resources associated with the Proposed Action Alternatives is the loss of forested lands." Under Alternative 2, the preferred alternative, it is estimated that 1,500 acres or about two percent of the forested area on Camp Lejeune would be converted for the development of facilities. Some of the impacts may be offset or minimized through design or in the case of wetlands, mitigated. The DEIS notes that "the *specific* locations for each of the proposed facilities, however, are not sited." There is a qualitative component to consider, and not all forested land is equal, in its contribution to habitat. In siting the new facilities, every effort should be made to avoid identified high-quality and sensitive habitats, to maintain connectivity across the landscape, and to maintain ecological processes, especially fire.

In regards to high-quality and sensitive habitats, the Draft EIS describes the purpose, membership and accomplishments of the Onslow Bight Conservation Forum (OBCF) and summarizes Camp Lejeune's and the Air Stations' roles as members of this vital partnership. The Onslow Bight extends from Cape Lookout to Cape Fear and contains a variety of ecosystems supporting a diversity of rare and endangered plant and animal species. One motivation of the OBCF was to reduce the potential for land uses that are incompatible to the installations' military training mission to become established immediately adjacent to the Base boundary. However, the collective efforts of the Forum

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-733-4984 \ FAX: 919-715-3060 Internet: www.enr.state.nc.us

One NorthCarolina *Naturally*

partners provide benefits to the citizens of the affected counties through the conservation of forested land, water quality and other environmentally valuable but sensitive features.

We would encourage continued efforts to collaborate and proactively conserve habitat on and off military bases. The Onslow Bight conservation design plan identifies "conservation targets", and the description of some important habitats. These conservation targets include endemic and near-endemic species not currently listed as threatened or endangered, but for which the Onslow Bight landscape is important for long-term viability. As noted above, the DEIS states that "the specific locations for each of the numerous proposed facilities at Camp Lejeune have not been sited." Camp Lejeune and the Air Stations contain some important habitats. Judging from the general maps for the proposed projects and development areas, it would appear that many of the previously identified habitats will be largely avoided; if that comes to be true, the military installations should be commended. But since specific locations are not given, we would recommend that those planning for development consider impact to conservation targets both on a site-by-site basis and cumulatively, and work to conserve important habitats. Implementation of development plan should work to minimize habitat fragmentation, primarily two ways: maintain habitat connectivity (on military lands and to habitats outside military lands), and maintain ecological processes, especially fire. When planning to locate and construct facilities, would recommend that corridors for wildlife migration be considered -- wide enough for vertebrate non-avian wildlife, and continuous; appropriate design can help accomplish that goal. B-006

To the maximum extent practicable or necessary to its acceptance, the human communities residing within the installation should be made aware of fire management exercised on these installations. To minimize habitat fragmentation, fire management, including prescribed burning should be continued within the affected forested lands. In the event that prescribed fire can no longer be applied in specific locations (e.g. wildland urban interface), alternative ways to imitate the beneficial effects of fire on the landscape should be evaluated and practiced. The best way to minimize the effects of habitat fragmentation, especially in pine-dominated forest types is to continue prescribed burning. In the DEIS, some of the forest types for the proposed development areas within Camp Lejeune seem to contain mature or maturing longleaf pine forests, in significant quantities or proportion.

The DEIS estimates 20,000 new residents, which will impact habitat and water resources off military lands. All partners should continue working together to protect and conserve habitat, surface water quality, and groundwater, among other natural resources

Sincerely,

Scott Pohlman

North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

MEMORANDUM

To: Melba McGee
Office of Legislative & Intergovernmental Affairs

FROM: Molly Ellwood
Southeastern Permit Coordinator
Habitat Conservation Program

DATE: September 1, 2009

SUBJECT: Comments for the United States Marine Corps's Draft Grow the Force EIS, Onslow and Carteret Counties; OLIA 10-0019

Biologists from the N. C. Wildlife Resources Commission (NCWRC) have reviewed the proposed project description. Our comments are provided in accordance with certain provisions of the North Carolina Environmental Policy Act (G.S. 113A-1 through 113A-10; 1 NCAC 25) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661et seq.).

The United States Marine Corps (USMC) is increasing the number of troops to be stationed and working at Marine Corps Base (MCB) Camp LeJeune, Marine Corps Air Station (MCAS) New River, and MCAS Cherry Point in Onslow and Carteret Counties. The permanent increase in troop numbers at these three bases is estimated to be approximately 9,900 troops to be stationed at these locations by fiscal year 2011. Combined with dependants, increases to residents in and around the three installations is estimated to be 18, 820 people. This draft EIS addresses a multi-year, major construction effort for the infrastructure to support this increase and includes projects directly related to the troop increase, as well as projects that will be occurring during the time of the troop surge, referred to as "core projects."

The NCWRC has the following recommendations:

- The NCWRC is concerned with the secondary and cumulative impacts to wetlands for the creation of the required infrastructure to accommodate troop increases at the three USMC bases discussed in the EIS. We recommend that the USMC explore ways to minimize impacts to wetlands, AEC, floodplains, and other environmentally important areas. A guidance document, "Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality (August 2002)," provides recommendations to avoid and minimize impacts from common development practices. W-019

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • Fax: (919) 707-0028

- The NCWRC recommends that the USMC fully evaluate available mitigation credits prior to requesting permits for wetland impacts. Per Executive Order 11990, the USMC must comply with the no net loss of wetlands policy. The Greater Sandy Run Mitigation Bank on MCB Camp LeJeune has a limited amount of credits available and the NCWRC recommends that these available credits be fully evaluated prior to requests being made for wetland impacts. The amount of required infrastructure needed to facilitate the increase in troops and their dependants, raises concern for the potential impacts that may be requested. The NCWRC requests that regular accounting of these credits be provided as permits for impacts are applied for, to facilitate the review process. W-020

Thank you for the opportunity to review and comment on this project at this time. Please feel free to contact me at (910) 796-7240 if you have any questions or concerns.

cc: Joanne Steenbuis, NCDWQ
Rich Carpenter, NCDMF
Stephen Rynas, NCDCM

80007

TY

READ FILE

North Carolina Department of Cultural Resources

State Historic Preservation Office

Peter B. Sandbeck, Administrator

Beverly Eaves Perdue, Governor
Linda A. Carlisle, Secretary
Jeffrey J. Crow, Deputy Secretary

Office of Archives and History
Division of Historical Resources
David Brook, Director

September 22, 2009

John R. Townson, Director
Environmental Management Division USMC
Marine Corps Base
PSC Box 20004
Camp Lejeune, NC 28542-0004

RE: Assessment of Effects for Grow the Force at USMC Camp Lejeune and MCAS New River, Onslow County, ER09-1689

Dear Mr. Townson:

Thank you for your letter of September 9, 2009, and the accompanying summary of the Assessment of Effects for the proposed Grow the Force initiative at Camp Lejeune and Marine Corps Air Station New River. We have reviewed the information and maps provided as well as the reasoning behind each of the assessments of effects and concur with you that the proposed undertaking will not adversely affect any property listed in or eligible for listing in the National Register of Historic Places. We further understand that if plans change throughout the development of Grow the Force activities, you will contact us, pursuant to Section 106, to evaluate the changes and their potential to affect historic resources.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-807-6579. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

Renee Gledhill-Earley

for Peter Sandbeck

cc: Rick Richardson, Camp Lejeune

Location: 109 East Jones Street, Raleigh NC 27601 **Mailing Address:** 4617 Mail Service Center, Raleigh NC 27699-4617 **Telephone/Fax:** (919) 807-6570/807-6599

RESPONSES

Date Received	Comment Number	Affiliation	Last Name	First Name	Specific Comment Number	Specific Comment	USMC Response/Action
18-Aug-09	00001	General Public	Anonymous		T-001	note impacts on traffic at Cherry Point	Traffic was addressed for Cherry Point and the City of Havelock within Section 3.8.1.2.
18-Aug-09	00002	General Public	Moore	Derrick	TY	In my opinion this project impact on the affected economies is a great plus.	Thank you for your comment during the public comment period for the draft EIS for Grow the Force in North Carolina. Public and agency involvement is an important part of the NEPA process. You and many others can be assured that your participation and comments have become part of the record and contribute to the decision-making process.
18-Aug-09	00003	General Public	Duncan	Stephanie	Cs-001	The USMC has many families with these [special] needs and should offer a resource to the families.	Concur, the USMC recognizes this need in their planning process and does its best to accommodate special needs of all families.
3-Aug-09	00004	General Public	Sage	Ronald	G-001	...information concerning impacts to the area....In the meeting and this EIS, this is more specific to only Cherry Point, and not the City of Havelock. How do these two documents marry up?	The Military Growth Task Force's Preliminary Impact Analysis evaluates direct and indirect impacts of all growth in a seven-county region. The GTF EIS evaluates the impacts to a three-county region. As noted in the EIS, the Marine Crops is working with the MGTF and providing input but the two documents are separate.
19-Aug-09	00005	General Public	Sage	Ronald	R-001	How will the Roosevelt Blvd and Slocum Rd widening/realignment proposals affect the running path next to them? Specifically, near the runway, at Slocum Creek, the natural dirt pathway, access road to the Base Environmental Building and Rifle Range Road, and crosswalk over the compund access at the last traffic light?	The running path will be realigned as necessary.
20-Aug-09	00006	General Public	Hall	Jeff	B-001	concerned about the gopher frog and the Eastern diamond-backed rattlesnake.	For Federally listed threatened and endangered animal and plant species, and the habitats in which they are found the USMC ensures that consultations are conducted as required with the USFWS and NMFS under Section 7 for any action which "may affect" a threatened or endangered species. State listed species may not be protected under the Federal ESA; however, they are protected on State land under North Carolina's Plant Protection Conservation Act and North Carolina's Endangered Species Act. As described in Section 3.15 of the Final EIS Installations cooperate with State authorities in efforts to conserve these species.
20-Aug-09	00006	General Public	Hall	Jeff	B-002	develop projects away from fire-maintained long-leaf pine ecosystems and build wildlife underpasses beneath any new roads in these ecosystems.	The USMC will strive to minimize habitat fragmentation to the fullest extent practicable; however, some habitat fragmentation is unavoidable from the new base road. Other construction is concentrated within the developed areas of the three installations; therefore, fragmentation from these projects will be minimal.
29-Aug-09	00007	General Public	Kier	Kathy	TY		Thank you for your comment during the public comment period for the draft EIS for Grow the Force in North Carolina. Public and agency involvement is an important part of the NEPA process. You and many others can be assured that your participation and comments have become part of the record and contribute to the decision-making process.

August	00008	General Public	Sutherland	Ronald	B-001	concerned about the gopher frog and the Eastern diamond-backed rattlesnake.	For Federally listed threatened and endangered animal and plant species, and the habitats in which they are found the USMC ensures that consultations are conducted as required with the USFWS and NMFS under Section 7 for any action which "may affect" a threatened or endangered species. State listed species may not be protected under the Federal ESA; however, they are protected on State land under North Carolina's Plant Protection Conservation Act and North Carolina's Endangered Species Act. As described in Section 3.15 of the Final EIS Installations cooperate with State authorities in efforts to conserve these species.
August	00008	General Public	Sutherland	Ronald	B-003	increase in traffic and human activity also poses a severe threat to the Southern hognose snake.	For Federally listed threatened and endangered animal and plant species, and the habitats in which they are found the USMC ensures that consultations are conducted as required with the USFWS and NMFS under Section 7 for any action which "may affect" a threatened or endangered species. State listed species may not be protected under the Federal ESA; however, they are protected on State land under North Carolina's Plant Protection Conservation Act and North Carolina's Endangered Species Act. As described in Section 3.15 of the Final EIS Installations cooperate with State authorities in efforts to conserve these species.
August	00008	General Public	Sutherland	Ronald	B-001		For Federally listed threatened and endangered animal and plant species, and the habitats in which they are found the USMC ensures that consultations are conducted as required with the USFWS and NMFS under Section 7 for any action which "may affect" a threatened or endangered species. State listed species may not be protected under the Federal ESA; however, they are protected on State land under North Carolina's Plant Protection Conservation Act and North Carolina's Endangered Species Act. As described in Section 3.15 of the Final EIS Installations cooperate with State authorities in efforts to conserve these species.
August	00008	General Public	Sutherland	Ronald	Do-001	...clearly the best alternrtiave is either "no expansion" or "contraction" of base activities.	Per Presidential and Congressional direction, this is not an option. Please refer to Section 1.1 in the EIS.
7-Sep-09	00009	General Public	Hemmingway	Bill	TY		Thank you for your comment during the public comment period for the draft EIS for Grow the Force in North Carolina. Public and agency involvement is an important part of the NEPA process. You and many others can be assured that your participation and comments have become part of the record and contribute to the decision-making process.
Received verbally after the comment period ended.		General Public	Official Rod and Gun Club		TY	Would like to suggest: 1) more special hunts be allowed near the golf course due to the new construction that will concentrate the density of deer in that area and potentially cause a wildlife hazard to vehicles, 2) improve the current boat ramp in Tarawa Terrace that will be along the new base road, 3) install a fence along the new road from the Northeast Creek Bridge to Brewster Blvd. to prevent wildlife hazards to vehicles, and 4) eliminate the traffic light at Holcomb and Brewster and replace with an overpass going over Brewster Blvd.	Thank you for your comments. Many of the proposed projects at MCB Camp Lejeune are still in the planning process. Therefore, the suggestions made will be considered at the appropriate time during the design process.

Date Received	Comment Number	Affiliation	Last Name	First Name	Specific Comment Number	Specific Comment	Response/Action
21-Aug-09	80001	Jones County	Wiggins	Joseph H.	Cu-001	Amplified traffic flow on US 17 between Pollocksville and Jacksonville due to operations at MCOLF Oak Grove.	The EIS evaluated three counties that were determined to be potentially significantly impacted by the proposed action and alternatives, Jones County was not one of these counties. There is a regional plan from the Military Growth Task Force that includes proposed solutions for traffic along U.S. 17 in Jones County.
1-Sep-09	80002	USEPA	Mueller	Heinz	Do-002	…consider a hybrid of the preferred alternative and Alternative 3…	The USMC has determined that the alternatives considered present a reasonable range of alternatives.
1-Sep-09	80002	USEPA	Mueller	Heinz	AQ-001	…provide specific commitments, in the form of mitigation measures, to implement the recommendations found in the EIS….	The USMC has determined that air quallity impacts would require no further mitigation measures, beyond those already required under applicable permits.
1-Sep-09	80002	USEPA	Mueller	Heinz	T-002	Given the potential air quality concerns associated with significant transportation deficiencies. . . .	The USMC recognizes the value of alternative transporation methods, and is promoting the use of these through currently established and funded initiatives such as van pooling.
1-Sep-09	80002	USEPA	Mueller	Heinz	N-001	…consider the use of sound-proofing and other sound insulation measures in new building construction to reduce interior noise levels…	Concur, USMC follows required noise attenuating practices in new construction.
1-Sep-09	80002	USEPA	Mueller	Heinz	W-001	…recommends consideration of siting and design modifications to further minimize the impacts …to jurisdictional waters including wetlands.	As presented in Section 3.15, the layout of the proposed development would be designed to avoid and minimize direct and indirect impacts to wetlands, streams, and floodplain areas to the greatest extent practicable.
1-Sep-09	80002	USEPA	Mueller	Heinz	W-003	Wetland permits and possible mitigation activities will be defined prior to construction of any projects affecting jurisdictional wetlands in accordance with the regulatroy requirements of the U.S. Army Corps of Engineers.	Concur, the USACE is a cooperating agency and per their comments, found at 80004, permitting will be completed prior to construction.
1-Sep-09	80002	USEPA	Mueller	Heinz	W-004	…suggests employing the use of Low Impact Development (LID) practices in the engineering, design, and construction of …..	Concur, see section 3.15.
1-Sep-09	80002	USEPA	Mueller	Heinz	W-005	…recommends that the Final EIS include specific commitments to implement the mitigation measures….	Concur, the USMC is working closing with NCDENR to minimize and mitigate stormwater and water quality impacts.
31-Aug-09	80003	USDOI	Stanley	Joyce	TY	We have no comments at this time.	Thank you for your comment during the public comment period for the draft EIS for Grow the Force in North Carolina. Agency involvement is an important part of the NEPA process; you can be assured that your participation has become part of the record and contributed to the decision-making process.
8-Sep-09	80004	USACE-Wilmington	Jolly	S. Kenneth	TY	...many of the projects will require individual permit authorization, pursuant to Section 404 of the Clean Water Act and possible Section 10 of the Rivers and Harbor Act....the USACE-Wilmington District intends to initiate the permit review process and its associated mandatory public interest review, with their public notice....this process could result in the issuance of a Department of the Army provisional permit, an approach that would expedite and enhance the permit review process.	Thank you for your input as a cooperating agency. Your involvement is an important part of the NEPA process. The USMC looks forward to continued involvement by the USACE-Wilmington District in the development of projects throughout the design process and encourages any input from the USACE to avoid and minimize impacts to important water resources.
9-Sep-09	80005	USFWS	Benjamin	Pete	TY	The U.S. Fish and Wildlife Service (Service) concurs that specific actions related to road construction projects "may affect, not likely to adversely affect" manatees.	Thank you for your response to our July 29, 2009 letter requesting an evaluation of the Draft EIS and your comments in accordance with Section 7 of the Endangered Species Act.

Date Received	Comment Number	Affiliation	Last Name	First Name	Specific Comment Number	Specific Comment	Response/Action
9-Sep-09	80006	NC Clearinghouse	Carpenter	Rich	B-005	The EIS does not discuss the shellfish resources … in New River other than a mention that they are present….Runoff from the development proposed at Courthouse Bay, Stone's Bay, French's Creek, and Hadnot Point has the greatest potential to cause a closure of adjacent open shellfishing waters. The draft discusses Federal Fishery Management Plans but there is no mention of State Fishery Management Plans that have been completed on species that occur in New River, the Intracoastal Waterway and the Atlantic Ocean and may be affected by activities on the Base.	Through USMC permitting requirements and use of best management practices, we will make every effort to minimize impacts to all water resources including shellfish and all species covered under state and federal management plans.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-006	…acknowledge the requirements of Section 438 of the Energy Independence and Security Act of 2007.	Concur, the USMC complies with all federal laws.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-004		
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-007	clarify on page 3-327, 334, and 335 about rooftop run-off. . .	Clarified text in Final EIS.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	Do-003	clarify wastewater and stormwater collection systems found on page 2-10	USMC confirms that wastewater and stormwater collection systems are separate. Clarified text in Final EIS.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	Do-004	clarify if there is double-counting in Table 2.2-6	There is no double counting, all projects are identified by their separate project numbers (P1301, P1134, and P1321).
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-008	provide greater detail on projected stream impacts….	Clarified text in Final EIS.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-009	Please clarify on pages 3-151 and 3-158, why the environmental impacts associated with "a series of upgrades and modifications to the existing wastewater collection and treatment system at MCB Camp Lejeune" are being evaluated in a separte EA if the purpose [in] this EIS is "to assess the potential impacts associated with permanently increaseing USMC forces at three USMC Installations …."	The wastewater system upgrades identified on page 3-151 were a recognized need prior to the Grow the Force proposed action.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-010	On page 3-155 it states … there are currently no capacity concerns with the county-wide system or the Jacksonville system, but on page 3-167 it states that the capacity would be exceeded, please clarify.	Clarified text in Final EIS.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-011	…on pages 3-332, 333, and 337 indicate that a Section 401 permit from DWQ will also be required for wetland impacts.	Clarified text in Final EIS.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-012	amend pgs. 3-335 and 3-336 to include statements about impacts related to potable water and wastewater fcilities to serve the increased population	Comment unclear, however, wastewater and potable water facility capacity is addressed in Section 3.9.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	W-013	Address NPDES and/or non-discharge wastewater permits in Table 5.1-1 and discuss in 3.15.1	Clarified in Table 5.1-1 and already addressed in Section 3.15.
9-Sep-09	80006	NC Clearinghouse			W-014	DWQ encourages the USMC not to construct buildings within 100-year floodplains.	Concur, USMC complies with Executive Order 11988, Floodplain Management.

Date Received	Comment Number	Affiliation	Last Name	First Name	Specific Comment Number	Specific Comment	Response/Action
9-Sep-09	80006	NC Clearinghouse	Rynas	Stephen	LU-001	DCM encourages the USMC to continue to implement and/or acquire buffer areas.	Concur, the USMC actively engages in encroachment partnering programs as well as being an active member of the Onslow Bight Conservation Forum.
9-Sep-09	80006	NC Clearinghouse	Stallings	Hannah	B-005	The EIS does not discuss the shellfish reources, oyster, hard clams and bay scallops in New River other than they are present….	Through USMC permitting requirements and use of best management practices, we will make every effort to minimize impacts to all water resources including shellfish and all species covered under state and federal management plans.
9-Sep-09	80006	NC Clearinghouse	Fisher	Robert	AQ-002	…believe there will be increased air emissions at MCAS Cherry Point, but also believe that the USMC will go through the permit application process.	Concur, MCAS Cherry Point has an effective Title V permit program.
9-Sep-09	80006	NC Clearinghouse	Tankard	Robert	W-015	…if new potable wells should be needed then well permits shall be required. Also a collections permit will be required to extend any and all sanitary sewer lines that will service the new builidngs ...	Concur, the USMC follows all permit and regulatory guidelines required by State and Federal Agencies.
9-Sep-09	80006	NC Clearinghouse	Shriber	Rick	W-016	…MCBCL needs to address/fix the problems that limit biological nutrient removal at its wastewater treatment plant: currently, it can only remove nutrients from 10 of its 15 million gallon per day capacity.	Total throughput from the wastewater treatment plant, including the increase as a result of the proposed action, will be less than 8 million gallons per day. The USMC will address additional nutrient removal needs as they occur.
9-Sep-09	80006	NC Clearinghouse	McRight	Jim	W-017	all water system improvements must be approved by the Division of Environmental Health prior to the award of a contract or the initiation of construction…	Concur, appropriate approvals will be obtained.
9-Sep-09	80006	NC Clearinghouse	McRight	Jim	W-018	…plans for the water line relocation must be submitted to the Division of Environmental Health…	Concur, appropriate approvals will be obtained.
9-Sep-09	80006	NC Clearinghouse	Pohlman	Scott	B-006	…development plan should work to minimize habitat fragmentation, primarily two ways: maintain habitat connectivity (on miliatary lands and to habitats outside military lands), and maintain ecological processes, especially fire….recommend that corridors for wildlife migration be considered....	The USMC will strive to minimize habitat fragmentation to the fullest extent practicable; however, some habitat fragmentation is unavoidable from the new base road. Other construction is concentrated within the developed areas of the three installations; therefore, fragmentation from these projects will be minimal.
9-Sep-09	80006	NC Clearinghouse	Ellwood	Molly	W-019	…recommend that the USMC explore ways to minimize impacts to wetlands, AEC, floodplains, and other environmentally important areas. A guidance document, "Guidance Memorandum to Address and Mitigate Secondary and Cumulative Impacts to Aquatic and Terrestrial Wildlife Resources and Water Quality" ... provides recommendations to avoid and minimize impacts....	Concur, USMC strives to minimize impacts to all resources.
9-Sep-09	80006	NC Clearinghouse	Ellwood	Molly	W-020	…recommends that the USMC fully evaluate available mitigation credits prior to requesting permits for wetland impacts….recommends the Marine Corps provide an accurate accounting of the Greater Sandy Run Mitigation Bank credits.	Concur, the UsMC carefully tracks and reports the remaining credits in the Greater Sandy Run Mitigation Bank and will include this information in any permitting applications. Please refer to Section 3.17 for more mitigation information.

Date Received	Comment Number	Affiliation	Last Name	First Name	Specific Comment Number	Specific Comment	Response/Action
N/A	80007	NC SHPO	Sandbeck	Peter	TY	...concur with you that the proposed undertaking will not adversely affect any property listed in or eligible for listing in the National Register of Historic Places....	Thank you for your response to our September 9, 2009 letter and the accompanying summary of the Assessment of Effects for the proposed Grow the Force initiative.

HEARING MEETING TRANSCRIPTS

TRANSCRIPT OF
PUBLIC HEARING REGARDING

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
U.S. MARINE CORPS GROW THE FORCE
AT MCB CAMP LEJEUNE, MCAS NEW RIVER,
AND MCAS CHERRY POINT, NORTH CAROLINA

HAVELOCK, NORTH CAROLINA

* *

COMMENCING AT 6:30 P.M., AUGUST 18, 2009, AT THE HAVELOCK TOURIST AND EVENT CENTER, 201 TOURIST CENTER DRIVE, HAVELOCK, NORTH CAROLINA.

