

**NEW JERSEY ALTERNATIVE  
LONG-TERM NOURISHMENT STUDY**

**INTERIM FEASIBILITY PHASE**

**FY2004  
PROJECT MANAGEMENT PLAN**

**April 14, 2004**

**New Jersey Alternative Long-Term Nourishment Study  
Interim Feasibility Phase  
FY 2004 Project Management Plan**

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# **New Jersey Alternative Long-Term Nourishment Study Interim Feasibility Phase FY 2004 Project Management Plan**

## **1.0 INTRODUCTION**

### **1.1 Feasibility Study Executive Summary**

There are presently four Federally authorized beachfill projects constructed along the Atlantic coast of New Jersey (three within the Philadelphia District boundaries, and one within the New York District boundaries). An additional seven beachfill projects are scheduled for construction within the next five years. There is a critical need to develop and implement a regional, systematic approach for maximizing the efficiency of the New Jersey Shore Protection Program. The ultimate goal of the New Jersey Alternative Long-Term Nourishment (NJALTN) Study is to analyze and maximize New Jersey shore protection projects into a complete coastal system, and to institute improvements to:

- reduce amount of sand needed to maintain Atlantic coast NJ beaches
- reduce life-cycle costs
- reduce environmental impacts

The NJALTN Study will be conducted in cooperation with the objectives of USACE reorganization and business streamlining efforts including USACE 2012 and Project Management Business Process (PMBP), and with the objectives of existing and future USACE coastal program efforts including: the Regional Sediment Management Program (National and Division level); the National Shoreline Management Study; the National Coastal Mapping Program; the Section 227 Development and Demonstration Program; and the CENAD USACE Planning Center of Expertise in Hurricane and Storm Damage Reduction.

The feasibility phase of this study was planned and developed through coordination with US Army Corps of Engineers, Headquarters and the Philadelphia District, and the State of New Jersey Department of Environmental Protection (NJDEP). NJDEP is the non-Federal sponsor for this feasibility study. These feasibility study costs are shared 50%-50% between the Federal government and the non-Federal sponsor.

### **1.2 Feasibility Study Purpose & Description**

The New Jersey Shore Protection Study was authorized under resolutions adopted by the Committee on Public Works and Transportation of the U.S. House of Representatives and the Committee on Environment and Public Works of the U.S. Senate in December 1987. The resolutions support site-specific studies for beach erosion control, hurricane and storm damage protection and other related purposes for the entire 130-mile long Atlantic coast of New Jersey from Sandy Hook to Cape May Point.

A reconnaissance study associated with the NJ Shore Protection Study was performed to consider: a preliminary appraisal of costs, benefits and environmental impacts; estimate time and costs for the feasibility phase of the study; and assess the level of interest and support of non-Federal sponsors in the continued studies. This reconnaissance study was completed in September, 1990, and found that

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there is a federal interest to proceed to a feasibility phase study to fulfill the intent of the study authority and to conduct further studies for potential shoreline protection projects along the Atlantic coast of New Jersey. A feasibility cost sharing agreement was executed in December 2002, and is scheduled for completion in 2009.

At the inception of the reconnaissance study in 1987, it was impractical due to existing technologies to address the Atlantic coast of NJ in one comprehensive effort. More recently, due to the monitoring and improved understanding of project performance of constructed projects, greater technical knowledge of the New Jersey coast and advancements in coastal engineering knowledge will reinforce this proposed effort to address the Atlantic coast of New Jersey as a complete natural system.

The feasibility phase of the NJALTN will help to determine anticipated efficiencies of this regional, systematic approach by developing comprehensive beach, inlet and borrow area management strategies to efficiently manage New Jersey sand resources on a regional basis. Major program goals include the development of products both on a regional (Atlantic coast of New Jersey) and an individual project-level basis. Individual project-level products include the development of templates, recommendations, tools and methodologies which can be applied to individual prioritized beach nourishment projects. Regional-level products include the development of a coastal inventory and Geographic Information System (GIS) for all USACE shore protection projects along the Atlantic coast of New Jersey, and a regional sediment budget.

Six major project goals and products are presented below, and will be discussed in more detail in 'Section 2.0 Study Phase Description'.

- Coastal Geographic Information System (GIS) development
- Comprehensive Atlantic coast of NJ coastal process modeling database development
- regional sediment budget development for the Atlantic coast of New Jersey
- existing and alternative borrow area GIS database including environmental restraints, and borrow area management guidance for application at individual projects
- regional monitoring program improvements to better analyze and assess beach nourishment project performance, and application of recommendations to an individual project
- comprehensive beach, inlet and borrow area coastal planning tool and methodology guidance development and application at individual beach nourishment projects for improved performance

#### **1.3 Project Management Plan Purpose**

This FY2004 Project Management Plan (PMP) details the purpose, goals, scope, schedule, and budget of the NJALTN Feasibility Study in accordance with Engineering Regulation (ER) 5-7-1 and ER 1105-2-100. This PMP complements the FY2002 PMP, which considered a broad overview of the feasibility study, USACE and local sponsor obligations, and study costs for the duration of the feasibility study through 2009. This FY2004 PMP offers a detailed discussion of the:

- technical aspects of the feasibility study on a Phase-by-Phase basis

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- Project Delivery Team, Individual Technical Implementation Teams, and stakeholders
- study management/sponsor coordination plan
- summary of what project success looks like
- study costs for the project duration

Six major phases associated with this feasibility study which are discussed in detail in this PMP include:

- Regional coastal processes enhanced understanding
- Regional sediment budget development
- Borrow area inventory and assessment
- Data archive and distribution (GIS)
- Regional monitoring/data collection program assessment and enhancement
- Comprehensive beach, inlet and borrow area management plan development

This PMP has been developed by the Philadelphia District of the U. S. Army Corps of Engineers in conjunction with the New Jersey Department of Environmental Protection (NJDEP), which is the study sponsor. This PMP will serve as the basis for negotiations between the Philadelphia and New York Districts, and the NJDEP.

**1.4 Project Delivery Team**

Introduction

The Philadelphia District’s Project Delivery Team (PDT) Core Group has been established to provide overall guidance and oversight, and make management level decisions to facilitate project goals. Some of these members will be the technical ‘liaison’ for Individual Technical Implementation Teams. Technical Implementation Teams have been established to develop technical products and provide technical support and guidance for each Phase of the study.

The Project Delivery Team (PDT) Core Group includes:

<u>Name</u>	<u>Organization</u>	<u>Responsibility</u>
J. Bailey Smith	CENAP-PL-PC	Project manager
Jeff Gebert	CENAP-PL-PC	Chief, Coastal Planning Section
Beth Brandreth	CENAP-PL-E	Biologist
Monica Chasten	CENAP-EC-H	Engineer, Regional monitoring/data collection program phase liaison
Keith Watson	CENAP-EC-MC	Engineer
Randy Wise	CENAP-EC-H	Engineer, Regional coastal processes Modeling phase, and Sediment budget phase liaison
Dan Kelly	CENAP-EC-DG	Engineer, Borrow area inventory and Assessment phase liaison
Cam Chasten	CENAP-EC-DC	Chief, Civil & Structural Design Section
Paula Retzler	CENAP-OP-TN	Engineer

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Tim Rooney	CENAP-EC-CT	Engineer
Ginny Jedwabney	CENAP-OP-PM	Program Analyst
Lynn Bocamazo	CENAN-EN	Engineer

Technical Implementation Teams for each Study Phase include:

Regional Coastal Process Modeling/Sediment Budget

Randy Wise	CENAP-EC-H	Engineer, Technical liaison
Rob Lowinski	CENAP-EC-H	Engineer
Keith Watson	CENAP-EC-MC	Engineer
Lynn Bocamazo	CENAN-EN	Engineer

Data Archive and Distribution

Beth Adams	CENAP-PL-F	Geographer
Rob Lowinski	CENAP-EN-H	GIS Architecture, functionality, end products, tools development
Colleen Rourke	CENAP-IM-I	Information management
J. Bailey Smith	CENAP-PL-PC	Coastal Planner
Joe Scolari	CENAP-OP-TS	Engineer
Jeff McAleer	CENAP-OP-TS	Engineer
Diane Rahoy	CENAN-EN-HC	Engineer
Gary Ayanian	CENAP-EC-MC	Engineer

Borrow Area Inventory & Assessment

Dan Kelly	CENAP-EC-DG	Geotechnical Engineer
Rob Lowinski	CENAP-EN-H	Engineer
Andy Lawrence	CENAP-PL-PC	Engineer
Chris Rasmussen	CENAN-EN-HC	Engineer

Environmental Resources Inventory & Assessment

Beth Brandreth	CENAP-PL-E	Biologist
Jerry Pasquale	CENAP-PL-E	Biologist
Steve Allen	CENAP-PL-E	Biologist
Robert Dunn	CENAP-PL-E	Archeologist
Mark Burlas	CENAN-PL-EA	Wildlife Biologist

Regional Monitoring/Data Collection Program Assessment and Enhancement

Monica Chasten	CENAP-EC-H	Engineer, liaison
Randy Wise	CENAP-EN-H	Engineer
Rob Lowinski	CENAP-EN-H	Engineer
Keith Watson	CENAP-EC-MC	Engineer
Joe Scolari	CENAP-OP-TS	Chief

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Bill Birkemeier	ERDC CHL FRF	Engineer
Diane Rahoy	CENAN-EN-HC	Engineering

Comprehensive Beach, Inlet and Borrow Area Management Plan Development

Jeff Gebert	CENAP-PL-PC	Section chief
Rob Lowinski	CENAP-EN-H	Engineer
Randy Wise	CENAP-EN-H	Engineer
Keith Watson	CENAP-EC-MC	Engineer
J. Bailey Smith	CENAP-PL-PC	Planner
Bernie Moore	Private Consultant	Engineer
Lynn Bocamazo	CENAN-EN	Engineer

Note: Additional members of this Phase will include Project Manager's of individual projects as this phase is being performed.