APPEARANCES:

JUDGE	-	WILLIAM RIGGS LIEUTENANT COLONEL, USMC MILITARY JUDGE EASTERN JUDICIAL CIRCUIT NAVY-MARINE CORPS TRIAL JUDICIARY CAMP LEJEUNE, NC 28547
MARINE CORPS INSTALLATIONS EAST	-	MR. SCOTT A. BREWER, PE REGIONAL ENVIRONMENTAL COORDINATION MARINE CORPS INSTALLATIONS EAST CAMP LEJEUNE, NC 28542
COURT REPORTER	-	KENNETH L. DAUB

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NEW BERN COURT REPORTERS, INC.
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JUDGE: GOOD EVENING, AND THANK YOU FOR COMING TONIGHT. I'M LIEUTENANT COLONEL BILL RIGGS. I'M ONE OF THE MILITARY JUDGES ON THE EASTERN JUDICIAL CIRCUIT STATIONED AT CAMP LEJEUNE. I'LL BE THE MODERATOR FOR TONIGHT'S HEARING ON THE U.S. MARINE CORPS' DRAFT ENVIRONMENTAL IMPACT STATEMENT - OR DRAFT EIS - ANALYZING THE POTENTIAL IMPACTS FROM THEIR PROPOSAL TO SUPPORT, THROUGH PERMANENT FACILITY AND INFRASTRUCTURE CONSTRUCTION, THE GROW THE FORCE INITIATIVE IN NORTH CAROLINA.

HERE TO RECEIVE YOUR COMMENTS THIS EVENING ARE MEMBERS FROM OUR GROW THE FORCE EIS TEAM. HOPEFULLY YOU HAVE ALREADY HAD THE OPPORTUNITY TO TAKE ADVANTAGE OF THE POSTER STATIONS AND ASK ANY QUESTIONS THAT YOU MAY HAVE. THE PRIMARY PURPOSE FOR THIS PORTION OF THE HEARING IS FOR THE MARINE CORPS TO LISTEN TO YOUR COMMENTS FIRSTHAND AND HAVE THEM RECORDED VERBATIM. THIS IS NOT A QUESTION AND ANSWER PERIOD; HOWEVER, POSTER STATIONS WILL REMAIN OPEN UNTIL 8:00 P.M. TO ENABLE YOU TO INTERACT WITH MARINE CORPS REPRESENTATIVES WHO CAN ANSWER QUESTIONS YOU MIGHT HAVE ON THE DRAFT EIS FINDINGS.

NOW, I WOULD LIKE TO PROCEED WITH AN OVERVIEW OF THE BRIEFING FORMAT THIS EVENING. AFTER I FINISH THIS INTRODUCTION, MR. SCOTT BREWER, FROM MARINE CORPS INSTALLATIONS EAST, WILL BRIEF YOU ON THE GROW THE FORCE INITIATIVE, PRESENT THE PROPOSED ACTION AND NO ACTION

ALTERNATIVE, AND OUTLINE THE FINDINGS PRESENTED IN THE DRAFT EIS. FOLLOWING THIS PRESENTATION, THE ORAL COMMENTING WILL BEGIN. THIS IS YOUR OPPORTUNITY TO PROVIDE US WITH YOUR CONCERNS AND MAKE STATEMENTS FOR THE RECORD. THIS INPUT INTO THE DRAFT EIS ENSURES THAT MARINE CORPS DECISION MAKERS ARE FULLY INFORMED ABOUT COMMUNITY CONCERNS REGARDING THE FINDINGS PRESENTED IN THIS DOCUMENT BEFORE THE MARINE CORPS DECIDES ON A COURSE OF ACTION. CONSEQUENTLY, COMMENTS TONIGHT ON ISSUES UNRELATED TO THIS DRAFT EIS ARE BEYOND THE SCOPE OF THIS HEARING AND CANNOT BE ADDRESSED.

WHEN YOU WERE GREETED AT THE ENTRANCE, WE ASKED THAT YOU FILL OUT A SPEAKER REQUEST CARD. IF YOU DID NOT FILL OUT ONE OF THESE CARDS AND WISH TO SPEAK TONIGHT, PLEASE RAISE YOUR HAND AND WE WILL PROVIDE YOU WITH THE REQUEST CARD. EACH PERSON WILL HAVE THREE MINUTES TO SPEAK, INCLUDING PUBLIC OFFICIALS, ORGANIZATIONAL SPOKESPERSONS, AND PRIVATE INDIVIDUALS. IF YOU DO NOT FEEL COMFORTABLE STANDING UP HERE TONIGHT AND MAKING A STATEMENT, YOU HAVE UNTIL SEPTEMBER 8TH, 2009, TO SUBMIT A WRITTEN STATEMENT FOR CONSIDERATION IN THE FINAL EIS. PLEASE NOTE ALL COMMENTS - ORAL, WRITTEN, AND THOSE SUBMITTED ELECTRONICALLY ON THE PROJECT WEBSITE - ARE GIVEN EQUAL CONSIDERATION.

NOW, IT'S MY PLEASURE TO INTRODUCE MR. SCOTT BREWER FROM MARINE CORPS INSTALLATIONS EAST.

MR. BREWER: THANK YOU COLONEL RIGGS, AND GOOD

EVENING LADIES AND GENTLEMEN. I'M SCOTT BREWER, AS THE COLONEL SAID, AND I WORK AT MARINE CORPS INSTALLATIONS EAST. I OVERSEE ENVIRONMENTAL PROJECTS FOR MARINE CORPS INSTALLATIONS EAST.

I'D LIKE TO THANK EACH OF YOU FOR ATTENDING OUR PUBLIC HEARING SESSION TONIGHT TO HEAR ABOUT THE MARINE CORPS' GROW THE FORCE INITIATIVE. AS THE COLONEL TOUCHED ON, WE WANT TO REVIEW THE GROW THE FORCE INITIATIVE; WE WANT TO PRESENT OUR PROPOSED ACTION, AND THE ALTERNATIVES FOR THAT; WE WANT TO OUTLINE THE FINDINGS THAT WERE PRESENTED IN THE DRAFT EIS; AND, AGAIN, AS THE COLONEL MENTIONED, WE WANT TO OPEN THE FLOOR TO PUBLIC COMMENTS.

WE ARE HOLDING THREE OF THESE MEETINGS THIS WEEK AT THE LOCATIONS AND THE DATES SHOWN THERE ON THE SLIDE. [SLIDE 3: PUBLIC HEARINGS] THESE ARE THE AREAS THAT WE BELIEVE WILL BE POTENTIALLY AFFECTED BY OUR GROW THE FORCE PROPOSAL. AS MENTIONED EARLIER, WE HOPE THAT YOU HAVE TAKEN THE OPPORTUNITY TO STOP BY THE POSTERS AND MEET THE MARINE CORPS TEAM THAT'S BEEN WORKING ON THE PROJECT. OUR TEAM MEMBERS WILL BE AT THE POSTERS FOLLOWING THE PUBLIC COMMENT SESSION. SO, IF YOU HAVE ANY QUESTIONS RELATED TO OUR FINDINGS IN THE DRAFT EIS, WE WOULD ENCOURAGE YOU TO STOP BACK BY THE POSTERS AND TALK TO OUR TEAM MEMBERS ABOUT YOUR QUESTIONS.

THE DRAFT EIS WAS PREPARED BY HEADQUARTERS MARINE CORPS, MARINE CORPS INSTALLATIONS EAST, MARINE CORPS BASE

CAMP LEJEUNE, MARINE CORPS AIR STATION NEW RIVER, MARINE CORPS AIR STATION CHERRY POINT, AND THE NAVAL FACILITIES ENGINEERING COMMAND, MID-ATLANTIC. THE DOCUMENT WAS PREPARED TO COMPLY WITH THE NATIONAL ENVIRONMENTAL POLICY ACT, OR NEPA, WHICH REQUIRES FEDERAL AGENCIES TO CONSIDER THE EFFECTS OF THEIR ACTIVITIES ON THE PHYSICAL, BIOLOGICAL, AND HUMAN ENVIRONMENT.

THIS SLIDE REPRESENTS THE NEPA PROCESS ASSOCIATED WITH THE GROW THE FORCE PROPOSED ACTION. [SLIDE 4: NATIONAL ENVIRONMENTAL POLICY ACT] WE STARTED THE PROCESS IN DECEMBER OF 2007 WITH THE NOTICE OF INTENT THAT WAS ANNOUNCED IN THE FEDERAL REGISTER. THIS MARKED THE BEGINNING OF THE SCOPING COMMENT PERIOD. IN JANUARY OF 2008, THE SCOPING MEETINGS WERE HELD IN THE SAME THREE COMMUNITIES THAT WE ARE HOLDING OUR MEETINGS IN THIS WEEK.

OVER THE PAST YEAR WE HAVE BEEN PREPARING THE DRAFT EIS. PREPARATION INCLUDED REFINEMENT OF THE PROPOSED ACTION AND ALTERNATIVES, DETERMINATION OF THE AREAS DIRECTLY AND INDIRECTLY AFFECTED BY THE PROPOSAL, AND EVALUATION OF THE POTENTIAL IMPACTS ON THE NUMEROUS RESOURCES. WHEN THE DRAFT EIS WAS COMPLETED, ITS AVAILABILITY FOR PUBLIC REVIEW WAS ANNOUNCED IN THE FEDERAL REGISTER ON JULY 17TH, AS THE COLONEL MENTIONED. IT WAS ALSO POSTED IN SEVERAL REGIONAL NEWSPAPERS.

WITH THIS ANNOUNCEMENT, THE PUBLIC COMMENT PERIOD WAS

INITIATED. EXTENDING FROM JULY 17TH TO SEPTEMBER 8TH, 2009, THIS COMMENT PHASE ALLOWS THE PUBLIC TIME TO REVIEW THE DOCUMENT, EXPRESS THEIR COMMENTS ON THE FINDINGS PRESENTED IN THE DOCUMENT, AND HAVE THE OPPORTUNITY TO ATTEND THE HEARINGS TO EXPRESS THEIR CONCERNS. FOLLOWING THIS COMMENT PERIOD, THE MARINE CORPS WILL EVALUATE AND ADDRESS PUBLIC COMMENTS AND REVISE THE FINAL EIS ACCORDINGLY. ONCE THESE REVISIONS ARE COMPLETE, THE FINAL EIS AVAILABILITY WILL ALSO BE ANNOUNCED IN THE FEDERAL REGISTER, AS WELL AS LOCAL NEWSPAPERS.

AFTER A 30-DAY WAITING PERIOD, THE MARINE CORPS ANTICIPATES ANNOUNCING ITS RECORD OF DECISION, OR ROD; AND IT'S ANTICIPATED THAT THE ROD WILL BE SIGNED IN JANUARY 2010. AGAIN, THIS DECISION WILL APPEAR WITHIN THE FEDERAL REGISTER AND ITS AVAILABILITY ANNOUNCED IN LOCAL NEWSPAPERS AS WELL. THIS DRAFT EIS, THAT WE'RE TALKING ABOUT TONIGHT, REPRESENTS COMPLIANCE WITH NEPA, AS WELL AS OTHER STATUTES THAT ARE APPLICABLE TO THIS PROPOSAL, SUCH AS THE ENDANGERED SPECIES ACT, THE CLEAN WATER ACT, AND THE CLEAN AIR ACT, TO NAME JUST A FEW. BUT MORE IMPORTANTLY, IT'S ALSO PART OF THE MARINE CORPS' OVERALL COMMITMENT TO ENVIRONMENTAL STEWARDSHIP AS WE STRIVE TO MEET OUR MILITARY MISSION.

IN PREPARING THE DRAFT EIS, THE MARINE CORPS TOOK A COMPREHENSIVE AND CUMULATIVE APPROACH IN ASSESSING THE POTENTIAL EFFECTS TO NUMEROUS ENVIRONMENTAL RESOURCE AREAS,

INCLUDING NATURAL, CULTURAL, ECONOMIC, AND SOCIAL RESOURCES, THAT COULD BE IMPACTED BY THE GROW THE FORCE PROPOSAL IN NORTH CAROLINA.

SO WHAT IS GROW THE FORCE? CURRENTLY, MARINES ARE DEPLOYED AT AN INCREASED LEVEL AND DURATION CAUSING HARDSHIP FOR THEIR FAMILIES AND THEIR ABILITY TO TRAIN FOR THEIR NEXT MISSION. IN HIS JANUARY 2007 STATE OF THE UNION ADDRESS, UNDER RECOMMENDATION FROM THE SECRETARY OF DEFENSE, PRESIDENT BUSH ANNOUNCED HIS INTENTION TO INCREASE THE MARINE CORPS END STRENGTH FROM 180,000 TO 202,000 BY THE END OF FISCAL YEAR 2011. MARINE CORPS UNITS ACROSS THE UNITED STATES WERE IDENTIFIED FOR AUGMENTATION BASED ON THEIR MISSION COMPATIBILITIES, THEIR COMBAT ROLES, AND DEPLOYMENT RESPONSIBILITIES. THEIR PARENT UNITS WERE IDENTIFIED AND PERSONNEL INCREASES WERE ASSIGNED TO THEM. INCREMENTAL INCREASES IN END STRENGTH ACROSS THE MARINE CORPS BEGAN IN FISCAL YEAR 2007.

TO MEET ANY CRISIS OR CONFLICT THAT MAY ARISE, THE MARINE CORPS MUST BE SUFFICIENTLY MANNED AND TRAINED AND PROPERLY EQUIPPED. UNDER OPTIMAL CONDITIONS, THE DEPLOYMENT-TO-DWELL RATIO - IN OTHER WORDS, THE TIME A MARINE IS DEPLOYED VERSUS THE TIME STATIONED AT HOME - SHOULD SUPPORT THE ADEQUATE TIME NECESSARY FOR UNITS TO TRAIN AND PREPARE FOR THEIR NEXT DEPLOYMENT, TO CONDUCT THEIR CURRENT MISSION, TO RECOVER, ALSO WHILE MAINTAINING QUALITY OF LIFE. THE GROW

THE FORCE INITIATIVE WOULD PROVIDE THE OPPORTUNITY TO ACCOMMODATE A ONE-TO-TWO DEPLOYMENT-TO-DWELL RATIO, SPENDING TWICE THE AMOUNT OF TIME AT HOME THAN SPENT OVERSEAS.

THE UNITS PROPOSED FOR PERSONNEL INCREASES WOULD SUPPORT ACTIVE DUTY MARINES, CIVILIANS, AND MARINE OCCUPATIONAL SPECIALTY SCHOOL STUDENTS, PRESENTING A TOTAL ABOUT 9900 PERSONNEL ACROSS THE THREE INSTALLATIONS. IN NORTH CAROLINA, THE GROW THE FORCE INITIATIVE WOULD RESULT IN APPROXIMATELY 7700 ADDITIONAL MARINES AND CIVILIANS AT MARINE CORPS BASE CAMP LEJEUNE, 1400 ADDITIONAL MARINES AND CIVILIANS AT MARINE CORPS AIR STATION CHERRY POINT, AND 800 MARINES AT MARINE CORPS AIR STATION--EXCUSE ME, 1400 MARINES AND CIVILIANS AT MARINE CORPS AIR STATION NEW RIVER, AND 800 MARINES AND CIVILIANS AT MARINE CORPS AIR STATION CHERRY POINT.

SINCE THESE INCREASES ARE SO CLOSELY RELATED TO EACH OTHER IN BOTH LOCATION AND TIME, THE MARINE CORPS DETERMINED THAT THE POTENTIAL ENVIRONMENTAL EFFECTS AT THE THREE SITES WOULD BE EVALUATED TOGETHER IN ONE EIS. PREVIOUS GROWTH THAT'S BEEN ANNOUNCED IN NORTH CAROLINA INCLUDE THE ADDITION OF TWO NAVY F/A-18 SQUADRONS AT MARINE CORPS AIR STATION CHERRY POINT AND THE ADDITION OF THE MARINE SPECIAL OPERATIONS COMMAND AT MARINE CORPS BASE CAMP LEJEUNE. WHEN COMBINED WITH THE ADDITIONAL 9900 MARINES AND CIVILIANS UNDER THE GROW THE FORCE INITIATIVE, THE OVERALL ACTIVE DUTY AND

CIVILIAN EMPLOYEE INCREASES WOULD TOTAL 11,477 BY THE END OF FISCAL YEAR 2011. MANY OF THESE ADDITIONAL PERSONNEL WOULD ALSO HAVE DEPENDENTS - ALSO KNOWN AS SPOUSES AND CHILDREN - MAKING THE OVERALL GROWTH EVEN LARGER. THESE INCREASES HAVE BEEN EVALUATED IN OTHER NEPA DOCUMENTS, BUT ARE INCLUDED IN THE CUMULATIVE IMPACT ANALYSIS OF THIS DRAFT EIS.

THE PROPOSED ACTION ADDRESSED IN THIS DRAFT EIS IS THE PERMANENT, INCREMENTAL INCREASE OF MARINES, CIVILIANS, AND STUDENTS AT THE THREE NORTH CAROLINA INSTALLATIONS. ASSOCIATED WITH THESE MARINES ARE THEIR DEPENDENTS, WHICH WOULD ADD TO THE GROWTH IN THE AREA. HERE YOU CAN SEE A BREAKDOWN OF THE PROJECTED ACTIVE DUTY AND CIVILIAN PERSONNEL INCREASES FOR EACH INSTALLATION AND THE TOTAL FOR NORTH CAROLINA. [SLIDE 9: PROPOSED ACTION - PERSONNEL INCREASES] THE PROJECTED INCREASE OF 7700 PERSONNEL AT MARINE CORPS BASE CAMP LEJEUNE ALSO INCLUDES AN AVERAGE MONTHLY INCREASE OF 529 FORMAL SCHOOL STUDENTS.

FOR PURPOSES OF THIS ANALYSIS, FISCAL YEAR 2006 WAS CHOSEN AS THE BASELINE FROM WHICH THE ENVIRONMENTAL IMPACTS WERE EVALUATED. THIS PERIOD WAS CHOSEN BECAUSE IT WAS PRIOR TO PRESIDENT BUSH'S ANNOUNCEMENT OF THE MARINE CORPS INCREASES AND BEST REPRESENTS CONDITIONS AT THE INSTALLATIONS PRIOR TO PERSONNEL INCREASES ASSOCIATED WITH GROW THE FORCE. GROW THE FORCE WOULD INCREASE THE PERSONNEL BASELINE BY 19 PERCENT AT MARINE CORPS BASE CAMP LEJEUNE, 20 PERCENT AT

MARINE CORPS AIR STATION NEW RIVER, AND 6 PERCENT AT MARINE CORPS AIR STATION CHERRY POINT.

GAINS IN PERMANENT ACTIVE DUTY AND CIVILIAN PERSONNEL WOULD ALSO RESULT IN ASSOCIATED GAINS IN THE DEPENDENT POPULATION. IN TOTAL, IT WAS ESTIMATED THAT THERE WOULD BE AN INCREASE OF APPROXIMATELY 9500 DEPENDENTS FOR NORTH CAROLINA MARINE CORPS INSTALLATIONS. THIS ESTIMATE WAS DETERMINED BY APPLYING STANDARD MULTIPLIERS TO THE DISTRIBUTION OF INCREASED ACTIVE DUTY AND CIVILIAN PERSONNEL BY THEIR RANK OR EMPLOYMENT GRADE AT THE THREE INSTALLATIONS.

IN SUMMARY THEN, THE PROPOSED ACTION WOULD INCREASE MILITARY PERSONNEL AND DEPENDENTS AT THESE INSTALLATIONS BY 18,290 PEOPLE. THIS WOULD BE AN APPROXIMATE 13.8 PERCENT INCREASE.

THE MARINE CORPS EVALUATED THREE ACTION ALTERNATIVES, AND THE NO ACTION ALTERNATIVE, IN THE DRAFT EIS. ALTERNATIVE 1 IS THE NO ACTION ALTERNATIVE. UNDER THIS ALTERNATIVE, THE PERMANENT INCREASE IN PERSONNEL WOULD NOT OCCUR. THIS ALTERNATIVE HAS BEEN INCLUDED IN THE ANALYSIS PER REQUIREMENTS FROM THE COUNCIL ON ENVIRONMENTAL QUALITY, AND IT SERVES AS THE BASELINE AGAINST WHICH POTENTIAL IMPACTS OF THE PROPOSED ACTION CAN BE MEASURED. AGAIN, FISCAL YEAR 2006 IS USED AS THE BASELINE CONDITION FOR THIS ACTION SINCE THIS IS THE YEAR PRIOR TO THE PRESIDENTIAL MANDATE TO INCREASE FORCES.

ALTERNATIVE 2 IS THE PREFERRED ALTERNATIVE. UNDER THIS ALTERNATIVE, THE PERMANENT, INCREMENTAL INCREASE OF PERSONNEL OUTLINED UNDER THE GROW THE FORCE INITIATIVE WOULD BE IMPLEMENTED AT ALL THREE INSTALLATIONS. TO SUPPORT THIS GROWTH, A MAJOR, MULTI-YEAR CONSTRUCTION EFFORT IS PROPOSED CONSISTING OF NEW FACILITIES AND INFRASTRUCTURE. ESTIMATED CONSTRUCTION FOOTPRINTS TOTAL APPROXIMATELY 1700 ACRES AT MARINE CORPS BASE CAMP LEJEUNE, 160 ACRES AT MARINE CORPS AIR STATION NEW RIVER, AND 117 ACRES AT MARINE CORPS AIR STATION CHERRY POINT.

ALTERNATIVE 3 INCLUDES THE SAME PERMANENT INCREASE OF PERSONNEL AS DESCRIBED IN THE PREFERRED ALTERNATIVE, BUT IT INCLUDES A REDUCED CONSTRUCTION EFFORT. ESTIMATED CONSTRUCTION FOOTPRINTS FOR THIS ALTERNATIVE TOTAL APPROXIMATELY 360 ACRES AT MARINE CORPS BASE CAMP LEJEUNE, 90 ACRES AT MARINE CORPS AIR STATION NEW RIVER, AND 40 ACRES AT MARINE CORPS AIR STATION CHERRY POINT.

ALTERNATIVE 4 ALSO INCLUDES THE SAME PERMANENT INCREASE OF PERSONNEL AS DESCRIBED FOR THE PREFERRED ALTERNATIVE, BUT NO NEW FACILITY OR INFRASTRUCTURE CONSTRUCTION WOULD OCCUR UNDER THIS ALTERNATIVE. THE INCREASED PERSONNEL WOULD BE ACCOMMODATED IN EXISTING OR ALREADY CONSTRUCTED TEMPORARY FACILITIES.

WHILE ALTERNATIVES 3 AND 4 MEET THE PURPOSE AND NEED FOR THE PROPOSED ACTION, THE CAPACITY OF THE INSTALLATIONS

THAT SUPPORT THE INCREASE IN PERSONNEL WOULD BE STRAINED. THE PROPOSED FACILITY CONSTRUCTION UNDER ALTERNATIVES 2 AND 3 WAS SITED TO COINCIDE WITH AND/OR BE COMPLEMENT TO EXISTING MISSIONS, OPERATIONS, AND FUNCTIONS; TO TAKE OPERATIONAL SCHEDULES INTO CONSIDERATION, TAKING ADVANTAGE OF DEPLOYMENTS; TO USE EXISTING FACILITIES AND INFRASTRUCTURE TO THE GREATEST EXTENT POSSIBLE; TO AVOID AREAS WITH ENVIRONMENTAL CONSTRAINTS AS MUCH AS POSSIBLE, SUCH AS WETLANDS AND SENSITIVE SPECIES HABITAT; AND TO UTILIZE DEVELOPED, CLEARED, OR PREVIOUSLY DISTURBED AREAS WHENEVER POSSIBLE.

AT MARINE CORPS BASE CAMP LEJEUNE, BECAUSE THE EIS OCCURS EARLY IN THE CONSTRUCTION PLANNING PROCESS, THE EXACT FACILITY DESIGNS, LAYOUTS, AND LOCATIONS ARE STILL IN THE FORMATIVE STAGES. THEREFORE, LARGER MASTER PLANNING EFFORTS AND ENVIRONMENTAL CONSTRAINTS, SUCH AS CULTURAL RESOURCES, SENSITIVE HABITATS, WETLANDS, AND CONTAMINATED CLEANUP SITES ARE TAKEN INTO CONSIDERATION. ON THE BASE, PROPOSED CONSTRUCTION WOULD OCCUR IN EIGHT GENERAL PLANNING AREAS, WHICH IS [SLIDE 13: PROPOSED DEVELOPMENT AREAS MCB CAMP LEJEUNE/MCAS NEW RIVER]: WALLACE CREEK, HADNOT POINT, FRENCH CREEK, COURTHOUSE BAY, STONE BAY/THE RIFLE RANGE AREA, THE CAMP DEVIL DOG AREA, CAMP GEIGER, AND CAMP JOHNSON.

IN ADDITION, SEVERAL PROJECTS ARE PROPOSED THAT OCCUR OUTSIDE OF OR WITHIN MORE THAN ONE OF THESE GENERAL PLANNING

AREAS, INCLUDING THE NEW BASE ENTRY ROAD AND A NEW HOUSING AREA. THE NEW BASE ENTRY ROAD IS DEPICTED BY THAT LINE, AND THE HOUSING AREA SHOWN THERE [INDICATING ON SLIDE 13].

AT MARINE CORPS AIR STATION NEW RIVER, BECAUSE OF THE TYPES OF FACILITIES PROPOSED AND THE INDUSTRIAL NATURE OF THE AIR STATION, SPECIFIC PROJECT LOCATIONS HAVE BEEN DETERMINED. THE MAJORITY OF CONSTRUCTION WOULD OCCUR ON ALREADY-DEVELOPED LAND WITHIN THE AIR STATION. OF COURSE, NEW RIVER AIR STATION IS LOCATED RIGHT THERE [INDICATING ON SLIDE 13]. THE CONSTRUCTION AT BOTH OF THESE INSTALLATIONS IS SCHEDULED TO OCCUR BETWEEN FISCAL YEARS 2010 AND 2016.

AT MARINE CORPS AIR STATION CHERRY POINT, FOUR GENERAL PLANNING AREAS WERE IDENTIFIED FOR PROPOSED CONSTRUCTION. AS WITH MARINE CORPS AIR STATION NEW RIVER, THE INDUSTRIAL NATURE OF THE STATION AND THE FUNCTIONS OF THE PROPOSED FACILITIES HAVE ALLOWED THE STATION TO DEVELOP SPECIFIC LOCATIONS FOR THE PROPOSED PROJECTS. AS WAS DONE FOR THE OTHER TWO INSTALLATIONS, FACILITIES WERE SITED TO COINCIDE WITH OR BE COMPLEMENTARY TO EXISTING MISSIONS, OPERATIONS, AND FUNCTIONS; TO TAKE OPERATIONAL SCHEDULES INTO CONSIDERATION; TO USE EXISTING FACILITIES AND INFRASTRUCTURE TO THE GREATEST EXTENT POSSIBLE; TO AVOID AREAS WITH ENVIRONMENTAL CONSTRAINTS AS MUCH AS POSSIBLE; TO UTILIZE DEVELOPED, CLEARED, OR PREVIOUSLY DISTURBED LANDS WHENEVER POSSIBLE.

THE FOUR GENERAL PLANNING AREAS AT MARINE CORPS AIR STATION CHERRY POINT ARE THE ORDNANCE AREA, THE WEST QUADRANT, THE NORTH QUADRANT, AND THE MACS-2 COMPOUND [SLIDE 14 - PROPOSED DEVELOPMENT AREAS: MCAS CHERRY POINT]. THESE AREAS ARE MOSTLY DEVELOPED AND WERE IDENTIFIED BASED ON MASTER PLANNING EFFORTS AND ENVIRONMENTAL CONSTRAINTS. SIMILAR TO THE OTHER TWO INSTALLATIONS, CONSTRUCTION AT CHERRY POINT WOULD OCCUR BETWEEN FISCAL YEAR 2010 AND 2016.

NOW I'D LIKE TO BRIEFLY SUMMARIZE THE DRAFT EIS FINDINGS. IT IS THE INTENT OF NEPA THAT THE BEST PUBLICLY AVAILABLE INFORMATION AND DATA BE USED FOR THE ANALYSIS OF THE PROPOSED ACTION, AND THIS APPROACH WAS TAKEN ON THIS DOCUMENT BY AN INTERDISCIPLINARY TEAM OF SCIENTISTS. THESE INVESTIGATORS CONDUCTED EXTENSIVE LITERATURE REVIEWS, DATA COLLECTION, INTERVIEWS, AND USED THE MOST UP-TO-DATE STUDIES, SURVEYS, AND MODELS TO DETERMINE POTENTIAL IMPACTS.

THE DRAFT EIS CONSIDERED SEVERAL ELEMENTS THAT COULD CREATE IMPACTS. THESE INCLUDE CONSTRUCTION, DEMOLITION, AND UPGRADES, AS WELL AS THE OPERATION AND MAINTENANCE ACTIVITIES THAT WOULD OCCUR USING THESE FACILITIES. IN TOTAL, 13 RESOURCE AREAS WERE EVALUATED, AND THEY ARE LISTED HERE [SLIDE 15: DRAFT EIS IMPACT ANALYSIS]. I ENCOURAGE YOU TO REVIEW THE DRAFT EIS FOR A FULL EXPLANATION AND DISCUSSION OF THE METHODOLOGIES USED AND THE SPECIFIC IMPACTS TO EACH RESOURCE.

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THE FOLLOWING SLIDES PROVIDE A BRIEF OVERVIEW OF THE POTENTIAL IMPACTS FROM IMPLEMENTATION OF THE PREFERRED ALTERNATIVE, ALTERNATIVE 2. [SLIDES 16-25] THE PREFERRED ALTERNATIVE INCLUDES THE LARGEST AMOUNT OF DISTURBANCE DUE TO CONSTRUCTION AND WOULD THEREFORE REPRESENT A WORST-CASE SCENARIO FROM A POTENTIAL ENVIRONMENTAL IMPACT PERSPECTIVE. ALTERNATIVES 3 AND 4 HAVE REDUCED OR NO IMPACTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES. ALL OF THE ACTION ALTERNATIVES INCLUDE THE SAME PERSONNEL INCREASES DEFINED IN THE PROPOSED ACTION. IMPACTS OF PARTICULAR INTEREST WITH ALTERNATIVES 3 AND 4 ARE NOTED WHERE APPROPRIATE.

THE PLUS-UP IN PERSONNEL AND THEIR ASSOCIATED DEPENDENTS WOULD INCREASE THE DEMAND FOR OFF-BASE RESIDENTIAL, COMMERCIAL, AND PUBLIC SERVICES LANDS. CONSTRUCTION IN SURROUNDING COMMUNITIES AND ON THE INSTALLATIONS TO SUPPORT THIS GROWTH WOULD PERMANENTLY REMOVE AND CONVERT SOME CURRENTLY UNDEVELOPED OR VACANT LAND PARCELS TO DEVELOPED AREAS RESULTING IN A CHANGE IN LAND USE. IMPACTS TO COASTAL ZONE MANAGEMENT WERE ANALYZED IN ACCORDANCE WITH THE COASTAL ZONE MANAGEMENT ACT, AND HAVE BEEN FOUND TO BE CONSISTENT WITH THE POLICIES OF THE NORTH CAROLINA COASTAL ZONE MANAGEMENT PROGRAM. COASTAL CONSISTENCY DETERMINATIONS WERE PREPARED AND ARE PENDING CONCURRENCE FROM THE NORTH CAROLINA DEPARTMENT OF THE ENVIRONMENT AND NATURAL RESOURCES DIVISION OF COASTAL

MANAGEMENT.

AS FOR RECREATION, THERE WOULD BE AN INCREASED DEMAND FOR ON- AND OFF-BASE RECREATIONAL SERVICES. THE PREFERRED ALTERNATIVE WOULD RESULT IN PERMANENTLY REMOVING AND FRAGMENTING SOME FORESTS USED FOR HUNTING ON MARINE CORPS BASE CAMP LEJEUNE. HUNTING IS A MAJOR RECREATIONAL PASTIME AT THE BASE AND IS AVAILABLE IN DESIGNATED TRAINING AREAS AND IN OTHER MANAGED FORESTS THROUGHOUT THE INSTALLATION. THE LOSS OF A SMALL PORTION OF THIS AREA IS NOT ANTICIPATED TO HAVE MAJOR IMPACTS TO THE GAME POPULATION OR HUNTING OPPORTUNITIES.

FACILITY DEVELOPMENT ON- AND OFF-BASE WOULD SLIGHTLY ALTER THE CURRENT VISUAL RESOURCES, OR VIEWSHED. NEW FACILITIES ON THE INSTALLATIONS WOULD ADHERE TO ESTABLISHED CRITERIA TO MAINTAIN A UNIFORM MILITARY APPEARANCE. THE ADDITION OF NEW ROADS AND BRIDGES WOULD CHANGE THE EXISTING VIEWSHEDS, BUT DESIGN AND INSTALLATION OF THESE ASSETS WOULD ADHERE TO ESTABLISHED CRITERIA TO MAINTAIN THE VISUAL INTEGRITY OF THE INSTALLATIONS AS MUCH AS POSSIBLE.

IMPACT FROM THE GROW THE FORCE INITIATIVE WOULD BE PRIMARILY DUE TO THE POPULATION INCREASES WITH RESPECT TO SOCIO-ECONOMICS. THE PROPOSED PERSONNEL WOULD INCREASE THE 2006 REGIONAL POPULATION OF ONSLOW, CRAVEN, AND CARTERET COUNTIES BY 6.1 PERCENT. BASED ON CURRENT DEMOGRAPHICS, IT IS LIKELY THAT ONSLOW AND CRAVEN COUNTIES WOULD RECEIVE THE

MAJORITY OF THIS GROWTH.

INCREASED ANNUAL EARNINGS ARE ESTIMATED AT $380 MILLION FOR THE REGION. SECONDARY IMPACTS FROM THE GROWTH WOULD BE AN INCREASE IN INCOME TAXES - $19 MILLION IN FEDERAL TAX AND $18 MILLION IN STATE TAX ARE ESTIMATED. POPULATION INCREASES WOULD CREATE A DEMAND FOR OFF-BASE HOUSING IN ONSLOW COUNTY, AND TO A LESSER EXTENT IN OTHER COUNTIES. HOWEVER, CONSTRUCTION OF ADDITIONAL FAMILY HOUSING AND BACHELOR ENLISTED QUARTERS IS EXPECTED TO EVENTUALLY OFFSET SOME OF THIS DEMAND. ADDITIONAL ECONOMIC GAINS WOULD OCCUR FROM THE MULTI-YEAR CONSTRUCTION EFFORTS. CONSTRUCTION ACTIVITIES WOULD GENERATE APPROXIMATELY $4.1 BILLION UNDER THE PREFERRED ALTERNATIVE, AND APPROXIMATELY $1.6 BILLION UNDER ALTERNATIVE 3. THESE CONSTRUCTION ACTIVITIES WOULD ALSO CREATE TEMPORARY JOBS IN THE REGION.

UNDER THE PREFERRED ALTERNATIVE, THERE WOULD BE SHORT-TERM DEMAND AND STRAIN ON EXISTING ON-BASE FIRE, HEALTH, AND LAW ENFORCEMENT UNTIL ADDITIONAL PROPOSED FACILITIES TO SUPPORT THESE SERVICES ARE CONSTRUCTED. INCREASED DEPENDENTS WOULD ALSO INCREASE ON-BASE DEMAND AND WAIT TIMES FOR CHILD CARE. MANY FAMILIES WOULD HAVE TO UTILIZE IN-HOME FAMILY CARE OR SEEK SERVICES OUTSIDE OF THE INSTALLATIONS UNTIL ADDITIONAL FACILITIES AND EXPANSIONS ARE CONSTRUCTED.

GROWTH IN SURROUNDING COMMUNITIES WOULD INCREASE THE

DEMAND FOR PUBLIC EDUCATION. MOST OF THE SCHOOLS IN ONSLOW COUNTY SCHOOL DISTRICT ARE CURRENTLY OVER OR NEAR CAPACITY, AND THE INCREASED GROWTH WOULD FURTHER STRAIN THE SYSTEM. AS ADDITIONAL HOUSING AND SCHOOLS ARE CONSTRUCTED ON BASE, THE IMPACT TO ONSLOW COUNTY SCHOOLS SHOULD BE REDUCED AND/OR STABILIZED.

GROWTH IN SURROUNDING COMMUNITIES WOULD ADD COMMUTERS AND INCREASE TRAFFIC CONGESTION. CURRENTLY, BUSY INTERSECTIONS WOULD LIKELY EXPERIENCE DEGRADATION IN SERVICE UNTIL NEW ROADS AND ACCESS GATES ARE CONSTRUCTED UNDER ALTERNATIVE 2. FOR INSTANCE, THE NEW ENTRY GATE AND INTERNAL CONNECTOR ROAD AT MARINE CORPS BASE CAMP LEJEUNE WOULD REDUCE OFF-BASE TRAFFIC ON HIGHWAY 24 BY APPROXIMATELY 30 PERCENT. COMMUTER ROUTES FOR PERSONNEL LIVING IN TARAWA TERRACE AND CAMP JOHNSON WOULD ALSO SIGNIFICANTLY IMPROVE SINCE THEY WOULD NO LONGER HAVE TO LEAVE THE BOUNDARIES OF THE BASE TO CROSS NORTHEAST CREEK TO ACCESS THE CANTONMENT AREA OF HADNOT POINT.

SLOCUM ROAD ON MARINE CORPS AIR STATION CHERRY POINT CURRENTLY RUNS THROUGH AN EXPLOSIVE SAFETY ARC ASSOCIATED WITH THE ORDNANCE STORAGE AREA. AS SUCH, THERE IS A RESTRICTION ON DAILY TRAFFIC ALLOWED TO USE THIS ROAD. TRAFFIC EXCEEDING THE RESTRICTION IS REROUTED THROUGH THE CITY OF HAVELOCK. THE PROPOSED REALIGNMENT OF SLOCUM ROAD WOULD ELIMINATE THIS RESTRICTION AND GREATLY IMPROVE TRAFFIC

CONDITIONS ON AND OFF THE STATION.

UNDER ALTERNATIVES 3 AND 4, ON-BASE ROAD NETWORKS WOULD SUFFER AND DETERIORATE WITHOUT IMPROVEMENTS. CONGESTION AT THE MAIN GATE AND ALONG NC 24 WOULD CONTINUE AND WORSEN WITHOUT THE NEW ENTRY GATE AND CONNECTOR ROAD AT MARINE CORPS BASE CAMP LEJEUNE.

THE GROWTH ON AND OFF THE INSTALLATIONS WOULD INCREASE THE CURRENT DEMAND FOR UTILITIES, SUCH AS POTABLE WATER, ELECTRICITY, AND TELECOMMUNICATIONS, AS WELL AS GENERATE ADDITIONAL WASTEWATER AND SOLID WASTE. THE PROPOSED UPGRADES AND IMPROVEMENTS TO UTILITY SERVICES AND INFRASTRUCTURE WOULD ELIMINATE CURRENT CAPACITY ISSUES AT MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION NEW RIVER. THERE ARE NO CURRENT OR ANTICIPATED CAPACITY CONCERNS AT MARINE CORPS AIR STATION CHERRY POINT. DEMAND FOR UTILITIES SERVICES IN THE ADJACENT OFF-BASE COMMUNITIES WOULD INCREASE, HOWEVER, THERE IS SUFFICIENT EXISTING CAPACITY TO SUPPORT THE INCREASED DEMAND.

THE PROPOSED MULTI-YEAR, LARGE SCALE CONSTRUCTION EFFORT AT ALL THREE INSTALLATIONS WOULD INCREASE THE POTENTIAL RISK OF HUMAN EXPOSURE TO HAZARDOUS MATERIALS, TOXIC SUBSTANCES, AND HAZARDOUS WASTE. ALL CONSTRUCTION ON THE INSTALLATIONS WOULD BE CONDUCTED IN ACCORDANCE WITH APPROVED SAFETY PROCEDURES TO PROTECT WORKERS AND BOTH ON- AND OFF-BASE POPULATIONS. TEMPORARY NOISE DISTURBANCES DUE

TO THE MULTI-YEAR CONSTRUCTION EFFORT WOULD OCCUR IN THE IMMEDIATE VICINITY OF CONSTRUCTION SITES. THESE ACTIVITIES, HOWEVER, WOULD PRIMARILY OCCUR DURING NORMAL WORKING HOURS AND ARE NOT EXPECTED TO IMPACT THE ON- OR OFF-BASE COMMUNITIES.

INCREASED MARINE CORPS PERSONNEL AND DEPENDENTS MOVING TO SURROUNDING COMMUNITIES WOULD ADD TO THE CURRENT COMMUTER BASE. THIS GROWTH WOULD RESULT IN A MINOR, LONG-TERM INCREASE OF VEHICLE POLLUTANT EMISSIONS. THE USE OF CONSTRUCTION EQUIPMENT FOR PROPOSED PROJECTS WOULD TEMPORARILY INCREASE EMISSIONS AND WOULD BE MINOR AND DISSIPATE RAPIDLY AND WOULD NOT SIGNIFICANTLY AFFECT REGIONAL AIR QUALITY. THE AFFECTED COUNTIES ARE CURRENTLY IN ATTAINMENT FOR ALL CRITERIA FOR POLLUTANTS.

CONSTRUCTION ACTIVITY ON EACH INSTALLATION WOULD TEMPORARILY DISTURB RESIDENTS AND NEARBY WILDLIFE. IT IS ANTICIPATED THAT THE MAJORITY OF WILDLIFE OCCUPYING THESE AREAS WOULD RELOCATE TO OTHER UNDEVELOPED PORTIONS OF THE INSTALLATIONS. SMALLER, LESS MOBILE SPECIES, HOWEVER, COULD BE LOST DURING LAND CLEARING ACTIVITIES, BUT THERE SHOULD NOT BE IMPACTS AT THE POPULATION LEVEL. NEW ROAD AND GATE CONSTRUCTION ON MARINE CORPS BASE CAMP LEJEUNE WOULD BISECT AN EXISTING FOREST RESULTING IN HABITAT FRAGMENTATION AND PRESENT NEW ROAD MORTALITY HAZARD FOR WILDLIFE INHABITING THIS FOREST. HABITAT FRAGMENTATION WOULD DISRUPT WILDLIFE

MOVEMENTS AND MIGRATION, DIVIDE EXISTING WILDLIFE POPULATIONS, AND PROHIBIT ACCESS TO THE NEW RIVER FOR ANIMALS THAT ARE UNWILLING TO CROSS THE NEW ROAD. IN ADDITION, THE ROAD WOULD CREATE A NEW SOURCE OF NOISE DISTURBANCE FOR NEARBY WILDLIFE. THE CONSTRUCTION OF BRIDGES AS PART OF THE ROAD PROJECTS AT MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION CHERRY POINT COULD POTENTIALLY IMPACT SEA TURTLES AND MANATEES. THE OCCURRENCE OF THESE SPECIES IS RARE AT THE BRIDGE LOCATIONS, HOWEVER, THE MARINE CORPS IS CONSULTING WITH U.S. FISH AND WILDLIFE SERVICE AND THE NATIONAL MARINE FISHERIES SERVICE TO ENSURE PROTECTION OF THESE SPECIES.

FOR EARTH RESOURCES, INCLUDING TOPOGRAPHY, GEOLOGY, AND SOILS, LAND CLEARING, GRADING, AND SHAPING WOULD TEMPORARILY DISTURB AND EXPOSE LOOSE SOIL TO WIND AND RAIN EVENTS, CREATING AN EROSION RISK. A SITE SPECIFIC EROSION AND SEDIMENTATION CONTROL PLAN AND APPROPRIATE PERMITS WOULD BE DEVELOPED FOR EACH CONSTRUCTION SITE, AS NECESSARY, TO PROTECT THESE AREAS FROM EROSION AND SEDIMENTATION IMPACTS.

AS A COOPERATING AGENCY, THE U.S. ARMY CORPS OF ENGINEERS IS CLOSELY INVOLVED WITH THIS NEPA PROCESS, AND CONTINUED COORDINATION AND CONSULTATION WITH THE CORPS OF ENGINEERS WOULD OCCUR THROUGHOUT THE CONSTRUCTION PERIOD. THE FINAL SITE DESIGN OF THE PROPOSED FACILITIES WOULD AVOID WETLAND AREAS WHENEVER POSSIBLE, BUT SOME DEVELOPMENT ON

MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION CHERRY POINT WOULD LIKELY HAVE SOME UNAVOIDABLE ADVERSE IMPACTS TO WETLANDS. SECTION 401 AND 404 PERMITS WOULD BE OBTAINED AS NECESSARY FOR PROJECTS THAT IMPACT WETLAND AREAS.

THE POTENTIAL IMPACT TO WETLANDS WOULD VARY WITH THE PREFERRED ALTERNATIVE AND ALTERNATIVE 3. THE PREFERRED ALTERNATIVE COULD POTENTIALLY IMPACT UP TO 125 ACRES OF WETLANDS AT MARINE CORPS BASE CAMP LEJEUNE AND UP TO 14.5 ACRES OF WETLANDS AT MARINE CORPS AIR STATION CHERRY POINT. THE REDUCED CONSTRUCTION EFFORT PROPOSED UNDER ALTERNATIVE 3 WOULD GREATLY REDUCE THE POTENTIAL FOR IMPACTING WETLANDS AT THESE INSTALLATIONS. UNDER THIS ALTERNATIVE, UP TO 3 ACRES OF WETLANDS AT MARINE CORPS BASE CAMP LEJEUNE AND UP TO 1 ACRE AT MARINE CORPS AIR STATION CHERRY POINT COULD BE IMPACTED. SINCE THERE IS NO CONSTRUCTION PROPOSED UNDER ALTERNATIVE 4, THERE WOULD BE NO IMPACT TO WETLANDS UNDER THAT ALTERNATIVE. CONTINUED ADHERENCE TO EXISTING MANAGEMENT PLANS, PERMIT REQUIREMENTS, AND BEST MANAGEMENT PRACTICES WOULD PROTECT NEARBY SURFACE WATER QUALITY FROM INCREASED STORMWATER RUNOFF AND SEDIMENTATION.

THERE ARE THREE ARCHAEOLOGICAL SITES THAT OCCUR WITHIN OR NEAR PROPOSED CONSTRUCTION AREAS AT MARINE CORPS BASE CAMP LEJEUNE; HOWEVER, THE POTENTIAL IMPACT TO THESE SITES WOULD NOT BE SIGNIFICANT OR IMPACT THEIR ELIGIBILITY AS SITES TO THE NATIONAL REGISTER OF HISTORIC PLACES. ALSO, AT

MARINE CORPS BASE CAMP LEJEUNE, THREE STRUCTURES WITHIN HISTORIC DISTRICTS AT THE BASE ARE PROPOSED FOR DEMOLITION UNDER THE PREFERRED ALTERNATIVE. MARINE CORPS BASE CAMP LEJEUNE IS CONSULTING WITH THE NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICE TO MINIMIZE ANY ADVERSE IMPACTS TO THESE RESOURCES. THERE WOULD BE NO IMPACTS TO CULTURAL RESOURCES AT EITHER OF THE AIR STATIONS.

THE COUNCIL ON ENVIRONMENTAL QUALITY REGULATIONS REQUIRES THAT FEDERAL AGENCIES EVALUATE CUMULATIVE IMPACTS OF THE PROPOSED ACTION WHEN COMBINED WITH OTHER PAST, PRESENT, OR REASONABLY FORESEEABLE ACTIONS REGARDLESS OF THE PROPONENT. RELEVANT PROJECTS FOR THE ANALYSIS INCLUDE OTHER LARGE SCALE CONSTRUCTION PROJECTS AND THOSE THAT WOULD RESULT IN POPULATION GROWTH OR DEVELOPMENT IN THE REGION, LIKE THE F-18 SQUADRONS AT MARINE CORPS AIR STATION CHERRY POINT AND THE MARSOC INCREASE AT MARINE CORPS BASE CAMP LEJEUNE, AS MENTIONED EARLIER.

THIS TABLE PROVIDES A BREAKDOWN OF THE PROJECTED INCREASES OF ACTIVE DUTY, FORMAL SCHOOL STUDENTS, AND CIVILIANS AT EACH INSTALLATION AND A TOTAL FOR NORTH CAROLINA [SLIDE 27 - CUMULATIVE PERSONNEL INCREASE]. WHEN THE PERSONNEL INCREASES ASSOCIATED WITH THE GROW THE FORCE INITIATIVE ARE ADDED TO OTHER ACTIONS OCCURRING AT MARINE CORPS BASE CAMP LEJEUNE, MARINE CORPS AIR STATION NEW RIVER, AND MARINE CORP AIR STATION CHERRY POINT, THE RESULT IS

APPROXIMATELY 11,477 ADDITIONAL PERSONNEL AT THE THREE INSTALLATIONS. THIS REPRESENTS APPROXIMATELY 21 PERCENT INCREASE AT MARINE CORPS BASE CAMP LEJEUNE, A 20 PERCENT INCREASE AT MARINE CORPS AIR STATION NEW RIVER, AND 11 PERCENT INCREASE AT MARINE CORPS AIR STATION CHERRY POINT. LIKE WITH THE GROW THE FORCE INITIATIVE, THESE ACTIONS WOULD ALSO HAVE CORRESPONDING INCREASES IN THE DEPENDENT POPULATIONS.

HERE IS A GRAPHICAL REPRESENTATION OF THE CUMULATIVE ACTIVE DUTY AND CIVILIAN PERSONNEL INCREASES AT THE THREE INSTALLATIONS [SLIDE 29 - CUMULATIVE IMPACTS]. CUMULATIVE IMPACTS ARE PRIMARILY RELATED TO PERSONNEL GROWTH AND INCLUDE: INCREASED DEVELOPMENT PRESSURE AND CHANGES IN LAND USE, SUCH AS DEVELOPING CURRENTLY UNDEVELOPED OR UNUSED LAND; INCREASED DEMAND FOR UTILITIES, COMMUNITY SERVICES, RECREATIONAL SERVICES, AND HOUSING; INCREASED TRAFFIC AND POTENTIAL DEGRADATION OF SERVICE AT THE BUSIEST INTERSECTIONS; INCREASED NOISE FROM TRAINING ACTIVITIES; ADDITIVE ECONOMIC GAINS FROM DIRECT, INDIRECT, AND INDUCED EMPLOYMENT INCOME; AND ADDITIONAL TAX REVENUES FOR FEDERAL, STATE, AND LOCAL GOVERNMENTS. PAST, PRESENT, AND REASONABLY FORESEEABLE CONSTRUCTION AT THE THREE INSTALLATIONS WOULD RESULT IN: REDUCED NATURAL AREAS, WETLANDS, AND WILDLIFE HABITAT; INCREASED IMPERVIOUS SURFACES AND STORMWATER RUNOFF; AND TEMPORARY INCREASES IN POLLUTANT EMISSIONS. WITH

IMPLEMENTATION OF BEST MANAGEMENT PRACTICES, PERMIT GUIDELINES, AND SPECIFIC MITIGATION WHEN IDENTIFIED, NONE OF THE CUMULATIVE IMPACTS ARE ANTICIPATED TO BE SIGNIFICANT.

I WILL NOW TURN THE MEETING BACK OVER TO COLONEL RIGGS TO START THE PUBLIC HEARING PORTION OF THE MEETING.

JUDGE: THANK YOU, MR. BREWER. BEFORE PROCEEDING TO THE ORAL COMMENTING PORTION OF THIS HEARING, I WOULD LIKE TO REITERATE THAT ALL COMMENTS, WHETHER RECEIVED IN WRITING TONIGHT, SENT VIA THE U.S. POSTAL SERVICE, SUBMITTED ELECTRONICALLY AT OUR PROJECT WEBSITE, OR PRESENTED ORALLY THIS EVENING, WILL BE CONSIDERED EQUALLY. PLEASE ENSURE THAT ALL COMMENTS ARE SENT AND/OR POSTMARKED BY SEPTEMBER 8TH, 2009, FOR CONSIDERATION IN THE FINAL EIS. THE ADDRESSES TO SUBMIT COMMENTS ARE DISPLAYED HERE AND FOUND IN THE HANDOUT MATERIALS.

WE ARE NOW READY TO BEGIN RECORDING YOUR COMMENTS FROM THOSE WHO HAVE SIGNED UP TO SPEAK. IF THERE IS ANYONE WHO WISHES TO GIVE AN ORAL COMMENT THIS EVENING, BUT HAS NOT YET TURNED IN A SPEAKER REQUEST CARD, PLEASE DO SO AT THIS TIME. I BELIEVE WE HAVE PEOPLE CIRCULATING TO PICK THOSE UP. TO ENSURE THAT WE GET ACCURATE RECORDS OF WHAT YOU HAVE TO SAY, PLEASE HELP ME RESPECT THE FOLLOWING GROUND RULES. FIRST, PLEASE SPEAK CLEARLY AND SLOWLY INTO THE MICROPHONE, STARTING WITH YOUR NAME AND ANY ORGANIZATION YOU REPRESENT. THIS WILL ENABLE US TO HEAR WHAT YOU HAVE TO SAY AND TO

ENSURE THAT THE COURT REPORTER ACCURATELY AND FULLY CAPTURES YOUR COMMENTS. SECOND, EACH PERSON WILL HAVE THREE MINUTES TO SPEAK. THIRD, IF YOU HAVE A WRITTEN STATEMENT, YOU MAY TURN IT IN TO THE COURT REPORTER AND/OR YOU MAY READ IT OUT LOUD WITHIN THE TIME LIMIT. FOURTH, PLEASE HONOR ANY REQUEST THAT I MAKE FOR YOU TO STOP SPEAKING IF YOU REACH THE THREE-MINUTE TIME LIMIT. TO AID YOU IN KNOWING WHEN YOUR TIME IS ALMOST UP, SOMEONE HERE AT THE FRONT WILL HOLD UP A YELLOW CARD WHEN YOU HAVE ONE MINUTE LEFT. THIS SHOULD ALLOW YOU TO FIND A COMFORTABLE PLACE TO WRAP UP YOUR COMMENTS. A RED CARD WILL BE HELD UP WHEN YOUR THREE MINUTES HAVE ELAPSED. WE ASK THAT THE AUDIENCE REMAIN QUIET DURING THE PROCESS SO THAT THE COURT REPORTER CAN HEAR AND RECORD THE COMMENTS. WE ARE NOW READY TO BEGIN.

THE FIRST SPEAKER IS MR. RONALD SAGE.

MR. SAGE: NOTHING AT THIS TIME.

JUDGE: OKAY, ANYBODY ELSE?

[NO RESPONSE]

JUDGE: OKAY, THERE BEING NO OTHER COMMENTS OR SPEAKERS, WE'LL RECESS THE PUBLIC COMMENT PORTION UNTIL 8:00 --WE'LL REOPEN IT SHORTLY BEFORE 8:00, AND THEN ADJOURN IT, UNLESS WE HAVE MORE SPEAKERS SHOW UP. OKAY, SO WE'RE IN RECESS.

[THE PUBLIC HEARING RECESSED AT 7:05 P.M.]

[THE PUBLIC HEARING WAS CALLED TO ORDER AT 7:50 P.M.]

JUDGE: OKAY, WE'RE GOING TO REOPEN THE PUBLIC COMMENT PORTION OF THE HEARING. IT IS 7:50. ARE THERE ANY OTHER PERSONS WHO WOULD LIKE TO MAKE PUBLIC COMMENT?

[NO RESPONSE]

JUDGE: THERE BEING NO OTHER PERSONS MAKING PUBLIC COMMENT, WE'RE GOING TO CLOSE THE HEARING, AND THAT CONCLUDES OUR EVENT THIS EVENING.

[THE PUBLIC HEARING CONCLUDED AT 7:51 P.M.]

* *

STATE OF NORTH CAROLINA)
) C-E-R-T-I-F-I-C-A-T-I-O-N
COUNTY OF CRAVEN)

I, KENNETH L. DAUB, A COURT REPORTER AND NOTARY PUBLIC IN AND FOR THE AFORESAID COUNTY AND STATE, DO HEREBY CERTIFY THAT THE FOREGOING PAGES ARE AN ACCURATE TRANSCRIPT OF THE GROW THE FORCE PUBLIC HEARING HELD IN HAVELOCK, NORTH CAROLINA ON AUGUST 18, 2009.

WITNESS, MY HAND, THIS DATE: AUGUST 27, 2009.

MY COMMISSION EXPIRES AUGUST 1, 2012.

/S/______________________________

KENNETH L. DAUB
COURT REPORTER AND NOTARY PUBLIC
NEW BERN COURT REPORTERS, INC.
P.O. BOX 164
NEW BERN, NC 28563
NOTARY PUBLIC #19923360111

TRANSCRIPT OF
PUBLIC HEARING REGARDING

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
U.S. MARINE CORPS GROW THE FORCE
AT MCB CAMP LEJEUNE, MCAS NEW RIVER,
AND MCAS CHERRY POINT, NORTH CAROLINA

JACKSONVILLE, NORTH CAROLINA

* *

COMMENCING AT 6:30 P.M., AUGUST 19, 2009, AT THE JACKSONVILLE HIGH SCHOOL AUDITORIUM, 1021 HENDERSON DRIVE, JACKSONVILLE, NORTH CAROLINA.

APPEARANCES:

JUDGE - GLEN R. HINES, JR.
MAJOR, USMC
MILITARY JUDGE
EASTERN JUDICIAL CIRCUIT
NAVY-MARINE CORPS TRIAL JUDICIARY
CAMP LEJEUNE, NC 28547

MARINE CORPS INSTALLATIONS EAST - MR. SCOTT A. BREWER, PE
REGIONAL ENVIRONMENTAL COORDINATION
MARINE CORPS INSTALLATIONS EAST
CAMP LEJEUNE, NC 28542

COURT REPORTER - KENNETH L. DAUB

INDEX

JUDGE: GOOD EVENING, AND THANK YOU FOR COMING TONIGHT. I'M MAJOR GLEN R. HINES, U.S. MARINE CORPS, AND I'M A MILITARY JUDGE HERE ON THE EASTERN JUDICIAL CIRCUIT AT CAMP LEJEUNE. I WILL BE THE MODERATOR FOR TONIGHT'S HEARING ON THE U.S. MARINE CORPS' DRAFT ENVIRONMENTAL IMPACT STATEMENT - OR DRAFT EIS - ANALYZING THE POTENTIAL IMPACTS FROM THEIR PROPOSAL TO SUPPORT, THROUGH PERMANENT FACILITY AND INFRASTRUCTURE CONSTRUCTION, THE GROW THE FORCE INITIATIVE IN NORTH CAROLINA.

HERE TO RECEIVE YOUR COMMENTS THIS EVENING ARE MEMBERS FROM OUR GROW THE FORCE EIS TEAM. HOPEFULLY YOU HAVE ALREADY HAD THE OPPORTUNITY TO TAKE ADVANTAGE OF THE POSTER STATIONS AND ASK ANY QUESTIONS THAT YOU MIGHT HAVE. THE PRIMARY PURPOSE FOR THIS PORTION OF THE HEARING IS FOR THE MARINE CORPS TO LISTEN TO YOUR COMMENTS FIRSTHAND AND HAVE THEM RECORDED VERBATIM. THIS IS NOT A QUESTION AND ANSWER PERIOD; HOWEVER, POSTER STATIONS WILL REMAIN OPEN UNTIL 8:00 P.M. TO ENABLE YOU TO INTERACT WITH MARINE CORPS REPRESENTATIVES WHO CAN ANSWER QUESTIONS YOU MIGHT HAVE ON THE DRAFT EIS FINDINGS.

I'D LIKE TO PROCEED WITH AN OVERVIEW OF THE BRIEFING FORMAT THIS EVENING. AFTER I FINISH THIS INTRODUCTION, SCOTT BREWER, FROM MARINE CORPS INSTALLATIONS EAST, WILL BRIEF YOU ON THE GROW THE FORCE INITIATIVE, PRESENT THE PROPOSED ACTION AND NO ACTION ALTERNATIVE, AND OUTLINE THE FINDINGS PRESENTED

IN THE DRAFT EIS. FOLLOWING THE PRESENTATION, THE ORAL COMMENTING PERIOD WILL BEGIN. THIS IS YOUR OPPORTUNITY TO PROVIDE US WITH YOUR CONCERNS AND MAKE STATEMENTS FOR THE RECORD. THIS INPUT INTO THE DRAFT EIS ENSURES THAT MARINE CORPS DECISION MAKERS ARE FULLY INFORMED ABOUT COMMUNITY CONCERNS REGARDING THE FINDINGS PRESENTED IN THIS DOCUMENT BEFORE THE MARINE CORPS DECIDES ON A COURSE OF ACTION. CONSEQUENTLY, COMMENTS TONIGHT ON ISSUES UNRELATED TO THIS DRAFT EIS ARE BEYOND THE SCOPE OF THIS HEARING AND CANNOT BE ADDRESSED.

WHEN YOU WERE GREETED AT THE ENTRANCE, WE ASKED THAT YOU FILL OUT A SPEAKER REQUEST CARD. IF YOU DID NOT FILL ONE OUT AND WISH TO SPEAK TONIGHT, PLEASE RAISE YOUR HAND AND WE WILL PROVIDE YOU WITH THIS REQUEST CARD. EACH PERSON WILL HAVE THREE MINUTES TO SPEAK, INCLUDING PUBLIC OFFICIALS, ORGANIZATIONAL SPOKESPERSONS, AND PRIVATE INDIVIDUALS. IF YOU DO NOT FEEL COMFORTABLE STANDING UP HERE TONIGHT AND MAKING A STATEMENT, YOU HAVE UNTIL SEPTEMBER 8TH OF THIS YEAR TO SUBMIT A WRITTEN STATEMENT FOR CONSIDERATION IN THE FINAL EIS. PLEASE NOTE ALL COMMENTS - ORAL, WRITTEN, AND THOSE SUBMITTED ELECTRONICALLY ON THE PROJECT WEBSITE - ARE GIVEN EQUAL CONSIDERATION.

NOW, IT'S MY PLEASURE TO INTRODUCE MR. SCOTT BREWER.

MR. BREWER: THANK YOU MAJOR HINES, AND GOOD EVENING LADIES AND GENTLEMEN. AS THE MAJOR SAID, I'M SCOTT BREWER.

I OVERSEE ENVIRONMENTAL PROGRAMS FOR MARINE CORPS INSTALLATIONS EAST, AND I WANT TO THANK EACH OF YOU FOR ATTENDING OUR PUBLIC HEARING TONIGHT TO LEARN ABOUT THE MARINE CORPS' GROW THE FORCE INITIATIVE.

THIS WEEK WE'RE HOLDING THREE MEETINGS IN THE SAME AREAS THAT WE HELD THE PUBLIC SCOPING MEETINGS. THESE AREAS ARE THE AREAS WHERE WE BELIEVE THERE MAY BE POTENTIAL IMPACTS ASSOCIATED WITH THIS GROW THE FORCE PROPOSAL. AS MENTIONED EARLIER, WE HOPE THAT YOU HAVE TAKEN THE OPPORTUNITY TO STOP BY THE POSTER STATIONS AND MEET THE MARINE CORPS TEAM ASSOCIATED WITH THIS PROJECT. IF YOU HAVE ANY QUESTIONS ABOUT THE FINDINGS THAT WILL BE PRESENTED IN THE BRIEF, WE WOULD HOPE THAT YOU WOULD STOP BACK BY THE POSTER STATIONS AND ASK QUESTIONS OF OUR MARINE CORPS TEAM.

THE DRAFT EIS WAS PREPARED BY HEADQUARTERS MARINE CORPS, MARINE CORPS INSTALLATIONS EAST, MARINE CORPS BASE CAMP LEJEUNE, MARINE CORPS AIR STATION NEW RIVER, MARINE CORPS AIR STATION CHERRY POINT, AND THE NAVAL FACILITIES ENGINEERING COMMAND, MID-ATLANTIC. THE DOCUMENT WAS PREPARED TO COMPLY WITH THE NATIONAL ENVIRONMENTAL POLICY ACT, OR NEPA. NEPA REQUIRES FEDERAL AGENCIES TO CONSIDER THE EFFECTS OF THEIR ACTIVITIES ON THE PHYSICAL, BIOLOGICAL, AND HUMAN ENVIRONMENT.

THIS SLIDE REPRESENTS THE NEPA PROCESS THAT'S BEEN ASSOCIATED WITH THE GROW THE FORCE PROPOSED ACTION. [SLIDE

4: NATIONAL ENVIRONMENTAL POLICY ACT] WE STARTED THE PROCESS IN DECEMBER OF 2007 WITH THE NOTICE OF INTENT IN THE FEDERAL REGISTER. THIS MARKED THE BEGINNING OF THE SCOPING COMMENT PERIOD. IN JANUARY OF 2008, SCOPING MEETINGS WERE HELD IN THE SAME THREE COMMUNITIES WHERE WE'RE HOLDING THESE HEARING MEETINGS THIS WEEK.

OVER THE PAST YEAR WE'VE BEEN PREPARING THE DRAFT EIS. PREPARATION INCLUDED REFINEMENT OF THE PROPOSED ACTION AND ALTERNATIVES, DETERMINATION OF THE AREAS DIRECTLY AND INDIRECTLY AFFECTED BY THIS PROPOSAL, AND EVALUATION OF THE POTENTIAL IMPACTS ON THE NUMEROUS RESOURCES. WHEN THE DRAFT EIS WAS COMPLETED, ITS AVAILABILITY FOR PUBLIC REVIEW WAS ANNOUNCED IN THE FEDERAL REGISTER ON JULY 17TH, AS WELL AS IN SEVERAL REGIONAL NEWSPAPERS.

WITH THIS ANNOUNCEMENT, THE PUBLIC COMMENT PERIOD WAS INITIATED. EXTENDING FROM JULY 17TH TO SEPTEMBER 8TH, 2009, THIS COMMENT PHASE ALLOWS THE PUBLIC TIME TO REVIEW THE DOCUMENT, EXPRESS THEIR COMMENTS ON THE FINDINGS PRESENTED IN THE DOCUMENT, AND HAVE THE OPPORTUNITY TO ATTEND MEETINGS TO EXPRESS THEIR CONCERNS. FOLLOWING THIS COMMENT PERIOD, THE MARINE CORPS WILL EVALUATE AND ADDRESS PUBLIC COMMENTS AND REVISE THE FINAL EIS ACCORDINGLY. ONCE THESE REVISIONS ARE COMPLETE, THE FINAL EIS AVAILABILITY WILL BE ANNOUNCED IN THE FEDERAL REGISTER, AS WELL AS AREA NEWSPAPERS.

AFTER A 30-DAY WAITING PERIOD, THE MARINE CORPS

ANTICIPATES ANNOUNCING ITS RECORD OF DECISION, OR ROD. IT'S ANTICIPATED THAT THE ROD WILL BE SIGNED IN JANUARY 2010. ONCE AGAIN, THIS DECISION WILL APPEAR WITHIN THE FEDERAL REGISTER AND ITS AVAILABILITY ANNOUNCED IN LOCAL NEWSPAPERS. THIS DRAFT EIS REPRESENTS COMPLIANCE WITH NEPA, AS WELL AS OTHER STATUTES APPLICABLE TO THIS PROPOSAL, FOR INSTANCE, THE ENDANGERED SPECIES ACT, THE CLEAN AIR ACT, AND THE CLEAN WATER ACT, TO NAME A FEW. IT'S ALSO AN IMPORTANT PART OF THE MARINE CORPS' OVERALL COMMITMENT TO ENVIRONMENTAL STEWARDSHIP AS IT MEETS ITS MILITARY MISSION.

IN PREPARING THE DRAFT EIS, THE MARINE CORPS TOOK A COMPREHENSIVE AND CUMULATIVE APPROACH IN ASSESSING THE POTENTIAL EFFECTS TO NUMEROUS ENVIRONMENTAL RESOURCE AREAS, INCLUDING NATURAL, CULTURAL, ECONOMIC, AND SOCIAL RESOURCES, THAT COULD BE IMPACTED BY THE GROW THE FORCE PROPOSAL IN NORTH CAROLINA.

SO WHAT IS GROW THE FORCE? CURRENTLY, MARINES ARE DEPLOYED AT AN INCREASED LEVEL AND DURATION CAUSING HARDSHIP ON THEIR FAMILIES AND ON THEM AS THEY RETURN TO TRAIN FOR THE NEXT MISSION. IN HIS JANUARY 2007 STATE OF THE UNION ADDRESS, UNDER RECOMMENDATION FROM THE SECRETARY OF DEFENSE, PRESIDENT BUSH ANNOUNCED HIS INTENTION TO INCREASE THE MARINE CORPS END STRENGTH FROM 180,000 TO 202,000 BY THE END OF FISCAL YEAR 2011. MARINE CORPS UNITS ACROSS THE UNITED STATES WERE IDENTIFIED FOR AUGMENTATION BASED ON THEIR

MISSION COMPATIBILITIES, COMBAT ROLES, AND DEPLOYMENT RESPONSIBILITIES. THEIR PARENT UNITS WERE IDENTIFIED AND PERSONNEL INCREASES WERE ASSIGNED TO THEM. INCREMENTAL INCREASES IN END STRENGTH ACROSS THE MARINE CORPS BEGAN IN FISCAL YEAR 2007.

TO MEET ANY CRISIS OR CONFLICT THAT MAY ARISE, THE MARINE CORPS MUST BE SUFFICIENTLY MANNED, WELL TRAINED, AND PROPERLY EQUIPPED. UNDER OPTIMAL CONDITIONS, THE DEPLOYMENT-TO-DWELL RATIO - IN OTHER WORDS, THE TIME THAT A MARINE SPENDS DEPLOYED VERSUS THE TIME STATIONED AT HOME - SHOULD SUPPORT THE ADEQUATE TIME NECESSARY FOR UNITS TO TRAIN AND PREPARE FOR THEIR NEXT DEPLOYMENT, TO CONDUCT THEIR MISSIONS, TO RECOVER, AND TO MAINTAIN QUALITY OF LIFE. THE GROW THE FORCE INITIATIVE WOULD PROVIDE THE OPPORTUNITY TO ACCOMMODATE A ONE-TO-TWO DEPLOYMENT-TO-DWELL RATIO, SPENDING TWICE THE AMOUNT OF TIME AT HOME THAN SPENT OVERSEAS.

THE UNITS PROPOSED FOR PERSONNEL INCREASES WOULD SUPPORT ACTIVE DUTY MARINES, CIVILIANS, AND MARINE OCCUPATIONAL SPECIALTY SCHOOLS--STUDENTS THAT ATTEND MARINE OCCUPATIONAL SPECIALTY SCHOOLS. IN TOTAL, ABOUT 9900 PERSONNEL ACROSS THE THREE INSTALLATIONS. IN NORTH CAROLINA, THE GROW THE FORCE INITIATIVE WOULD RESULT IN APPROXIMATELY 7700 ADDITIONAL MARINES AND CIVILIANS AT MARINE CORPS BASE CAMP LEJEUNE, 1400 ADDITIONAL MARINES AND CIVILIANS AT MARINE CORPS AIR STATION NEW RIVER, AND 800 MARINES AND CIVILIANS AT

MARINE CORPS AIR STATION CHERRY POINT.

SINCE THESE INCREASES ARE SO CLOSELY RELATED TO EACH OTHER IN BOTH LOCATION AND TIME, THE MARINE CORPS DETERMINED THAT THE POTENTIAL ENVIRONMENTAL EFFECTS AT THE THREE SITES WOULD BE EVALUATED TOGETHER IN ONE EIS. PREVIOUS GROWTH ANNOUNCED IN NORTH CAROLINA AREA INCLUDES THE ADDITION OF TWO NAVY F/A-18 SQUADRONS AT MARINE CORPS AIR STATION CHERRY POINT AND THE ADDITION OF THE MARINE SPECIAL OPERATIONS COMMAND, OR MARSOC, AT MARINE CORPS BASE CAMP LEJEUNE. WHEN COMBINED WITH THE ADDITIONAL 9900 MARINES AND CIVILIANS UNDER THE GROW THE FORCE INITIATIVE, THE OVERALL ACTIVE DUTY AND CIVILIAN EMPLOYEE INCREASES WOULD TOTAL 11,477 BY THE END OF FISCAL YEAR 2011. MANY OF THESE ADDITIONAL PERSONNEL WOULD HAVE DEPENDENTS - ALSO KNOWN AS SPOUSES AND CHILDREN - MAKING THE OVERALL GROWTH EVEN LARGER. THESE INCREASES HAVE BEEN EVALUATED IN OTHER NEPA DOCUMENTS, BUT THEY ARE INCLUDED IN THE CUMULATIVE IMPACT ANALYSIS OF THIS DRAFT EIS.

THE PROPOSED ACTION ADDRESSED IN THIS DRAFT EIS IS THE PERMANENT, INCREMENTAL INCREASE OF MARINES, CIVILIANS, AND STUDENTS AT THE THREE NORTH CAROLINA INSTALLATIONS. ASSOCIATED WITH THESE MARINES ARE THEIR DEPENDENTS, WHICH WOULD ADD TO THE GROWTH IN THE AREA. HERE YOU CAN SEE A BREAKDOWN OF THE PROJECTED ACTIVE DUTY AND CIVILIAN PERSONNEL INCREASES FOR EACH INSTALLATION AND THE TOTAL FOR NORTH CAROLINA. [SLIDE 9: PROPOSED ACTION - PERSONNEL INCREASES]

THE PROJECTED INCREASE OF 7700 PERSONNEL AT MARINE CORPS BASE CAMP LEJEUNE ALSO INCLUDES AN AVERAGE MONTHLY INCREASE OF 529 FORMAL SCHOOL STUDENTS.

FOR PURPOSES OF THIS ANALYSIS, FISCAL YEAR 2006 WAS CHOSEN AS THE BASELINE FROM WHICH ENVIRONMENTAL IMPACTS WERE EVALUATED. THIS PERIOD WAS CHOSEN BECAUSE IT WAS PRIOR TO PRESIDENT BUSH'S ANNOUNCEMENT OF THE MARINE CORPS INCREASE AND BEST REPRESENTS THE CONDITIONS AT THE INSTALLATIONS PRIOR TO PERSONNEL INCREASES ASSOCIATED WITH GROW THE FORCE. GROW THE FORCE WOULD INCREASE THE PERSONNEL BASELINE BY 19 PERCENT AT MARINE CORPS BASE CAMP LEJEUNE, 20 PERCENT AT MARINE CORPS AIR STATION NEW RIVER, AND 6 PERCENT AT MARINE CORPS AIR STATION CHERRY POINT.

GAINS IN PERMANENT ACTIVE DUTY AND CIVILIAN PERSONNEL WOULD ALSO RESULT IN ASSOCIATED GAINS IN THE DEPENDENT POPULATIONS. IN TOTAL, IT WAS ESTIMATED THAT THERE WOULD BE AN INCREASE OF APPROXIMATELY 9500 DEPENDENTS FOR NORTH CAROLINA MARINE CORPS INSTALLATIONS. THIS ESTIMATE WAS DETERMINED BY APPLYING STANDARD MULTIPLIERS TO THE DISTRIBUTION OF INCREASED ACTIVE DUTY AND CIVILIAN PERSONNEL BY THEIR RANK AND THEIR EMPLOYMENT GRADE.

IN SUMMARY, THE PROPOSED ACTION WOULD INCREASE MILITARY PERSONNEL AND DEPENDENTS AT THESE INSTALLATIONS BY 18,290 PEOPLE. THIS WOULD APPROXIMATE A 13.8 PERCENT INCREASE.

THE MARINE CORPS EVALUATED THREE ACTION ALTERNATIVES, AND THE NO ACTION ALTERNATIVE, IN THE DRAFT EIS. ALTERNATIVE 1 IS THE NO ACTION ALTERNATIVE. UNDER THIS ALTERNATIVE, THE PERMANENT INCREASE IN PERSONNEL WOULD NOT OCCUR. THIS ALTERNATIVE HAS BEEN INCLUDED IN THE ANALYSIS PER REGULATIONS OF THE COUNCIL ON ENVIRONMENTAL QUALITY, AND IT SERVES AS THE BASELINE AGAINST WHICH POTENTIAL IMPACTS OF THE PROPOSED ACTIONS CAN BE MEASURED. AGAIN, FISCAL YEAR 2006 IS USED AS THE BASELINE CONDITION FOR THIS ACTION SINCE IT IS THE YEAR PRIOR TO THE PRESIDENTIAL MANDATE TO INCREASE FORCES.

ALTERNATIVE 2 IS THE PREFERRED ALTERNATIVE. UNDER THIS ALTERNATIVE, THE PERMANENT, INCREMENTAL INCREASE OF PERSONNEL OUTLINED UNDER THE GROW THE FORCE INITIATIVE WOULD BE IMPLEMENTED AT ALL THREE INSTALLATIONS. TO SUPPORT THIS GROWTH, A MAJOR, MULTI-YEAR CONSTRUCTION EFFORT IS PROPOSED CONSISTING OF NEW FACILITIES AND INFRASTRUCTURE. ESTIMATED CONSTRUCTION FOOTPRINTS TOTAL APPROXIMATELY 1700 ACRES AT MARINE CORPS BASE CAMP LEJEUNE, 160 ACRES AT MARINE CORPS AIR STATION NEW RIVER, AND 117 ACRES AT MARINE CORPS AIR STATION CHERRY POINT.

ALTERNATIVE 3 INCLUDES THE SAME PERMANENT INCREASE OF PERSONNEL AS DESCRIBED IN THE PREFERRED ALTERNATIVE, BUT A REDUCED CONSTRUCTION EFFORT WOULD BE IMPLEMENTED. ESTIMATED CONSTRUCTION FOOTPRINTS FOR THIS ALTERNATIVE TOTAL APPROXIMATELY 360 ACRES AT MARINE CORPS BASE CAMP LEJEUNE, 90

ACRES AT MARINE CORPS AIR STATION NEW RIVER, AND 40 ACRES AT MARINE CORPS AIR STATION CHERRY POINT.

ALTERNATIVE 4 ALSO INCLUDES THE SAME PERMANENT INCREASE OF PERSONNEL AS DESCRIBED FOR THE PREFERRED ALTERNATIVE, BUT NO NEW FACILITY OR INFRASTRUCTURE CONSTRUCTION WOULD OCCUR. THE INCREASED PERSONNEL WOULD BE ACCOMMODATED IN EXISTING OR ALREADY CONSTRUCTED TEMPORARY FACILITIES.

WHILE ALTERNATIVES 3 AND 4 MEET THE PURPOSE AND NEED FOR THE PROPOSED ACTION, THE CAPACITY OF THE INSTALLATIONS THAT SUPPORT THE INCREASE IN PERSONNEL WOULD BE STRAINED. THE PROPOSED FACILITY CONSTRUCTION UNDER ALTERNATIVES 2 AND 3 WAS SITED TO COINCIDE WITH OR BE COMPLEMENTARY TO EXISTING MISSIONS, OPERATIONS, AND FUNCTIONS; TO TAKE OPERATIONAL SCHEDULES INTO CONSIDERATION; TO USE EXISTING FACILITIES AND INFRASTRUCTURE TO THE GREATEST EXTENT POSSIBLE; TO AVOID AREAS WITH ENVIRONMENTAL CONSTRAINTS, SUCH AS WETLANDS AND SENSITIVE SPECIES HABITAT; AND TO UTILIZE DEVELOPED, CLEARED, OR PREVIOUSLY DISTURBED LANDS.

AT MARINE CORPS BASE CAMP LEJEUNE, BECAUSE THE EIS OCCURS EARLY IN THE CONSTRUCTION PLANNING PROCESS, THE EXACT FACILITY DESIGNS, LAYOUTS, AND LOCATIONS ARE STILL IN THE FORMATIVE STAGES. THEREFORE, LARGER, COMPREHENSIVE PLANNING AREAS WERE ESTABLISHED IN ACCORDANCE WITH MASTER PLANNING EFFORTS AND ENVIRONMENTAL CONSTRAINTS, SUCH AS CULTURAL

RESOURCES, SENSITIVE HABITATS, WETLANDS, AND CONTAMINATED CLEANUP SITES. ON THE BASE, PROPOSED CONSTRUCTION WOULD OCCUR IN EIGHT GENERAL PLANNING AREAS [SLIDE 13: PROPOSED DEVELOPMENT AREAS MCB CAMP LEJEUNE/MCAS NEW RIVER]: HADNOT POINT, WALLACE CREEK, FRENCH CREEK, COURTHOUSE BAY, STONE BAY OR THE RIFLE RANGE, CAMP DEVIL DOG, CAMP GEIGER, AND CAMP JOHNSON.

IN ADDITION, SEVERAL PROJECTS ARE PROPOSED THAT OCCUR OUTSIDE OF OR WITHIN MORE THAN ONE OF THESE GENERAL PLANNING AREAS, INCLUDING A NEW BASE ENTRY ROAD AND A NEW HOUSING AREA.

AT MARINE CORPS AIR STATION NEW RIVER, BECAUSE OF THE TYPES OF FACILITIES PROPOSED AND THE INDUSTRIAL NATURE OF THE AIR STATION, SPECIFIC PROJECT LOCATIONS HAVE BEEN DETERMINED. THE MAJORITY OF CONSTRUCTION WOULD OCCUR ON ALREADY-DEVELOPED LANDS AT THE AIR STATION. THE CONSTRUCTION AT BOTH OF THESE INSTALLATIONS IS SCHEDULED TO OCCUR BETWEEN FISCAL YEARS 2010 AND 2016.

AT MARINE CORPS AIR STATION CHERRY POINT, FOUR GENERAL PLANNING AREAS WERE IDENTIFIED FOR PROPOSED CONSTRUCTION. AS WITH MARINE CORPS AIR STATION NEW RIVER, THE INDUSTRIAL NATURE OF THE STATION AND THE FUNCTIONS OF THE PROPOSED FACILITIES HAVE ALLOWED THE STATION TO DEVELOP SPECIFIC LOCATIONS FOR THE PROPOSED PROJECTS. AS WAS DONE FOR THE OTHER TWO INSTALLATIONS, THE FACILITIES WERE SITED TO

COINCIDE WITH OR BE COMPLEMENTARY TO EXISTING MISSIONS, OPERATIONS, AND FUNCTIONS; TO TAKE OPERATIONAL SCHEDULES INTO CONSIDERATION; TO USE EXISTING FACILITIES AND INFRASTRUCTURE TO THE GREATEST EXTENT POSSIBLE; TO AVOID AREAS WITH ENVIRONMENTAL CONSTRAINTS; AND TO UTILIZE DEVELOPED, CLEARED, OR PREVIOUSLY DISTURBED LANDS AS MUCH AS POSSIBLE.

THE FOUR GENERAL PLANNING AREAS ARE: THE ORDNANCE AREA, THE WEST QUADRANT, THE NORTH QUADRANT, AND THE MACS-2 COMPOUND [SLIDE 14 – PROPOSED DEVELOPMENT AREAS: MCAS CHERRY POINT]. THESE AREAS ARE MOSTLY DEVELOPED AND WERE IDENTIFIED BASED ON MASTER PLANNING EFFORTS AND ENVIRONMENTAL CONSTRAINTS. IT WAS ALSO PROPOSED TO CHANGE THE SLOCUM ROAD ENTRANCE. CONSTRUCTION AT CHERRY POINT WOULD ALSO OCCUR BETWEEN FISCAL YEAR 2010 AND 2016.

NOW I'D LIKE TO BRIEFLY SUMMARIZE THE DRAFT EIS FINDINGS. IT IS THE INTENT OF NEPA THAT THE BEST PUBLICLY AVAILABLE INFORMATION AND DATA BE USED FOR THE ANALYSIS OF THE PROPOSED ACTION, AND THIS APPROACH WAS TAKEN ON THIS DOCUMENT BY AN INTERDISCIPLINARY TEAM OF SCIENTISTS. THESE INVESTIGATORS CONDUCTED EXTENSIVE LITERATURE REVIEWS, DATA COLLECTION, INTERVIEWS, AND USED THE MOST UP-TO-DATE STUDIES, SURVEYS, AND MODELS TO DETERMINE POTENTIAL IMPACTS.

THE DRAFT EIS CONSIDERED SEVERAL ELEMENTS THAT COULD CREATE IMPACTS. THESE INCLUDE CONSTRUCTION, DEMOLITION, AND UPGRADES, AS WELL AS THE OPERATION AND MAINTENANCE FUNCTIONS

THAT WILL OCCUR USING THESE FACILITIES. IN TOTAL, 13 RESOURCE AREAS WERE EVALUATED, AND THEY ARE LISTED HERE [SLIDE 15: DRAFT EIS IMPACT ANALYSIS]. I ENCOURAGE YOU TO REVIEW THE DRAFT EIS FOR A FULL EXPLANATION OF THE DISCUSSION OF THE METHODOLOGIES USED AND THE SPECIFIC IMPACTS TO EACH RESOURCE.

THE FOLLOWING SLIDES PROVIDE A BRIEF OVERVIEW OF THE POTENTIAL IMPACTS FROM IMPLEMENTATION OF THE PREFERRED ALTERNATIVE, ALTERNATIVE 2. [SLIDES 16-25] THE PREFERRED ALTERNATIVE INCLUDES THE LARGEST AMOUNT OF DISTURBANCE DUE TO CONSTRUCTION AND WOULD THEREFORE REPRESENT A WORST-CASE SCENARIO FROM A POTENTIAL ENVIRONMENTAL IMPACT PERSPECTIVE. ALTERNATIVES 3 AND 4 HAVE REDUCED OR NO IMPACTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES. ALL OF THE ACTION ALTERNATIVES INCLUDE THE SAME PERSONNEL INCREASES DEFINED IN THE PROPOSED ACTION. IMPACTS OF PARTICULAR INTEREST WITH ALTERNATIVES 3 AND 4 ARE NOTED WHERE APPROPRIATE.

SO FROM A LAND USE AND RECREATION PERSPECTIVE, THE PLUS-UP IN PERSONNEL AND THEIR ASSOCIATED DEPENDENTS WOULD INCREASE THE DEMAND FOR OFF-BASE RESIDENTIAL, COMMERCIAL, AND PUBLIC SERVICES LANDS. CONSTRUCTION IN SURROUNDING COMMUNITIES AND ON THE INSTALLATIONS TO SUPPORT THIS GROWTH WOULD PERMANENTLY REMOVE AND CONVERT SOME CURRENTLY UNDEVELOPED OR VACANT LAND PARCELS TO DEVELOPED AREAS RESULTING IN A CHANGE IN LAND USE. IMPACTS TO COASTAL ZONE

MANAGEMENT WERE ANALYZED IN ACCORDANCE WITH THE COASTAL ZONE MANAGEMENT ACT, AND HAVE BEEN FOUND TO BE CONSISTENT WITH THE POLICIES OF NORTH CAROLINA'S DEPARTMENT--EXCUSE ME, WERE FOUND TO BE CONSISTENT WITH NORTH CAROLINA'S COASTAL ZONE MANAGEMENT PROGRAM. COASTAL CONSISTENCY DETERMINATIONS WERE PREPARED AND ARE PENDING CONCURRENCE FROM THE NORTH CAROLINA DEPARTMENT OF THE ENVIRONMENT AND NATURAL RESOURCES DIVISION OF COASTAL MANAGEMENT.

AS FOR RECREATION, THERE WOULD BE AN INCREASED DEMAND FOR ON- AND OFF-BASE RECREATIONAL SERVICES. THE PREFERRED ALTERNATIVE WOULD RESULT IN PERMANENTLY REMOVING AND FRAGMENTING SOME FORESTS USED FOR HUNTING ON MARINE CORPS BASE CAMP LEJEUNE. HUNTING IS A MAJOR RECREATIONAL PASTIME AT THE BASE AND IS AVAILABLE IN DESIGNATED TRAINING AREAS AND IN OTHER MANAGED FORESTS THROUGHOUT THE INSTALLATION. THE LOSS OF A SMALL PORTION OF THIS AREA IS NOT ANTICIPATED TO HAVE MAJOR IMPACTS TO THE GAME POPULATION OR HUNTING OPPORTUNITIES.

FACILITY DEVELOPMENT ON- AND OFF-BASE WOULD SLIGHTLY ALTER THE CURRENT VISUAL RESOURCES, OR VIEWSHED. NEW FACILITIES ON THE INSTALLATIONS WOULD ADHERE TO ESTABLISHED CRITERIA TO MAINTAIN A UNIFORM MILITARY APPEARANCE. AN ADDITION OF NEW ROADS AND BRIDGES WOULD CHANGE THE EXISTING VIEWSHED, BUT DESIGN AND INSTALLATION OF THESE ASSETS WOULD ADHERE TO ESTABLISHED CRITERIA TO MAINTAIN THE VISUAL

INTEGRITY OF THE INSTALLATIONS AS MUCH AS POSSIBLE.

FROM A SOCIO-ECONOMICS PERSPECTIVE, IMPACT FROM THE GROW THE FORCE INITIATIVE WOULD BE PRIMARILY BE DUE TO POPULATION INCREASES. THE PROPOSED PERSONNEL WOULD INCREASE THE 2006 REGIONAL POPULATION OF ONSLOW, CRAVEN, AND CARTERET COUNTIES BY 6.1 PERCENT. BASED ON CURRENT DEMOGRAPHICS, IT IS LIKELY THAT ONSLOW AND CRAVEN COUNTIES WOULD RECEIVE THE MAJORITY OF THIS GROWTH.

INCREASED ANNUAL EARNINGS ARE ESTIMATED AT $380 MILLION FOR THE REGION BASED ON THE 9900 PERSONNEL INCREASE. SECONDARY IMPACTS FROM THE GROWTH WOULD BE AN INCREASE IN INCOME TAXES - $19 MILLION IN FEDERAL TAX AND $18 MILLION IN STATE TAX. POPULATION INCREASES WOULD CREATE A DEMAND FOR OFF-BASE HOUSING IN ONSLOW COUNTY, AND TO A LESSER EXTENT IN OTHER COUNTIES. HOWEVER, THE CONSTRUCTION OF ADDITIONAL FAMILY HOUSING AND BACHELOR ENLISTED QUARTERS IS EXPECTED TO EVENTUALLY OFFSET SOME OF THIS DEMAND. ADDITIONAL ECONOMIC GAINS WOULD OCCUR FROM THE MULTI-YEAR CONSTRUCTION EFFORTS. CONSTRUCTION ACTIVITIES WOULD GENERATE APPROXIMATELY $4.1 BILLION UNDER THE PREFERRED ALTERNATIVE, AND APPROXIMATELY $1.6 BILLION UNDER ALTERNATIVE 3. THESE CONSTRUCTION ACTIVITIES WOULD ALSO CREATE TEMPORARY JOBS IN THE REGION.

WITH RESPECT TO COMMUNITY SERVICES AND FACILITIES, UNDER THE PREFERRED ALTERNATIVE, THERE WOULD BE SHORT-TERM DEMAND AND STRAIN ON EXISTING ON-BASE FIRE, HEALTH, AND LAW

ENFORCEMENT UNTIL ADDITIONAL PROPOSED FACILITIES TO SUPPORT THESE SERVICES ARE CONSTRUCTED. INCREASED DEPENDENTS WOULD ALSO INCREASE ON-BASE DEMAND AND WAIT TIMES FOR CHILD CARE. MILITARY FAMILIES WOULD HAVE TO UTILIZE IN-HOME FAMILY CARE OR SEEK SERVICES OUTSIDE OF THE INSTALLATIONS UNTIL ADDITIONAL FACILITIES AND EXPANSIONS ARE CONSTRUCTED.

GROWTH IN THE SURROUNDING COMMUNITIES WOULD INCREASE DEMAND FOR PUBLIC EDUCATION. MOST OF THE SCHOOLS IN ONSLOW COUNTY SCHOOL DISTRICT ARE CURRENTLY OVER OR NEAR CAPACITY, AND THE INCREASED GROWTH WOULD FURTHER STRAIN THE SYSTEM. AS ADDITIONAL HOUSING AND SCHOOLS ARE CONSTRUCTED ON BASE, THE IMPACT TO ONSLOW COUNTY SCHOOLS SHOULD BE REDUCED AND/OR STABILIZED.

WITH RESPECT TO TRAFFIC AND TRANSPORTATION, GROWTH IN THE SURROUNDING COMMUNITIES WOULD ADD COMMUTERS AND INCREASE TRAFFIC CONGESTION. BUSY INTERSECTIONS WOULD LIKELY EXPERIENCE DEGRADATION IN SERVICE UNTIL NEW ROADS AND ACCESS GATES ARE CONSTRUCTED UNDER ALTERNATIVE 2. FOR INSTANCE, THE NEW ENTRY GATE AND INTERNAL CONNECTOR ROAD AT MARINE CORPS BASE CAMP LEJEUNE WOULD REDUCE OFF-BASE TRAFFIC ON HIGHWAY 24 BY APPROXIMATELY 30 PERCENT. COMMUTER ROUTES FOR PERSONNEL LIVING IN TARAWA TERRACE AND CAMP JOHNSON AREAS WOULD ALSO SIGNIFICANTLY IMPROVE SINCE THEY WOULD NO LONGER HAVE TO LEAVE THE BOUNDARIES OF THE BASE TO CROSS NORTHEAST CREEK TO ACCESS THE CANTONMENT AREAS OF THE BASE.

SLOCUM ROAD ON MARINE CORPS AIR STATION CHERRY POINT CURRENTLY RUNS THROUGH AN EXPLOSIVE SAFETY ARC ASSOCIATED WITH THE ORDNANCE STORAGE AREA. AS SUCH, THERE IS A RESTRICTION ON DAILY TRAFFIC ALLOWED TO USE THIS ROAD. TRAFFIC EXCEEDING THE RESTRICTION IS REROUTED THROUGH THE CITY OF HAVELOCK. THE PROPOSED REALIGNMENT OF SLOCUM ROAD WOULD ELIMINATE THIS RESTRICTION AND GREATLY IMPROVE TRAFFIC CONDITIONS ON AND OFF THE STATION.

UNDER ALTERNATIVES 3 AND 4, ON-BASE ROAD NETWORKS WOULD SUFFER AND DETERIORATE WITHOUT IMPROVEMENTS. CONGESTION AT THE MAIN GATE AND ALONG HIGHWAY 24 WOULD CONTINUE AND WORSEN WITHOUT THE NEW ENTRY GATE AND CONNECTOR ROAD AT MARINE CORPS BASE CAMP LEJEUNE.

WITH RESPECT TO UTILITIES AND HAZARDOUS MATERIALS, THE GROWTH ON AND OFF THE INSTALLATIONS WOULD INCREASE THE CURRENT DEMAND FOR UTILITIES, SUCH AS POTABLE WATER, ELECTRICITY, AND TELECOMMUNICATIONS, AS WELL AS GENERATE ADDITIONAL WASTEWATER AND SOLID WASTE. THE PROPOSED UPGRADES AND IMPROVEMENTS TO UTILITY SERVICES AND INFRASTRUCTURE WOULD ELIMINATE CURRENT CAPACITY ISSUES AT MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION NEW RIVER. THERE ARE NO CURRENT OR ANTICIPATED CAPACITY CONCERNS AT MARINE CORPS AIR STATION CHERRY POINT. DEMAND FOR UTILITIES SERVICES IN THE ADJACENT OFF-BASE COMMUNITIES WOULD INCREASE; HOWEVER, THERE IS SUFFICIENT EXISTING CAPACITY TO SUPPORT THE INCREASED

DEMAND.

THE PROPOSED MULTI-YEAR, LARGE SCALE CONSTRUCTION EFFORT AT ALL THREE INSTALLATIONS WOULD INCREASE THE POTENTIAL RISK OF HUMAN EXPOSURE TO HAZARDOUS MATERIALS, TOXIC SUBSTANCES, AND HAZARDOUS WASTE. ALL CONSTRUCTION ON THE INSTALLATIONS WOULD BE CONDUCTED IN ACCORDANCE WITH APPROVED SAFETY PROCEDURES IN ORDER TO PROTECT THE WORKERS AND BOTH ON- AND OFF-BASE POPULATIONS.

IN THE AREA OF NOISE AND AIR QUALITY, TEMPORARY NOISE DISTURBANCES DUE TO THE MULTI-YEAR CONSTRUCTION EFFORT WOULD OCCUR IN THE IMMEDIATE VICINITY OF THE CONSTRUCTION SITES. THESE ACTIVITIES, HOWEVER, WOULD PRIMARILY OCCUR DURING NORMAL WORKING HOURS AND ARE NOT EXPECTED TO IMPACT THE ON- OR OFF-BASE COMMUNITIES.

INCREASED MARINE CORPS PERSONNEL AND DEPENDENTS MOVING TO SURROUNDING COMMUNITIES WOULD ADD TO THE CURRENT COMMUTER BASE. THIS GROWTH WOULD RESULT IN A MINOR, LONG-TERM INCREASE OF VEHICLE POLLUTANT EMISSIONS. THE USE OF CONSTRUCTION EQUIPMENT FOR PROPOSED PROJECTS WOULD TEMPORARILY INCREASE EMISSIONS AND WOULD BE MINOR AND DISSIPATE RAPIDLY AND WOULD NOT SIGNIFICANTLY AFFECT THE REGIONAL AIR QUALITY. THE AFFECTED COUNTIES ARE CURRENTLY IN ATTAINMENT FOR ALL CRITERIA FOR POLLUTANTS.

WITH RESPECT TO NATURAL RESOURCES AND EARTH RESOURCES, CONSTRUCTION ACTIVITIES ON EACH INSTALLATION WOULD

TEMPORARILY DISTURB RESIDENTS AND NEARBY WILDLIFE. IT IS ANTICIPATED THAT THE MAJORITY OF WILDLIFE OCCUPYING THESE AREAS WOULD RELOCATE TO OTHER UNDEVELOPED PORTIONS OF THE INSTALLATIONS. SMALLER, LESS MOBILE SPECIES, HOWEVER, COULD BE LOST DURING LAND CLEARING ACTIVITIES, BUT THERE SHOULD NOT BE IMPACTS AT THE POPULATION LEVEL OF THOSE SPECIES.

NEW ROAD AND GATE CONSTRUCTION ON MARINE CORPS BASE CAMP LEJEUNE WOULD BISECT AN EXISTING FOREST RESULTING IN HABITAT FRAGMENTATION AND NEW ROAD MORTALITY HAZARDS FOR WILDLIFE INHABITING THIS FOREST. HABITAT FRAGMENTATION WOULD DISRUPT WILDLIFE MOVEMENTS AND MIGRATION, DIVIDE EXISTING WILDLIFE POPULATIONS, AND PROHIBIT ACCESS TO THE NEW RIVER FOR ANIMALS UNWILLING TO CROSS THE NEW ROAD. IN ADDITION, THE ROAD WOULD CREATE A NEW SOURCE OF NOISE DISTURBANCE FOR NEARBY WILDLIFE.

THE CONSTRUCTION OF BRIDGES AS PART OF THE ROAD PROJECTS AT MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION CHERRY POINT COULD POTENTIALLY IMPACT SEA TURTLES AND MANATEES. THE OCCURRENCE OF THESE SPECIES IS RARE AT THE PROPOSED BRIDGE LOCATIONS, HOWEVER, THE MARINE CORPS IS CONSULTING WITH U.S. FISH AND WILDLIFE SERVICE AND THE NATIONAL MARINE FISHERIES SERVICE TO ENSURE PROTECTION OF THESE SPECIES.

FOR EARTH RESOURCES, INCLUDING TOPOGRAPHY, GEOLOGY, AND SOILS, LAND CLEARING, GRADING, AND SHAPING WOULD

TEMPORARILY DISTURB AND EXPOSE LOOSE SOIL TO WIND AND RAIN EVENTS, CREATING AN EROSION RISK. A SITE SPECIFIC EROSION AND SEDIMENTATION CONTROL PLAN AND APPROPRIATE PERMITS WOULD BE DEVELOPED FOR EACH CONSTRUCTION SITE, AS NECESSARY, TO PROTECT THESE AREAS FROM EROSION AND SEDIMENTATION IMPACTS.

IN THE AREA OF WATER RESOURCES, AS A COOPERATING AGENCY, THE U.S. ARMY CORPS OF ENGINEERS IS CLOSELY INVOLVED IN THIS NEPA PROCESS, AND CONTINUED COORDINATION AND CONSULTATION WITH THE CORPS OF ENGINEERS WOULD OCCUR THROUGHOUT THE CONSTRUCTION PERIOD. THE FINAL SITE DESIGN OF THE PROPOSED FACILITIES WOULD AVOID WETLAND AREAS WHERE PRACTICAL, BUT SOME DEVELOPMENT ON MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION CHERRY POINT WOULD LIKELY HAVE SOME UNAVOIDABLE ADVERSE IMPACTS TO WETLANDS. SECTIONS 401 AND 404 PERMITS WOULD BE OBTAINED AS NECESSARY FOR PROJECTS THAT IMPACT WETLAND AREAS.

THE POTENTIAL IMPACT TO WETLANDS WOULD VARY WITH THE PREFERRED ALTERNATIVE AND ALTERNATIVE 3. THE PREFERRED ALTERNATIVE COULD POTENTIALLY IMPACT UP TO 125 ACRES OF WETLANDS AT MARINE CORPS BASE CAMP LEJEUNE AND UP TO 14.5 ACRES OF WETLANDS AT MARINE CORPS AIR STATION CHERRY POINT. THE REDUCED CONSTRUCTION EFFORT PROPOSED UNDER ALTERNATIVE 3 WOULD GREATLY REDUCE THE POTENTIAL FOR IMPACTING WETLANDS AT THESE INSTALLATIONS. UNDER THIS ALTERNATIVE, UP TO 3 ACRES OF WETLANDS AT MARINE CORPS BASE CAMP LEJEUNE AND UP TO 1

ACRE OF WETLANDS AT MARINE CORPS AIR STATION CHERRY POINT COULD BE IMPACTED. SINCE THERE IS NO CONSTRUCTION PROPOSED UNDER ALTERNATIVE 4, THERE WOULD BE NO IMPACT TO WETLANDS. CONTINUED ADHERENCE TO EXISTING MANAGEMENT PLANS, PERMIT REQUIREMENTS, AND BEST MANAGEMENT PRACTICES WOULD PROTECT NEARBY SURFACE WATER QUALITY FROM INCREASED STORMWATER RUNOFF AND SEDIMENTATION.

IN THE AREA OF CULTURAL RESOURCES, THERE ARE THREE ARCHAEOLOGICAL SITES THAT OCCUR WITHIN OR NEAR PROPOSED CONSTRUCTION AREAS AT MARINE CORPS BASE CAMP LEJEUNE; HOWEVER, THE POTENTIAL IMPACT TO THESE SITES WOULD NOT BE SIGNIFICANT OR IMPACT THEIR ELIGIBILITY FOR THE NATIONAL REGISTER OF HISTORIC PLACES. ALSO, AT MARINE CORPS BASE CAMP LEJEUNE, THREE STRUCTURES WITHIN HISTORIC DISTRICTS AT THE BASE ARE PROPOSED FOR DEMOLITION UNDER THE PREFERRED ALTERNATIVE. MARINE CORPS BASE CAMP LEJEUNE IS CONSULTING WITH THE NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICE TO MINIMIZE ANY ADVERSE IMPACTS TO THESE RESOURCES. THERE WOULD BE NO IMPACTS TO CULTURAL RESOURCES AT EITHER OF THE AIR STATIONS.

THE COUNCIL ON ENVIRONMENTAL QUALITY REGULATIONS REQUIRES THAT FEDERAL AGENCIES EVALUATE CUMULATIVE IMPACTS OF THE PROPOSED ACTION WHEN COMBINED WITH OTHER PAST, PRESENT, OR REASONABLY FORESEEABLE ACTIONS REGARDLESS OF THE PROPONENT. RELEVANT PROJECTS FOR THE ANALYSIS INCLUDE OTHER

LARGE SCALE CONSTRUCTION PROJECTS AND THOSE THAT WOULD RESULT IN POPULATION GROWTH OR DEVELOPMENT IN THE REGION, LIKE THE TWO F/A-18 SQUADRONS AT MARINE CORPS AIR STATION CHERRY POINT AND THE MARSOC INCREASE AT MARINE CORPS BASE CAMP LEJEUNE, THAT WE MENTIONED EARLIER.

THIS TABLE PROVIDES A BREAKDOWN OF THE PROJECTED INCREASES OF ACTIVE DUTY, FORMAL SCHOOL STUDENTS, AND CIVILIANS AT EACH INSTALLATION AND THE TOTAL FOR NORTH CAROLINA [SLIDE 27 - CUMULATIVE PERSONNEL INCREASE]. WHEN THE PERSONNEL INCREASES ASSOCIATED WITH THE GROW THE FORCE INITIATIVE ARE ADDED TO OTHER ACTIONS OCCURRING AT MARINE CORPS BASE CAMP LEJEUNE, MARINE CORPS AIR STATION NEW RIVER, AND MARINE CORP AIR STATION CHERRY POINT, THE RESULT IS APPROXIMATELY 11,477 ADDITIONAL PERSONNEL AT THE THREE INSTALLATIONS. THIS REPRESENTS APPROXIMATELY A 21 PERCENT INCREASE AT MARINE CORPS BASE CAMP LEJEUNE, A 20 PERCENT INCREASE AT MARINE CORPS AIR STATION NEW RIVER, AND AN 11 PERCENT INCREASE AT MARINE CORPS AIR STATION CHERRY POINT. LIKE WITH THE GROW THE FORCE INITIATIVE, THESE ACTIONS WOULD ALSO HAVE CORRESPONDING INCREASES IN THEIR DEPENDENT POPULATIONS.

HERE IS A GRAPHICAL REPRESENTATION OF THE CUMULATIVE ACTIVE DUTY AND CIVILIAN PERSONNEL INCREASES AT THE THREE INSTALLATIONS [SLIDE 29 - CUMULATIVE IMPACTS]. CUMULATIVE IMPACTS ARE PRIMARILY RELATED TO PERSONNEL GROWTH AND

INCLUDE: INCREASED DEVELOPMENT PRESSURE AND CHANGES IN THE LAND USE, SUCH AS DEVELOPING CURRENTLY UNDEVELOPED OR UNUSED LAND; INCREASED DEMAND FOR UTILITIES, COMMUNITY SERVICES, RECREATIONAL SERVICES, AND HOUSING; INCREASED TRAFFIC AND POTENTIAL DEGRADATION OF SERVICE AT THE BUSIEST INTERSECTIONS; INCREASED NOISE FROM TRAINING ACTIVITIES; ADDITIVE ECONOMIC GAINS FROM DIRECT, INDIRECT, AND INDUCED EMPLOYMENT INCOME; AND THE ADDITIONAL TAX REVENUES FOR FEDERAL, STATE, AND LOCAL GOVERNMENTS. PAST, PRESENT, AND REASONABLY FORESEEABLE CONSTRUCTION AT THE THREE INSTALLATIONS WOULD RESULT IN: REDUCED NATURAL AREAS, WETLANDS, AND WILDLIFE HABITAT; INCREASED IMPERVIOUS SURFACES AND STORMWATER RUNOFF; AND TEMPORARY INCREASES IN POLLUTANT EMISSIONS. WITH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES, PERMIT GUIDELINES, AND SPECIFIC MITIGATION WHEN IDENTIFIED, NONE OF THE CUMULATIVE IMPACTS ARE ANTICIPATED TO BE SIGNIFICANT.

I WILL NOW TURN THE MEETING BACK OVER TO MAJOR HINES TO START THE PUBLIC HEARING PORTION OF THE MEETING.

JUDGE: THANK YOU, MR. BREWER. BEFORE PROCEEDING TO THE ORAL COMMENT PORTION OF THIS HEARING, I WOULD LIKE TO REITERATE THAT ALL COMMENTS, WHETHER RECEIVED IN WRITING TONIGHT, SENT VIA THE U.S. POSTAL SERVICE, SUBMITTED ELECTRONICALLY AT OUR PROJECT WEBSITE, OR PRESENTED ORALLY THIS EVENING, WILL BE CONSIDERED EQUALLY. PLEASE ENSURE THAT

ALL COMMENTS ARE SENT AND/OR POSTMARKED BY SEPTEMBER 8TH, 2009, FOR CONSIDERATION IN THE FINAL EIS. THE ADDRESSES TO SUBMIT COMMENTS ARE DISPLAYED HERE AND FOUND IN THE HANDOUT MATERIALS.

WE ARE NOW READY TO BEGIN RECORDING YOUR COMMENTS FROM THOSE WHO HAVE SIGNED UP TO SPEAK. IF THERE IS ANYONE WHO WISHES TO GIVE AN ORAL COMMENT THIS EVENING, BUT HAS NOT YET TURNED IN A SPEAKER REQUEST CARD, PLEASE DO SO AT THIS TIME. TO ENSURE THAT WE GET ACCURATE RECORDS OF WHAT YOU HAVE TO SAY, PLEASE HELP ME RESPECT THE FOLLOWING GROUND RULES. FIRST, PLEASE SPEAK CLEARLY AND SLOWLY INTO THE MICROPHONE, STARTING WITH YOUR NAME AND ANY ORGANIZATION YOU REPRESENT. THIS WILL ENABLE US TO HEAR WHAT YOU HAVE TO SAY AND TO ENSURE THAT THE COURT REPORTER, SITTING HERE TO MY LEFT, CAN ACCURATELY AND FULLY CAPTURE YOUR COMMENTS. SECOND, EACH PERSON WILL HAVE THREE MINUTES TO SPEAK. THIRD, IF YOU HAVE A WRITTEN STATEMENT, YOU MAY TURN IT IN TO THE COURT REPORTER AND/OR YOU MAY READ IT OUT LOUD WITHIN THE TIME LIMIT. FOURTH, PLEASE HONOR ANY REQUEST THAT I MAKE FOR YOU TO STOP SPEAKING IF YOU REACH THE THREE-MINUTE TIME LIMIT. TO AID YOU IN KNOWING WHEN YOUR TIME IS ALMOST UP, A PERSON HERE IN FRONT WILL HOLD UP A YELLOW CARD WHEN YOU HAVE ONE MINUTE LEFT. THIS SHOULD ALLOW YOU TO FIND A COMFORTABLE PLACE TO WRAP UP YOUR COMMENTS. A RED CARD WILL BE HELD UP WHEN YOUR THREE MINUTES HAVE ELAPSED. WE ASK THAT THE

AUDIENCE REMAIN QUIET DURING THE PROCESS SO THAT THE COURT REPORTER CAN HEAR AND RECORD THE COMMENTS. WE ARE NOW READY TO BEGIN.

THE FIRST SPEAKER IS MR. WILLIAM C. BLAHA; I HOPE I'M PRONOUNCING THAT CORRECTLY. IS MR. BLAHA READY TO PROVIDE HIS COMMENTS?

MR. BLAHA: I'M HERE.

JUDGE: MR. BLAHA, SIR, YOU CAN GO AHEAD AND COME IN FRONT AND MAKE YOUR COMMENT AT THE MICROPHONE, PLEASE.

MR. BLAHA: MY NAME IS WILLIAM C. BLAHA. I'M A RESIDENT OF JACKSONVILLE. I WANT TO COMPLIMENT THE MARINE CORPS INSOFAR AS THE SOLUTION HERE AT CAMP LEJEUNE FOR ITS-- OH, ITS ENTRANCE, THE NEW GATE COMING IN WHERE IT IS IN KNOX TRAILER PARK, COMING ACROSS, AND THEN IN SOME UNDEVELOPED AREAS, AND FINALLY MAKING IT UP OVER TOWARDS THE SNEADS FERRY ROADWAY. THAT REALLY IS GOING TO SOLVE A PROBLEM THAT HAS LONG PLAGUED JACKSONVILLE IN ITS TRANSPORTATION. JACKSONVILLE SPENT, AND THE STATE SPENT A GREAT DEAL OF MONEY IN ORDER TO IMPROVE ROUTE 17 BYPASS AND EXPRESSWAY. NONE OF THAT ALLEVIATES THE TRAFFIC CONGESTION ASSOCIATED WITH CAMP LEJEUNE, MORNING AND EVENING.

THE MARINE CORPS' SOLUTION, WITH THE PREFERRED ALTERNATIVE, DOES SOLVE IT, I THINK, AND I WOULD HOPE IT'S MORE THAN 30 PERCENT ALLEVIATED. BUT AT ANY RATE, IT DOES SOLVE IT. AND I WANTED TO JUST COMPLIMENT THE MARINE CORPS

ON THAT SOLUTION. END OF COMMENT.

JUDGE: DO WE HAVE ANY OTHER SPEAKERS AT THIS TIME WHO HAVE FILLED OUT A SPEAKER CARD AND WOULD WISH TO SUBMIT IT AND MAKE A COMMENT AT THIS TIME? IF SO, PLEASE RAISE YOUR RIGHT HAND AND PLEASE COME ON UP AND SUBMIT YOUR CARD.

[NO RESPONSE]

JUDGE: ALL RIGHT, LADIES AND GENTLEMEN, IF WE DON'T HAVE ANY OTHER SPEAKERS AT THIS TIME, WHAT I'M GOING TO DO IS PUT THE HEARING INTO RECESS. WE WILL, HOWEVER, IF WE HAVE ANY SPEAKERS WHO WISH TO MAKE COMMENTS, AGAIN, PLEASE SUBMIT YOUR CARD AND WE WILL IMMEDIATELY REOPEN THE HEARING, GO BACK ON THE RECORD. AND, AGAIN, I WILL REMIND EVERYONE WE WILL BE HERE UNTIL 8:00 P.M. IF ANYONE WANTS TO SUBMIT A STATEMENT OR COMMENT. SO AT THIS TIME I'M GOING TO PUT THE HEARING IN RECESS.

[THE PUBLIC HEARING RECESSED AT 7:05 P.M.]

[THE PUBLIC HEARING WAS CALLED TO ORDER AT 7:50 P.M.]

JUDGE: LADIES AND GENTLEMEN, I'LL CALL THE HEARING BACK TO ORDER. ARE THERE ANY OTHER INDIVIDUALS IN THE AUDIENCE WHO WISH TO MAKE COMMENTS AT THIS TIME?

[NO RESPONSE]

JUDGE: THERE ARE NO OTHER INDIVIDUALS WHO WISH TO MAKE COMMENTS AT THIS TIME, AND THIS HEARING IS NOW OFFICIALLY CLOSED. THANK YOU FOR YOUR ATTENDANCE THIS EVENING.

[THE PUBLIC HEARING ADJOURNED AT 7:51 P.M.]

* *

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STATE OF NORTH CAROLINA)
) C-E-R-T-I-F-I-C-A-T-I-O-N
COUNTY OF CRAVEN)

I, KENNETH L. DAUB, A COURT REPORTER AND NOTARY PUBLIC IN AND FOR THE AFORESAID COUNTY AND STATE, DO HEREBY CERTIFY THAT THE FOREGOING PAGES ARE AN ACCURATE TRANSCRIPT OF THE GROW THE FORCE PUBLIC HEARING HELD IN JACKSONVILLE, NORTH CAROLINA ON AUGUST 19, 2009.

WITNESS, MY HAND, THIS DATE: AUGUST 27, 2009.

MY COMMISSION EXPIRES AUGUST 1, 2012.

/S/______________________________

KENNETH L. DAUB
COURT REPORTER AND NOTARY PUBLIC
NEW BERN COURT REPORTERS, INC.
P.O. BOX 164
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NOTARY PUBLIC #19923360111

TRANSCRIPT OF
PUBLIC HEARING REGARDING

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
U.S. MARINE CORPS GROW THE FORCE
AT MCB CAMP LEJEUNE, MCAS NEW RIVER,
AND MCAS CHERRY POINT, NORTH CAROLINA

HOLLY RIDGE, NORTH CAROLINA

* *

COMMENCING AT 6:30 P.M., AUGUST 20, 2009, AT THE HOLLY RIDGE COMMUNITY BUILDING, 404 SOUND ROAD, HOLLY RIDGE, NORTH CAROLINA.

APPEARANCES:

JUDGE	-	QUINCY WARD LIEUTENANT COLONEL, USMC MILITARY JUDGE EASTERN JUDICIAL CIRCUIT NAVY-MARINE CORPS TRIAL JUDICIARY CAMP LEJEUNE, NC 28547
MARINE CORPS INSTALLATIONS EAST	-	MR. SCOTT A. BREWER, PE REGIONAL ENVIRONMENTAL COORDINATION MARINE CORPS INSTALLATIONS EAST CAMP LEJEUNE, NC 28542
COURT REPORTER	-	KENNETH L. DAUB

INDEX

JUDGE: LADIES AND GENTLEMEN, GOOD EVENING, AND THANK YOU FOR COMING OUT TONIGHT. MY NAME IS LIEUTENANT COLONEL QUINCY WARD, AND I'LL BE THE MODERATOR FOR TONIGHT'S HEARING ON THE MARINE CORPS' DRAFT ENVIRONMENTAL IMPACT STATEMENT - OR DRAFT EIS - ANALYZING THE POTENTIAL IMPACTS FROM THEIR PROPOSAL TO SUPPORT, THROUGH PERMANENT FACILITY AND INFRASTRUCTURE CONSTRUCTION, THE GROW THE FORCE INITIATIVE HERE IN NORTH CAROLINA.

NOW, HERE TO RECEIVE YOUR COMMENTS THIS EVENING ARE MEMBERS FROM THE GROW THE FORCE EIS TEAM. HOPEFULLY YOU HAVE ALREADY HAD THE OPPORTUNITY TO TAKE ADVANTAGE OF THE POSTER STATIONS AND ASK ANY QUESTIONS THAT YOU MIGHT HAVE. THE PRIMARY PURPOSE FOR THIS PORTION OF THE HEARING IS FOR THE MARINE CORPS TO LISTEN TO YOUR COMMENTS FIRSTHAND AND TO HAVE THEM RECORDED VERBATIM. THIS IS NOT A QUESTION AND ANSWER PERIOD; HOWEVER, POSTER STATIONS WILL REMAIN OPEN UNTIL 8:00 P.M. TO ENABLE YOU TO INTERACT WITH MARINE CORPS REPRESENTATIVES WHO CAN ANSWER YOUR QUESTIONS YOU MIGHT HAVE ON THE DRAFT EIS FINDINGS.

NOW, I WOULD LIKE TO PROCEED WITH THE OVERVIEW OF THE BRIEFING FORMAT FOR THIS EVENING. AFTER I FINISH THIS INTRODUCTION, SCOTT BREWER, HERE FROM MCIEAST, WILL BRIEF YOU ON THE GROW THE FORCE INITIATIVE, PRESENT THE PROPOSED ACTION AND NO ACTION ALTERNATIVE, AND OUTLINE THE FINDINGS PRESENTED IN THE DRAFT EIS. NOW, FOLLOWING HIS PRESENTATION, THE ORAL

COMMENTING PERIOD WILL BEGIN. THIS IS YOUR OPPORTUNITY TO PROVIDE US WITH YOUR CONCERNS AND MAKE STATEMENTS FOR THE RECORD. THIS INPUT INTO THE DRAFT EIS ENSURES THAT MARINE CORPS DECISION MAKERS ARE FULLY INFORMED ABOUT COMMUNITY CONCERNS REGARDING THE FINDINGS PRESENTED IN THIS DOCUMENT BEFORE THE MARINE CORPS DECIDES ON A PARTICULAR COURSE OF ACTION. NOW, CONSEQUENTLY, COMMENTS TONIGHT ON ISSUES UNRELATED TO THIS DRAFT EIS ARE BEYOND THE SCOPE OF THIS HEARING AND CANNOT BE ADDRESSED.

WHEN YOU WERE GREETED AT THE ENTRANCE, YOU WERE ASKED TO FILL OUT A SPEAKER REQUEST CARD. IF YOU DID NOT FILL ONE OUT AND WISH TO SPEAK TONIGHT, PLEASE SIMPLY RAISE YOUR HAND AND ONE WILL BE PROVIDED TO YOU SO THAT YOU CAN DO SO. EACH PERSON WILL HAVE THREE MINUTES TO SPEAK, TO INCLUDE PUBLIC OFFICIALS, AND ORGANIZATIONAL SPOKESPERSONS, AS WELL AS PRIVATE CITIZENS. NOW, IF YOU DON'T FEEL COMFORTABLE STANDING UP HERE TONIGHT AND MAKING A STATEMENT, YOU HAVE UNTIL THE 8TH OF SEPTEMBER OF THIS YEAR TO SUBMIT A WRITTEN STATEMENT FOR CONSIDERATION IN THE FINAL EIS. NOW, PLEASE NOTE ALL COMMENTS - WHETHER THEY BE ORAL, WRITTEN, AND THOSE SUBMITTED ELECTRONICALLY TO THE PROJECT WEBSITE - ARE GIVEN EQUAL CONSIDERATION.

NOW, IT'S MY PLEASURE TO INTRODUCE MR. SCOTT BREWER, HERE FROM MCIEAST.

MR. BREWER: THANK YOU COLONEL WARD, AND GOOD EVENING

LADIES AND GENTLEMEN. AS THE COLONEL SAID, I'M SCOTT BREWER. I WORK FOR MARINE CORPS INSTALLATIONS EAST, AND I OVERSEE ENVIRONMENTAL PROGRAMS THERE. AGAIN, I WANT TO THANK YOU ALL FOR BEING HERE TONIGHT. I APPRECIATE YOUR ATTENDANCE AT OUR MARINE CORPS' GROW THE FORCE INITIATIVE EIS PUBLIC HEARING.

THIS WEEK WE'RE HOLDING THREE OF THESE PUBLIC HEARINGS - THIS IS THE THIRD OF THOSE THREE MEETINGS - AT THE LOCATIONS THAT YOU SEE THERE ON THE SCREEN [SLIDE 3: PUBLIC HEARINGS]. AS MENTIONED EARLIER, WE HOPE THAT YOU HAVE HAD A CHANCE TO VISIT OUR POSTER STATIONS AND MEET THE MARINE CORPS TEAM MEMBERS ON THIS PROJECT. THEY'LL CONTINUE TO BE AT THE STATIONS, SO IF YOU HAVE ANY QUESTIONS ABOUT THE DRAFT EIS FINDINGS, PLEASE FEEL FREE TO SPEAK WITH THEM AFTER OUR HEARING SESSION.

THE DRAFT EIS WAS PREPARED BY HEADQUARTERS MARINE CORPS, MARINE CORPS INSTALLATIONS EAST, MARINE CORPS BASE CAMP LEJEUNE, MARINE CORPS AIR STATION NEW RIVER, AND MARINE CORPS AIR STATION CHERRY POINT ALSO, NAVAL FACILITIES ENGINEERING COMMAND, MID-ATLANTIC, ASSISTED IN THAT PREPARATION. OUR DOCUMENT WAS PREPARED IN COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL POLICY ACT, OR NEPA, WHICH REQUIRES FEDERAL AGENCIES TO CONSIDER THE EFFECTS OF THEIR ACTIVITIES ON THE PHYSICAL, BIOLOGICAL, AND HUMAN ENVIRONMENT.

THIS SLIDE REPRESENTS THE NEPA PROCESS ASSOCIATED

WITH THE GROW THE FORCE PROPOSED ACTION. [SLIDE 4: NATIONAL ENVIRONMENTAL POLICY ACT] WE STARTED THE PROCESS IN DECEMBER OF 2007 WITH A NOTICE OF INTENT ANNOUNCEMENT IN THE FEDERAL REGISTER. THIS MARKED THE BEGINNING OF THE SCOPING COMMENT PERIOD. IN JANUARY OF 2008, SCOPING MEETINGS WERE HELD IN THE SAME THREE COMMUNITIES WHICH WE'RE HOLDING THESE HEARING MEETINGS AT THIS WEEK.

OVER THE PAST YEAR WE'VE BEEN PREPARING THE DRAFT EIS. PREPARATION INCLUDED REFINEMENT OF THE PROPOSED ACTION AND ALTERNATIVES, DETERMINATION OF THE AREAS DIRECTLY AND INDIRECTLY AFFECTED BY THIS PROPOSAL, AND EVALUATION OF THE POTENTIAL IMPACTS ON NUMEROUS RESOURCES. WHEN THE DRAFT EIS WAS COMPLETED, ITS AVAILABILITY FOR PUBLIC REVIEW WAS ANNOUNCED IN THE FEDERAL REGISTER ON JULY 17TH, AS WELL AS IN SEVERAL REGIONAL NEWSPAPERS.

WITH THIS ANNOUNCEMENT, THE PUBLIC COMMENT PERIOD WAS INITIATED. EXTENDING FROM JULY 17TH TO SEPTEMBER 8TH, 2009, THIS COMMENT PHASE ALLOWS THE PUBLIC TIME TO REVIEW THE DOCUMENT, EXPRESS THEIR COMMENTS ON THE FINDINGS PRESENTED IN THE DOCUMENT, AND HAVE THE OPPORTUNITY TO ATTEND HEARINGS TO EXPRESS THEIR CONCERNS. FOLLOWING THIS COMMENT PERIOD, THE MARINE CORPS WILL EVALUATE AND ADDRESS PUBLIC COMMENTS AND REVISE THE FINAL EIS ACCORDINGLY. ONCE THESE REVISIONS ARE COMPLETE, THE FINAL EIS AVAILABILITY WILL BE ANNOUNCED IN THE FEDERAL REGISTER, AS WELL AS LOCAL NEWSPAPERS.

AFTER A 30-DAY WAITING PERIOD, THE MARINE CORPS ANTICIPATES ANNOUNCING ITS RECORD OF DECISION, OR ROD. IT IS ANTICIPATED THAT THE ROD WILL BE SIGNED IN JANUARY 2010. ONCE AGAIN, THIS DECISION WILL APPEAR WITHIN THE FEDERAL REGISTER AND ITS AVAILABILITY ANNOUNCED IN LOCAL NEWSPAPERS. THIS DRAFT EIS REPRESENTS COMPLIANCE WITH NEPA, AS WELL AS OTHER STATUTES APPLICABLE TO THIS PROPOSAL, FOR INSTANCE, THE ENDANGERED SPECIES ACT, THE CLEAN WATER ACT, AND THE CLEAN AIR ACT, JUST TO NAME A FEW. IT IS AN IMPORTANT PART OF THE MARINE CORPS' OVERALL COMMITMENT TO ENVIRONMENTAL STEWARDSHIP WHILE MEETING ITS MILITARY MISSION.

IN PREPARING THE DRAFT EIS, THE MARINE CORPS TOOK A COMPREHENSIVE AND CUMULATIVE APPROACH IN ASSESSING THE POTENTIAL EFFECTS TO NUMEROUS ENVIRONMENTAL RESOURCE AREAS, INCLUDING NATURAL, CULTURAL, ECONOMIC, AND SOCIAL RESOURCES, THAT COULD BE IMPACTED BY THE GROW THE FORCE PROPOSAL IN NORTH CAROLINA.

SO WHAT IS GROW THE FORCE? CURRENTLY, MARINES ARE DEPLOYED AT AN INCREASED LEVEL AND DURATION CAUSING HARDSHIP TO THEIR FAMILIES AND ON THEIR ABILITY TO TRAIN FOR THEIR NEXT MISSION. IN HIS JANUARY 2007 STATE OF THE UNION ADDRESS, UNDER RECOMMENDATION FROM THE SECRETARY OF DEFENSE, PRESIDENT BUSH ANNOUNCED HIS INTENTION TO INCREASE THE MARINE CORPS END STRENGTH FROM 180,000 TO 202,000 BY THE END OF FISCAL YEAR 2011. MARINE CORPS UNITS ACROSS THE UNITED

STATES WERE IDENTIFIED FOR AUGMENTATION BASED ON MISSION COMPATIBILITIES, COMBAT ROLES, AND DEPLOYMENT RESPONSIBILITIES. THEIR PARENT UNITS WERE IDENTIFIED AND PERSONNEL INCREASES ASSIGNED TO THEM. INCREMENTAL INCREASES IN END STRENGTH ACROSS THE MARINE CORPS BEGAN IN FISCAL YEAR 2007.

TO MEET ANY CRISIS OR CONFLICT THAT MAY ARISE, THE MARINE CORPS MUST BE SUFFICIENTLY MANNED, WELL TRAINED, AND PROPERLY EQUIPPED. UNDER OPTIMAL CONDITIONS, THE DEPLOYMENT-TO-DWELL RATIO - IN OTHER WORDS, THE TIME THAT A MARINE IS DEPLOYED VERSUS THE TIME STATIONED AT HOME - SHOULD SUPPORT ADEQUATE TIME FOR UNITS TO TRAIN AND PREPARE FOR THEIR NEXT DEPLOYMENT, TO CONDUCT THEIR MISSIONS, AND TO RECOVER, ALL WHILE MAINTAINING QUALITY OF LIFE. THE GROW THE FORCE INITIATIVE WOULD PROVIDE THE OPPORTUNITY TO ACCOMMODATE A ONE-TO-TWO DEPLOYMENT-TO-DWELL RATIO, SPENDING TWICE THE AMOUNT OF TIME AT HOME THAN SPENT OVERSEAS.

THE UNITS PROPOSED FOR PERSONNEL INCREASES WOULD SUPPORT ACTIVE DUTY MARINES, CIVILIANS, AND MARINE OCCUPATIONAL SPECIALTY SCHOOL STUDENTS, IN TOTAL, ABOUT 9900 PERSONNEL ACROSS THE THREE INSTALLATIONS. THE NORTH CAROLINA GROW THE FORCE INITIATIVE WOULD RESULT IN APPROXIMATELY 7700 ADDITIONAL MARINES AND CIVILIANS AT MARINE CORPS BASE CAMP LEJEUNE, 1400 ADDITIONAL MARINES AND CIVILIANS AT MARINE CORPS AIR STATION NEW RIVER, AND 800 MARINES AND CIVILIANS AT

MARINE CORPS AIR STATION CHERRY POINT.

SINCE THESE INCREASES ARE SO CLOSELY RELATED TO EACH OTHER, BOTH IN LOCATION AND TIME, THE MARINE CORPS DETERMINED THAT THE POTENTIAL ENVIRONMENTAL EFFECTS AT THE THREE SITES WOULD BE EVALUATED TOGETHER IN ONE EIS. PREVIOUS GROWTH ANNOUNCED IN THE NORTH CAROLINA AREA INCLUDES THE ADDITION OF TWO NAVY F/A-18 SQUADRONS AT MARINE CORPS AIR STATION CHERRY POINT AND THE ADDITION OF THE MARINE SPECIAL OPERATIONS COMMAND, OR MARSOC, AT MARINE CORPS BASE CAMP LEJEUNE. WHEN COMBINED WITH THE ADDITIONAL 9900 MARINES AND CIVILIANS UNDER THE GROW THE FORCE INITIATIVE, THE OVERALL ACTIVE DUTY AND CIVILIAN EMPLOYEE INCREASES WOULD TOTAL 11,477 BY THE END OF FISCAL YEAR 2011. MANY OF THESE ADDITIONAL PERSONNEL WOULD ALSO HAVE DEPENDENTS - ALSO KNOWN AS SPOUSES AND CHILDREN - MAKING THE OVERALL GROWTH EVEN LARGER. THESE INCREASES HAVE BEEN EVALUATED IN OTHER NEPA DOCUMENTS, BUT THEY ARE INCLUDED IN THE CUMULATIVE IMPACT ANALYSIS OF THIS DRAFT EIS.

THE PROPOSED ACTION ADDRESSED IN THIS DRAFT EIS IS THE PERMANENT, INCREMENTAL INCREASE OF MARINES, CIVILIANS, AND STUDENTS AT THE THREE NORTH CAROLINA INSTALLATIONS. ASSOCIATED WITH THESE MARINES ARE THEIR DEPENDENTS, WHICH WOULD ADD TO THE GROWTH IN THE AREA. HERE YOU CAN SEE A BREAKDOWN OF THE PROJECTED ACTIVE DUTY AND CIVILIAN PERSONNEL INCREASES FOR EACH INSTALLATION AND THE TOTAL FOR NORTH CAROLINA. [SLIDE 9: PROPOSED ACTION - PERSONNEL INCREASES]

THE PROJECTED INCREASE OF 7700 PERSONNEL AT MARINE CORPS BASE CAMP LEJEUNE ALSO INCLUDES AN AVERAGE MONTHLY INCREASE OF 529 MARINE FORMAL SCHOOL STUDENTS.

FOR PURPOSES OF THIS ANALYSIS, FISCAL YEAR 2006 WAS CHOSEN AS THE BASELINE FROM WHICH ENVIRONMENTAL IMPACTS WERE EVALUATED. THIS PERIOD WAS CHOSEN BECAUSE IT WAS PRIOR TO PRESIDENT BUSH'S ANNOUNCEMENT OF THE MARINE CORPS INCREASES AND BEST REPRESENTS CONDITIONS AT THE INSTALLATIONS PRIOR TO PERSONNEL INCREASES ASSOCIATED WITH GROW THE FORCE. GROW THE FORCE WOULD INCREASE THE PERSONNEL BASELINE BY 19 PERCENT AT MARINE CORPS BASE CAMP LEJEUNE, 20 PERCENT AT MARINE CORPS AIR STATION NEW RIVER, AND 6 PERCENT AT MARINE CORPS AIR STATION CHERRY POINT.

GAINS IN PERMANENT ACTIVE DUTY AND CIVILIAN PERSONNEL WOULD ALSO RESULT IN ASSOCIATED GAINS IN THE DEPENDENT POPULATIONS FOR SPOUSES AND CHILDREN. IN TOTAL, IT WAS ESTIMATED THAT THERE WOULD BE AN INCREASE OF APPROXIMATELY 9500 DEPENDENTS FOR NORTH CAROLINA MARINE CORPS INSTALLATIONS. THIS ESTIMATE WAS DETERMINED BY APPLYING STANDARD MULTIPLIERS TO THE DISTRIBUTION OF INCREASED ACTIVE AND CIVILIAN PERSONNEL BY RANK OR EMPLOYMENT GRADE.

IN SUMMARY, THE PROPOSED ACTION WOULD INCREASE MILITARY PERSONNEL AND DEPENDENTS AT THESE INSTALLATIONS BY 18,290 PEOPLE. THIS WOULD BE AN APPROXIMATE 13.8 PERCENT INCREASE.

THE MARINE CORPS EVALUATED THREE ACTION ALTERNATIVES, AND THE NO ACTION ALTERNATIVE, IN THE DRAFT EIS. ALTERNATIVE 1 IS THE NO ACTION ALTERNATIVE. UNDER THIS ALTERNATIVE, THE PERMANENT INCREASE IN PERSONNEL WOULD NOT OCCUR. THIS ALTERNATIVE HAS BEEN INCLUDED IN THE ANALYSIS PER REGULATIONS OF THE COUNCIL ON ENVIRONMENTAL QUALITY, AND SERVES AS THE BASELINE AGAINST WHICH POTENTIAL IMPACTS OF THE PROPOSED ACTIONS CAN BE MEASURED. AGAIN, FISCAL YEAR 2006 IS USED AS THE BASELINE CONDITION FOR THIS ACTION SINCE IT IS THE YEAR PRIOR TO THE PRESIDENTIAL MANDATE TO INCREASE FORCES.

ALTERNATIVE 2 IS THE PREFERRED ALTERNATIVE. UNDER THIS ALTERNATIVE, THE PERMANENT, INCREMENTAL INCREASE OF PERSONNEL OUTLINED UNDER THE GROW THE FORCE INITIATIVE WOULD BE IMPLEMENTED AT ALL THREE INSTALLATIONS. TO SUPPORT THIS GROWTH, A MAJOR, MULTI-YEAR CONSTRUCTION EFFORT IS PROPOSED CONSISTING OF NEW FACILITIES AND INFRASTRUCTURE. ESTIMATED CONSTRUCTION FOOTPRINTS TOTAL APPROXIMATELY 1700 ACRES AT MARINE CORPS BASE CAMP LEJEUNE, 160 ACRES AT MARINE CORPS AIR STATION NEW RIVER, AND 117 ACRES AT MARINE CORPS AIR STATION CHERRY POINT.

ALTERNATIVE 3 INCLUDES THE SAME PERMANENT INCREASE OF PERSONNEL AS DESCRIBED IN THE PREFERRED ALTERNATIVE, BUT A REDUCED CONSTRUCTION EFFORT WOULD BE IMPLEMENTED. ESTIMATED CONSTRUCTION FOOTPRINTS FOR THIS ALTERNATIVE TOTAL APPROXIMATELY 360 ACRES AT MARINE CORPS BASE CAMP LEJEUNE, 90

ACRES AT MARINE CORPS AIR STATION NEW RIVER, AND 40 ACRES AT MARINE CORPS AIR STATION CHERRY POINT.

ALTERNATIVE 4 ALSO INCLUDES THE SAME PERMANENT INCREASE OF PERSONNEL AS DESCRIBED FOR THE PREFERRED ALTERNATIVE, BUT NO NEW FACILITY OR INFRASTRUCTURE CONSTRUCTION WOULD OCCUR. THE INCREASED PERSONNEL WOULD BE ACCOMMODATED IN EXISTING OR ALREADY CONSTRUCTED TEMPORARY FACILITIES.

WHILE ALTERNATIVES 3 AND 4 MEET THE PURPOSE AND NEED FOR THE PROPOSED ACTION, THE CAPACITY OF THE INSTALLATIONS THAT SUPPORT THE INCREASE IN PERSONNEL WOULD BE STRAINED. THE PROPOSED FACILITY CONSTRUCTION UNDER ALTERNATIVES 2 AND 3 WAS SITED TO COINCIDE WITH OR BE COMPLEMENTARY TO EXISTING MISSIONS, OPERATIONS, AND FUNCTIONS; TO TAKE OPERATIONAL SCHEDULES INTO CONSIDERATION; TO USE EXISTING FACILITIES AND INFRASTRUCTURE TO THE GREATEST EXTENT POSSIBLE; TO AVOID AREAS WITH ENVIRONMENTAL CONSTRAINTS, SUCH AS WETLANDS AND SENSITIVE SPECIES HABITAT; AND TO UTILIZE DEVELOPED, CLEARED, OR PREVIOUSLY DISTURBED LANDS.

AT MARINE CORPS BASE CAMP LEJEUNE, BECAUSE THE EIS OCCURS EARLY IN THE CONSTRUCTION PLANNING PROCESS, THE EXACT FACILITY DESIGNS, LAYOUTS, AND LOCATIONS ARE STILL IN THE FORMATIVE STAGES. THEREFORE, LARGER, COMPREHENSIVE PLANNING AREAS WERE ESTABLISHED IN ACCORDANCE WITH MASTER PLANNING EFFORTS AND ENVIRONMENTAL CONSTRAINTS. ON THE BASE, PROPOSED

CONSTRUCTION WOULD OCCUR IN EIGHT GENERAL PLANNING AREAS [SLIDE 13: PROPOSED DEVELOPMENT AREAS MCB CAMP LEJEUNE/MCAS NEW RIVER]: HADNOT POINT, WALLACE CREEK, FRENCH CREEK, COURTHOUSE BAY, STONE BAY, CAMP DEVIL DOG, CAMP GEIGER, AND CAMP JOHNSON.

IN ADDITION, SEVERAL PROJECTS ARE PROPOSED THAT OCCUR OUTSIDE OF OR WITHIN MORE THAN ONE OF THESE GENERAL PLANNING AREAS, INCLUDING A NEW BASE ENTRY ROAD AND A NEW HOUSING AREA.

AT MARINE CORPS AIR STATION NEW RIVER, BECAUSE OF THE TYPES OF FACILITIES PROPOSED AND THE INDUSTRIAL NATURE OF THE AIR STATION, SPECIFIC PROJECT LOCATIONS HAVE BEEN DETERMINED. THE MAJORITY OF CONSTRUCTION WOULD OCCUR ON ALREADY-DEVELOPED LANDS AT THE AIR STATION. THE CONSTRUCTION AT BOTH INSTALLATIONS IS SCHEDULED TO OCCUR BETWEEN FISCAL YEARS 2010 AND 2016.

AT MARINE CORPS AIR STATION CHERRY POINT, FOUR GENERAL PLANNING AREAS WERE IDENTIFIED FOR PROPOSED CONSTRUCTION. AS WITH MARINE CORPS AIR STATION NEW RIVER, THE INDUSTRIAL NATURE OF THE STATION AND THE FUNCTIONS OF THE PROPOSED FACILITIES HAVE ALLOWED THE STATION TO DEVELOP SPECIFIC LOCATIONS FOR THE PROPOSED PROJECTS. AS WAS DONE FOR THE OTHER TWO INSTALLATIONS, FACILITIES WERE SITED TO COINCIDE WITH OR BE COMPLEMENTARY TO EXISTING MISSIONS, OPERATIONS, AND FUNCTIONS; TO TAKE OPERATIONAL SCHEDULES INTO

CONSIDERATION; TO USE EXISTING FACILITIES AND INFRASTRUCTURE TO THE GREATEST EXTENT POSSIBLE; TO AVOID AREAS WITH ENVIRONMENTAL CONSTRAINTS; AND TO UTILIZE DEVELOPED, CLEARED, OR PREVIOUSLY DISTURBED LANDS.

THE FOUR GENERAL PLANNING AREAS ARE: THE ORDNANCE AREA, THE WEST QUADRANT, THE NORTH QUADRANT, AND THE MACS-2 COMPOUND [SLIDE 14: PROPOSED DEVELOPMENT AREAS: MCAS CHERRY POINT]. THESE AREAS ARE MOSTLY DEVELOPED AND WERE IDENTIFIED BASED ON MASTER PLANNING EFFORTS AND ENVIRONMENTAL CONSTRAINTS. ALSO AT CHERRY POINT, THERE IS A PROPOSED PROJECT TO REALIGN THE SLOCUM ROAD ENTRANCE. CONSTRUCTION AT CHERRY POINT WOULD ALSO OCCUR BETWEEN FISCAL YEAR 2010 AND 2016.

NOW I'D LIKE TO BRIEFLY SUMMARIZE THE DRAFT EIS FINDINGS. IT IS THE INTENT OF NEPA THAT THE BEST PUBLICLY AVAILABLE INFORMATION AND DATA BE USED FOR THE ANALYSIS OF THE PROPOSED ACTION, AND THIS APPROACH WAS TAKEN ON THIS DOCUMENT BY AN INTERDISCIPLINARY TEAM OF SCIENTISTS. THESE INVESTIGATORS CONDUCTED EXTENSIVE LITERATURE REVIEWS, DATA COLLECTION, INTERVIEWS, AND USED THE MOST UP-TO-DATE STUDIES, SURVEYS, AND MODELS TO DETERMINE POTENTIAL IMPACTS.

THE DRAFT EIS CONSIDERED SEVERAL ELEMENTS THAT COULD CREATE IMPACTS. THESE INCLUDE CONSTRUCTION, DEMOLITION, AND UPGRADES, AS WELL AS THE OPERATION AND MAINTENANCE ACTIVITIES THAT WILL OCCUR AT THESE NEW FACILITIES. IN TOTAL, 13

RESOURCE AREAS WERE EVALUATED, AND THEY ARE LISTED HERE [SLIDE 15: DRAFT EIS IMPACT ANALYSIS]. I ENCOURAGE YOU TO REVIEW THE DRAFT EIS FOR A FULL EXPLANATION AND DISCUSSION OF THE METHODOLOGIES USED AND THE SPECIFIC IMPACTS TO EACH RESOURCE.

THE FOLLOWING SLIDES PROVIDE A BRIEF OVERVIEW OF THE POTENTIAL IMPACTS FROM IMPLEMENTATION OF THE PREFERRED ALTERNATIVE, ALTERNATIVE 2. [SLIDES 16-25] THE PREFERRED ALTERNATIVE INCLUDES THE LARGEST AMOUNT OF DISTURBANCE DUE TO CONSTRUCTION AND WOULD THEREFORE REPRESENT A WORST-CASE SCENARIO FROM A POTENTIAL ENVIRONMENTAL IMPACT PERSPECTIVE. ALTERNATIVES 3 AND 4 WOULD HAVE REDUCED OR NO IMPACTS ASSOCIATED WITH CONSTRUCTION ACTIVITIES. ALL OF THE ACTION ALTERNATIVES INCLUDE THE SAME PERSONNEL INCREASES DEFINED IN THE PROPOSED ACTION. IMPACTS OF PARTICULAR INTEREST WITH ALTERNATIVES 3 AND 4 ARE NOTED WHERE APPROPRIATE.

SO, IN THE AREA OF LAND USE AND RECREATION, THE PLUS-UP IN PERSONNEL AND THEIR ASSOCIATED DEPENDENTS WOULD INCREASE THE DEMAND FOR OFF-BASE RESIDENTIAL, COMMERCIAL, AND PUBLIC SERVICES LANDS. CONSTRUCTION IN SURROUNDING COMMUNITIES AND ON THE INSTALLATIONS TO SUPPORT THIS GROWTH WOULD PERMANENTLY REMOVE AND CONVERT SOME CURRENTLY UNDEVELOPED OR VACANT LAND PARCELS TO DEVELOPED AREAS RESULTING IN A CHANGE OF LAND USE. IMPACTS TO COASTAL ZONE MANAGEMENT WERE ANALYZED IN ACCORDANCE WITH THE COASTAL ZONE

MANAGEMENT ACT, AND HAVE BEEN FOUND TO BE CONSISTENT WITH THE POLICIES OF NORTH CAROLINA'S COASTAL ZONE MANAGEMENT PROGRAM. COASTAL CONSISTENCY DETERMINATIONS WERE PREPARED AND ARE PENDING CONCURRENCE FROM THE NORTH CAROLINA DEPARTMENT OF THE ENVIRONMENT AND NATURAL RESOURCES DIVISION OF COASTAL MANAGEMENT.

AS FOR RECREATION, THERE WOULD BE AN INCREASED DEMAND FOR ON- AND OFF-BASE RECREATIONAL SERVICES. THE PREFERRED ALTERNATIVE WOULD RESULT IN PERMANENTLY REMOVING OR FRAGMENTING SOME FORESTS USED FOR HUNTING AT MARINE CORPS BASE CAMP LEJEUNE. HUNTING IS A MAJOR RECREATIONAL PASTIME AT THE BASE AND IS AVAILABLE IN DESIGNATED TRAINING AREAS AND IN OTHER MANAGED FORESTS THROUGHOUT THE INSTALLATION. THE LOSS OF A SMALL PORTION OF THIS AREA IS NOT ANTICIPATED TO HAVE MAJOR IMPACTS TO THE GAME POPULATION OR HUNTING OPPORTUNITIES.

FACILITY DEVELOPMENT ON- AND OFF-BASE WOULD SLIGHTLY ALTER THE CURRENT VISUAL RESOURCES, OR VIEWSHED. NEW FACILITIES ON THE INSTALLATIONS WOULD ADHERE TO ESTABLISHED CRITERIA TO MAINTAIN A UNIFORM MILITARY APPEARANCE. THE ADDITION OF NEW ROADS AND BRIDGES WOULD CHANGE THE EXISTING VIEWSHEDS, ALSO, BUT DESIGN AND INSTALLATION OF THESE ASSETS WOULD ADHERE TO ESTABLISHED CRITERIA TO MAINTAIN THE VISUAL INTEGRITY OF THE INSTALLATIONS AS MUCH AS POSSIBLE.

WITH RESPECT TO SOCIO-ECONOMICS, IMPACT FROM THE GROW

THE FORCE INITIATIVE WOULD BE PRIMARILY BE DUE TO THE POPULATION INCREASES. THE PROPOSED PERSONNEL WOULD INCREASE THE 2006 REGIONAL POPULATION OF ONSLOW, CRAVEN, AND CARTERET COUNTIES BY 6.1 PERCENT. BASED ON CURRENT DEMOGRAPHICS, IT IS LIKELY THAT ONSLOW AND CRAVEN COUNTIES WOULD RECEIVE THE MAJORITY OF THIS GROWTH.

INCREASED ANNUAL EARNINGS ARE ESTIMATED AT $380 MILLION FOR THE REGION FOR THE 9900 NEW ACTIVE DUTY AND CIVILIAN PERSONNEL. SECONDARY IMPACTS FROM THE GROWTH WOULD BE AN INCREASE IN INCOME TAXES - $19 MILLION IN FEDERAL TAX AND $18 MILLION IN STATE TAX. POPULATION INCREASES WOULD CREATE A DEMAND FOR OFF-BASE HOUSING IN ONSLOW COUNTY, AND TO A LESSER EXTENT IN OTHER COUNTIES. HOWEVER, THE CONSTRUCTION OF ADDITIONAL FAMILY HOUSING AND BACHELOR ENLISTED QUARTERS IS EXPECTED TO EVENTUALLY OFFSET SOME OF THIS DEMAND. ADDITIONAL ECONOMIC GAINS WOULD OCCUR FROM THE MULTI-YEAR CONSTRUCTION EFFORTS. CONSTRUCTION ACTIVITIES WOULD GENERATE APPROXIMATELY $4.1 BILLION UNDER THE PREFERRED ALTERNATIVE, AND APPROXIMATELY $1.6 BILLION UNDER ALTERNATIVE 3. THESE CONSTRUCTION ACTIVITIES WOULD ALSO CREATE TEMPORARY JOBS IN THE REGION.

IN THE AREA OF COMMUNITY SERVICES AND FACILITIES, UNDER THE PREFERRED ALTERNATIVE, THERE WOULD BE SHORT-TERM DEMAND AND STRAIN ON EXISTING ON-BASE FIRE, HEALTH, AND LAW ENFORCEMENT UNTIL THE ADDITIONAL PROPOSED FACILITIES TO

SUPPORT THESE SERVICES ARE CONSTRUCTED. INCREASED DEPENDENTS WOULD ALSO INCREASE ON-BASE DEMAND AND WAIT TIMES FOR CHILD CARE. MILITARY FAMILIES WOULD HAVE TO UTILIZE IN-HOME FAMILY CARE OR SEEK SERVICES OUTSIDE OF THE INSTALLATIONS UNTIL ADDITIONAL FACILITIES AND EXPANSIONS ARE CONSTRUCTED.

GROWTH IN SURROUNDING COMMUNITIES WOULD INCREASE DEMANDS FOR PUBLIC EDUCATION. MOST OF THE SCHOOLS IN ONSLOW COUNTY SCHOOL DISTRICT ARE CURRENTLY OVER OR NEAR CAPACITY, AND THE INCREASED GROWTH WOULD FURTHER STRAIN THE SYSTEM. AS ADDITIONAL HOUSING AND SCHOOLS ARE CONSTRUCTED ON BASE, THE IMPACT TO ONSLOW COUNTY SCHOOLS SHOULD BE REDUCED AND/OR STABILIZED.

WITH RESPECT TO TRAFFIC AND TRANSPORTATION, GROWTH IN THE SURROUNDING COMMUNITIES WOULD ADD COMMUTERS AND INCREASE TRAFFIC CONGESTION. CURRENTLY, BUSY INTERSECTIONS WOULD LIKELY EXPERIENCE DEGRADATION IN SERVICE UNTIL NEW ROADS AND ACCESS GATES ARE CONSTRUCTED UNDER ALTERNATIVE 2. FOR INSTANCE, THE NEW ENTRY GATE AND INTERNAL CONNECTOR ROAD AT MARINE CORPS BASE CAMP LEJEUNE WOULD REDUCE OFF-BASE TRAFFIC ON HIGHWAY 24 BY APPROXIMATELY 30 PERCENT. COMMUTER ROUTES FOR PERSONNEL LIVING IN THE TARAWA TERRACE AND CAMP JOHNSON AREAS WOULD ALSO SIGNIFICANTLY IMPROVE SINCE THEY WOULD NO LONGER HAVE TO LEAVE THE BOUNDARIES OF THE BASE TO CROSS NORTHEAST CREEK TO ACCESS THE CANTONMENT AREAS OF HADNOT POINT.

SLOCUM ROAD ON MARINE CORPS AIR STATION CHERRY POINT CURRENTLY RUNS THROUGH AN EXPLOSIVE SAFETY ARC ASSOCIATED WITH THE ORDNANCE STORAGE AREA. AS SUCH, THERE IS A RESTRICTION ON DAILY TRAFFIC ALLOWED TO USE THIS ROAD. TRAFFIC EXCEEDING THE RESTRICTION IS REROUTED THROUGH THE CITY OF HAVELOCK. THE PROPOSED REALIGNMENT OF SLOCUM ROAD WOULD ELIMINATE THIS RESTRICTION AND GREATLY IMPROVE TRAFFIC CONDITIONS ON AND OFF THE STATION.

UNDER ALTERNATIVES 3 AND 4, ON-BASE ROAD NETWORKS WOULD SUFFER AND DETERIORATE WITHOUT IMPROVEMENTS. CONGESTION AT THE MAIN GATE AND ALONG HIGHWAY 24 WOULD CONTINUE AND WORSEN WITHOUT THE NEW ENTRY GATE AND CONNECTOR ROAD AT MARINE CORPS BASE CAMP LEJEUNE.

IN THE AREA OF UTILITIES AND HAZARDOUS MATERIALS, THE GROWTH ON AND OFF THE INSTALLATIONS WOULD INCREASE THE CURRENT DEMAND FOR UTILITIES, SUCH AS POTABLE WATER, ELECTRICITY, AND TELECOMMUNICATIONS, AS WELL AS GENERATE ADDITIONAL WASTEWATER AND SOLID WASTE. THE PROPOSED UPGRADES AND IMPROVEMENTS TO UTILITY SERVICES AND INFRASTRUCTURE WOULD ELIMINATE CURRENT CAPACITY CONCERNS AT MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION NEW RIVER. THERE ARE NO CURRENT OR ANTICIPATED CAPACITY CONCERNS AT MARINE CORPS AIR STATION CHERRY POINT. DEMAND FOR UTILITY SERVICES IN THE ADJACENT OFF-BASE COMMUNITIES WOULD INCREASE; HOWEVER, THERE IS SUFFICIENT EXISTING CAPACITY TO SUPPORT THE INCREASED

DEMAND.

THE PROPOSED MULTI-YEAR, LARGE SCALE CONSTRUCTION EFFORT AT ALL THREE INSTALLATIONS WOULD INCREASE THE POTENTIAL RISK OF HUMAN EXPOSURE TO HAZARDOUS MATERIALS, TOXIC SUBSTANCES, AND HAZARDOUS WASTE. ALL CONSTRUCTION ON THE INSTALLATIONS WOULD BE CONDUCTED IN ACCORDANCE WITH APPROVED SAFETY PROCEDURES TO PROTECT THE WORKERS, AND BOTH ON- AND OFF-BASE POPULATIONS.

WITH RESPECT TO NOISE AND AIR QUALITY, TEMPORARY NOISE DISTURBANCES DUE TO THE MULTI-YEAR CONSTRUCTION EFFORT WOULD OCCUR IN THE IMMEDIATE VICINITY OF THE CONSTRUCTION SITES. THESE ACTIVITIES, HOWEVER, WOULD PRIMARILY OCCUR DURING NORMAL WORKING HOURS AND ARE NOT EXPECTED TO IMPACT THE ON- OR OFF-BASE COMMUNITIES.

INCREASED MARINE CORPS PERSONNEL AND DEPENDENTS MOVING TO SURROUNDING COMMUNITIES WOULD ADD TO THE CURRENT COMMUTER BASE. THIS GROWTH WOULD RESULT IN A MINOR, LONG-TERM INCREASE OF VEHICLE POLLUTANT EMISSIONS. THE USE OF CONSTRUCTION EQUIPMENT FOR THE PROPOSED PROJECTS WOULD TEMPORARILY INCREASE EMISSIONS AND WOULD BE MINOR, DISSIPATE RAPIDLY, AND NOT SIGNIFICANTLY AFFECT THE REGIONAL AIR QUALITY. THE AFFECTED COUNTIES ARE CURRENTLY ALL IN ATTAINMENT FOR ALL CRITERIA FOR POLLUTANTS.

WITH RESPECT TO NATURAL RESOURCES AND EARTH RESOURCES, CONSTRUCTION ACTIVITIES ON EACH INSTALLATION WOULD

TEMPORARILY DISTURB RESIDENTS AND NEARBY WILDLIFE. IT IS ANTICIPATED THAT THE MAJORITY OF THE WILDLIFE OCCUPYING THESE AREAS WOULD RELOCATE TO OTHER UNDEVELOPED PORTIONS OF THE INSTALLATIONS. SMALLER, LESS MOBILE SPECIES, HOWEVER, COULD BE LOST DURING LAND CLEARING ACTIVITIES, BUT THERE SHOULD NOT BE IMPACTS AT THE POPULATION LEVEL OF THOSE SPECIES.

NEW ROAD AND GATE CONSTRUCTION ON MARINE CORPS BASE CAMP LEJEUNE WOULD BISECT AN EXISTING FOREST RESULTING IN HABITAT FRAGMENTATION AND ADD A NEW ROAD MORTALITY HAZARD FOR WILDLIFE INHABITING THIS FOREST. HABITAT FRAGMENTATION WOULD DISRUPT WILDLIFE MOVEMENTS AND MIGRATION, DIVIDE EXISTING WILDLIFE POPULATIONS, AND PROHIBIT ACCESS TO THE NEW RIVER FOR ANIMALS UNWILLING TO CROSS THE NEW ROAD. IN ADDITION, THE NEW ROAD WOULD CREATE A NEW SOURCE OF NOISE DISTURBANCE FOR NEARBY WILDLIFE.

THE CONSTRUCTION OF BRIDGES AS PART OF THE ROAD PROJECTS AT MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION CHERRY POINT COULD POTENTIALLY IMPACT SEA TURTLES AND MANATEES. THE OCCURRENCE OF THESE SPECIES IS RARE AT THE PROPOSED BRIDGE LOCATIONS, HOWEVER, THE MARINE CORPS IS CONSULTING WITH THE U.S. FISH AND WILDLIFE SERVICE AND THE NATIONAL MARINE FISHERIES SERVICE TO ENSURE PROTECTION OF THESE SPECIES.

FOR EARTH RESOURCES, INCLUDING TOPOGRAPHY, GEOLOGY, AND SOILS, LAND CLEARING, GRADING, AND SHAPING WOULD

TEMPORARILY DISTURB AND EXPOSE LOOSE SOIL TO WIND AND RAIN EVENTS, CREATING AN EROSION RISK. A SITE SPECIFIC EROSION AND SEDIMENTATION CONTROL PLAN AND APPROPRIATE PERMITS WOULD BE DEVELOPED FOR EACH CONSTRUCTION SITE, AS NECESSARY, TO PROTECT THESE AREAS FROM EROSION AND SEDIMENTATION IMPACTS.

IN THE AREA OF WATER RESOURCES, AS A COOPERATING AGENCY, THE U.S. ARMY CORPS OF ENGINEERS HAS BEEN CLOSELY INVOLVED IN THIS NEPA PROCESS, AND CONTINUED COORDINATION AND CONSULTATION WITH THE CORPS OF ENGINEERS WOULD OCCUR THROUGHOUT THE CONSTRUCTION PERIOD. THE FINAL SITE DESIGN OF THE PROPOSED FACILITIES WOULD AVOID WETLAND AREAS WHERE PRACTICAL, BUT SOME DEVELOPMENT AT MARINE CORPS BASE CAMP LEJEUNE AND MARINE CORPS AIR STATION CHERRY POINT WOULD LIKELY HAVE SOME UNAVOIDABLE ADVERSE IMPACTS TO WETLANDS. SECTION 401 AND 404 PERMITS WOULD BE OBTAINED AS NECESSARY FOR PROJECTS THAT IMPACT WETLAND AREAS.

THE POTENTIAL IMPACT TO WETLANDS WOULD VARY WITH THE PREFERRED ALTERNATIVE AND ALTERNATIVE 3. THE PREFERRED ALTERNATIVE COULD POTENTIALLY IMPACT UP TO 125 ACRES OF WETLANDS AT MARINE CORPS BASE CAMP LEJEUNE AND UP TO 14.5 ACRES OF WETLANDS AT MARINE CORPS AIR STATION CHERRY POINT. THE REDUCED CONSTRUCTION EFFORT PROPOSED UNDER ALTERNATIVE 3 WOULD GREATLY REDUCE THE POTENTIAL FOR IMPACTING WETLANDS AT THESE INSTALLATIONS. UNDER THIS ALTERNATIVE, UP TO 3 ACRES OF WETLANDS AT MARINE CORPS BASE CAMP LEJEUNE AND UP TO 1

ACRE OF WETLANDS AT MARINE CORPS AIR STATION CHERRY POINT COULD BE IMPACTED. SINCE THERE IS NO CONSTRUCTION PROPOSED UNDER ALTERNATIVE 4, THERE WOULD BE NO IMPACT TO WETLANDS. CONTINUED ADHERENCE TO EXISTING MANAGEMENT PLANS, PERMIT REQUIREMENTS, AND BEST MANAGEMENT PRACTICES WOULD PROTECT NEARBY SURFACE WATER QUALITY FROM INCREASED STORMWATER RUNOFF AND SEDIMENTATION.

WITH RESPECT TO CULTURAL RESOURCES, THERE ARE THREE ARCHAEOLOGICAL SITES THAT OCCUR WITHIN OR NEAR PROPOSED CONSTRUCTION AREAS AT MARINE CORPS BASE CAMP LEJEUNE; HOWEVER, THE POTENTIAL IMPACT TO THESE SITES WOULD NOT BE SIGNIFICANT OR IMPACT THEIR ELIGIBILITY FOR THE NATIONAL REGISTER OF HISTORIC PLACES. ALSO, AT MARINE CORPS BASE CAMP LEJEUNE, THREE STRUCTURES WITHIN HISTORIC DISTRICTS AT THE BASE ARE PROPOSED FOR DEMOLITION UNDER THE PREFERRED ALTERNATIVE. MARINE CORPS BASE CAMP LEJEUNE IS CONSULTING WITH THE NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICE TO MINIMIZE ANY ADVERSE IMPACTS TO THESE RESOURCES. THERE WOULD BE NO IMPACTS TO CULTURAL RESOURCES AT EITHER OF THE AIR STATIONS.

THE COUNCIL ON ENVIRONMENTAL QUALITY REGULATIONS REQUIRE THAT FEDERAL AGENCIES EVALUATE CUMULATIVE IMPACTS OF THE PROPOSED ACTION WHEN COMBINED WITH OTHER PAST, PRESENT, OR REASONABLY FORESEEABLE ACTIONS REGARDLESS OF THE PROPONENT. RELEVANT PROJECTS FOR THE ANALYSIS INCLUDE OTHER

LARGE SCALE CONSTRUCTION PROJECTS AND THOSE THAT WOULD RESULT IN POPULATION GROWTH OR DEVELOPMENT IN THE REGION, LIKE THE TWO F/A-18 SQUADRONS AT MARINE CORPS AIR STATION CHERRY POINT AND THE MARSOC INCREASE AT MARINE CORPS BASE CAMP LEJEUNE, THAT WAS MENTIONED EARLIER.

FROM A CUMULATIVE PERSONNEL INCREASE, THIS TABLE PROVIDES A BREAKDOWN OF PROJECTED INCREASES OF ACTIVE DUTY, FORMAL SCHOOL STUDENTS, AND CIVILIANS AT EACH INSTALLATION AND A TOTAL FOR NORTH CAROLINA [SLIDE 27: CUMULATIVE PERSONNEL INCREASE]. WHEN THE PERSONNEL INCREASES ASSOCIATED WITH THE GROW THE FORCE INITIATIVE ARE ADDED TO THE OTHER ACTIONS OCCURRING AT MARINE CORPS BASE CAMP LEJEUNE, MARINE CORPS AIR STATION NEW RIVER, AND MARINE CORP AIR STATION CHERRY POINT, THE RESULT IS APPROXIMATELY 11,477 ADDITIONAL PERSONNEL AT THE THREE INSTALLATIONS. THIS REPRESENTS APPROXIMATELY A 21 PERCENT INCREASE AT MARINE CORPS BASE CAMP LEJEUNE, A 20 PERCENT INCREASE AT MARINE CORPS AIR STATION NEW RIVER, AND AN 11 PERCENT INCREASE AT MARINE CORPS AIR STATION CHERRY POINT. LIKE WITH THE GROW THE FORCE INITIATIVE, THESE ACTIONS WOULD ALSO HAVE CORRESPONDING INCREASES IN THE DEPENDENT POPULATIONS.

HERE IS A GRAPHICAL REPRESENTATION OF THE CUMULATIVE ACTIVE DUTY AND CIVILIAN PERSONNEL INCREASES AT THE THREE INSTALLATIONS [SLIDE 29: CUMULATIVE IMPACTS]. CUMULATIVE IMPACTS ARE PRIMARILY RELATED TO PERSONNEL GROWTH AND

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INCLUDE: INCREASED DEVELOPMENT PRESSURE AND CHANGES IN LAND USE, SUCH AS DEVELOPING CURRENTLY UNDEVELOPED OR UNUSED LAND; INCREASED DEMAND FOR UTILITIES, COMMUNITY SERVICES, RECREATIONAL SERVICES, AND HOUSING; INCREASED TRAFFIC AND POTENTIAL DEGRADATION OF SERVICE ON THE BUSIEST INTERSECTIONS; INCREASED NOISE FROM TRAINING ACTIVITIES; ADDITIVE ECONOMIC GAINS FROM DIRECT, INDIRECT, AND INDUCED EMPLOYMENT INCOME; AND ADDITIONAL TAX REVENUES FOR FEDERAL, STATE, AND LOCAL GOVERNMENTS. PAST, PRESENT, AND REASONABLY FORESEEABLE CONSTRUCTION AT THE THREE INSTALLATIONS WOULD RESULT IN: REDUCED NATURAL AREAS, WETLANDS, AND WILDLIFE HABITAT; INCREASED IMPERVIOUS SURFACES AND STORMWATER RUNOFF; AND TEMPORARY INCREASES IN POLLUTANT EMISSIONS. WITH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES, PERMIT GUIDELINES, AND SPECIFIC MITIGATION, NONE OF THE CUMULATIVE IMPACTS ARE ANTICIPATED TO BE SIGNIFICANT.

I WILL NOW TURN THE MEETING BACK OVER TO COLONEL WARD SO HE CAN PROCEED WITH THE PUBLIC HEARING PORTION OF THE MEETING.

JUDGE: THANK YOU, MR. BREWER. BEFORE PROCEEDING TO THE ORAL COMMENTING PORTION OF THIS HEARING, I WOULD LIKE TO REITERATE THAT ALL COMMENTS, WHETHER RECEIVED IN WRITING TONIGHT, SENT VIA THE U.S. POSTAL SERVICE, SUBMITTED ELECTRONICALLY AT THE PROJECT WEBSITE, OR PRESENTED ORALLY THIS EVENING, WILL BE CONSIDERED EQUALLY. PLEASE ENSURE THAT

ALL COMMENTS ARE SENT AND/OR POSTMARKED BY SEPTEMBER 8TH OF THIS YEAR FOR CONSIDERATION IN THE FINAL EIS. THE ADDRESSES TO SUBMIT COMMENTS ARE DISPLAYED HERE AND ALSO FOUND IN THE HANDOUT MATERIALS.

WE ARE NOW READY TO BEGIN RECORDING YOUR COMMENTS FROM THOSE WHO HAVE SIGNED UP TO SPEAK. IF THERE IS ANYONE WHO WISHES TO GIVE AN ORAL COMMENT THIS EVENING, BUT HAS NOT YET TURNED IN A SPEAKER REQUEST CARD, PLEASE DO SO AT THIS TIME. TO ENSURE THAT WE GET ACCURATE RECORDS OF WHAT EACH PERSON SAYS, PLEASE HELP ME RESPECT THE FOLLOWING RULES. FIRST, PLEASE SPEAK CLEARLY AND SLOWLY INTO THE MICROPHONE, STARTING WITH YOUR NAME AND ANY ORGANIZATION YOU MAY REPRESENT. THIS WILL ENABLE US TO HEAR WHAT YOU HAVE TO SAY, AND TO ENSURE THAT THE COURT REPORTER ACCURATELY AND FULLY CAPTURE YOUR COMMENTS. SECOND, EACH PERSON WILL HAVE THREE MINUTES TO SPEAK. THIRD, IF YOU HAVE A WRITTEN STATEMENT, YOU MAY TURN IT IN TO THE COURT REPORTER AND/OR YOU CAN READ IT OUT LOUD WITHIN THAT TIME LIMIT. FOURTH, PLEASE HONOR ANY REQUEST THAT I MAKE FOR YOU TO STOP SPEAKING IF YOU REACH THAT THREE-MINUTE TIME LIMIT. NOW, TO AID YOU IN KNOWING WHEN YOUR TIME IS ALMOST UP, A YELLOW CARD WILL BE HELD UP WHEN YOU HAVE ONE MINUTE LEFT. THIS SHOULD ALLOW YOU TO FIND A COMFORTABLE PLACE TO WRAP UP YOUR COMMENTS. LAST, A RED CARD WILL BE HELD UP WHEN YOUR THREE MINUTES HAVE ELAPSED. WE ASK THAT THE AUDIENCE REMAIN QUIET DURING THIS PROCESS SO

THAT THE COURT REPORTER CAN HEAR AND RECORD EACH PERSON'S COMMENTS. WE ARE NOW READY TO BEGIN.

AT THIS TIME, DO WE HAVE ANY SPEAKER REQUEST CARDS?

EIS TEAM MEMBER: WE DO NOT.

JUDGE: LADIES AND GENTLEMEN, IS THERE ANYONE HERE THAT WOULD LIKE TO SPEAK? IF SO, PLEASE RAISE YOUR HAND.

[NO RESPONSE]

JUDGE: ALL RIGHT, LADIES AND GENTLEMEN, WHAT I'M GOING TO DO AT THIS TIME IS RECESS. WE WILL RECONVENE AT APPROXIMATELY 7:50, OR SO, AND AT THAT TIME, IF THERE IS ANYONE THAT WANTS TO SPEAK YOU CAN DO SO, OR WE WILL GO AHEAD AND ADJOURN. DURING THE RECESS, IF ANY OF YOU CHANGE YOUR MIND, OR IF SOMEONE COMES IN THAT WOULD LIKE TO SPEAK, SIMPLY LET MYSELF KNOW, OR ONE OF THE REPRESENTATIVES KNOW, AND WE'LL COME BACK ON THE RECORD AND ALLOW THAT INDIVIDUAL TO SPEAK.

ALL RIGHT, AT THIS TIME WE'RE IN RECESS.

[THE PUBLIC HEARING RECESSED AT 7:05 P.M.]

[THE PUBLIC HEARING WAS CALLED TO ORDER AT 7:51]

JUDGE: WE WILL NOW GO BACK ON THE RECORD. LADIES AND GENTLEMEN, IS THERE ANYONE THAT WOULD LIKE TO MAKE A COMMENT FOR THE RECORD? IF SO, PLEASE SIMPLY RAISE YOUR HAND.

[NO RESPONSE]

JUDGE: VERY WELL. THIS CONCLUDES OUR EVENT FOR THIS

EVENING, AND THANK YOU FOR YOUR PARTICIPATION AT THIS PUBLIC HEARING.

[THE PUBLIC HEARING ADJOURNED AT 7:52 P.M.]

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STATE OF NORTH CAROLINA)
) C-E-R-T-I-F-I-C-A-T-I-O-N
COUNTY OF CRAVEN)

I, KENNETH L. DAUB, A COURT REPORTER AND NOTARY PUBLIC IN AND FOR THE AFORESAID COUNTY AND STATE, DO HEREBY CERTIFY THAT THE FOREGOING PAGES ARE AN ACCURATE TRANSCRIPT OF THE GROW THE FORCE PUBLIC HEARING HELD IN HOLLY RIDGE, NORTH CAROLINA ON AUGUST 20, 2009.

WITNESS, MY HAND, THIS DATE: AUGUST 27, 2009.

MY COMMISSION EXPIRES AUGUST 1, 2012.

/S/______________________________

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