CENAN Contacts

Anthony Ciorra	CENAN-PP-D	Program management
Tom Pfeiffer	CENAN-PL-F	Coastal planning
Donald Cresitello	CENAN-PL-F	Coastal planning
Lynn Bocamazo	CENAN-EN	Engineering
Diane Rahoy	CENAN-EN-HC	Engineering
Chris Rasmussen	CENAN-EN-HC	Borrow area
Mark Burlas	CENAN-PL-EA	Wildlife Biologist

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The following potential non-Army Corps of Engineers Stakeholders have been identified:

<u>Organization</u>	<u>Responsibility</u>	<u>Name</u>
<b>New Jersey Department of Environmental Protection</b>		
Bureau of Coastal Eng	Engineering	John Garafalo/Gene Keller
Office of Coastal Planning	Coastal planning	Mark Mauriello
Division of Fish and Wildlife	Fisheries	Andy Didun
Land Use Regulation Program	Envir. regulations	Helen Owens
Shellfisheries	Fisheries	Jeff Normant
Historic Preservation Office	Cultural preservation	Deborah Fimble
Geological Survey	Borrow area (State)	Jane Uptegrove
<b>Primary Stakeholders</b>		
NOAA/NMFS	Fishery biology	Anita Riportella
New Jersey Sea Grant	Outreach	Michael Weinstein
Minerals Management Service	Borrow area (federal)	Roger Amato
USFWS: Pleasantville, NJ	Aquatic vegetation	Carlo Popolizio
USFWS: Pleasantville, NJ	Endangered Species	Annette Scherer
USDA NRCS	Coastal resources/dune vegetation	William Skaradek
USEPA	Environmental	To be determined
<b>Local Stakeholders – Sandy Hook</b>		
National Park Service: Sandy Hook	Monmouth County beachfill	Russ Wilson
<b>Local Stakeholders – Cape May</b>		
USCG-Cape May: Loran Support Unit	Engineering	Jeff Hudkins
USCG-Cape May: Training Center	Engineering	Tom Peacock
USFWS: Cape May Wildlife Refuge	Constituent	Howard Schlegel
Cape May City	Mayor	Jerome E. Inderwies
Cape May Point	Mayor	Malcolm Fraser
<b>Local Stakeholders – Ocean City</b>		
Ocean City Township	Mayor	Henry S. Knight
Ocean City Township	Public Works Director	George Savastano

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**2.0 STUDY PHASE DESCRIPTIONS**

**Introduction**

The ALTN study has been categorized into six individual study Phases as discussed below. Tasks and efforts have been developed for each of these Phases and are developed in detail for the FY04-05 period. Tasks and efforts are developed in less detail for the FY06-FY09 period, but will be further developed for this period through regularly scheduled team meetings, and will be presented in future PMPs.

**2.1 Regional Coastal Processes Enhanced Understanding**

The ultimate goal of this phase is to develop a comprehensive understanding of regional coastal processes for the Atlantic coast of New Jersey through a thorough review and assessment of Atlantic coast of NJ coastal process models, including the coordination between CENAP and CENAN. An emphasis will be placed on garnering an enhanced understanding of longshore sediment transport rates, and natural sediment bypassing at jetties and inlets, and the relationship of these coastal processes to erosional ‘hot-spots’ at individual priority projects.

Coastal processes models and analysis techniques will be applied to better identify and understand regional sand transport mechanisms and to evaluate project performance based on regional sand management considerations. Coastal processes information will be correlated to observed geomorphological changes to quantify cause and effect, including the relationships between waves, currents, winds, water levels and sediment transport to shoreline evolution and inlet and bay conditions.

Models will first be applied at individual prioritized projects to be identified in the near future to verify predictive capabilities in comparison to actual project performance. Verified models will then be applied to predict future project performance and provide information to develop integrated regional management plans for existing and future projects along the Atlantic coast of New Jersey. This effort will be coordinated with individual project modeling efforts.

Data inputs to models and analyses will include hindcast waves and water levels, historical information on sediment transport and coastal geomorphology, project monitoring data, and new field data to fill information gaps. Project performance parameters that will be evaluated include shoreline evolution, changes in sand volume within project bounds and at adjacent areas, and project renourishment requirements. Sediment transport processes at inlets will be evaluated to assess geomorphological changes of the inlet channel and flood and ebb shoals, borrow area infilling rates, and inlet bypassing processes.

The following tasks have been prioritized and will be performed associated with this Study Phase.

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**Task I: Create Comprehensive Atlantic coast of NJ Coastal Process Modeling Database**

Efforts to be included consider:

- Waves and Water Levels – Compile and evaluate OCTI Wave and Water Level Database for the entire New Jersey open ocean coast. Obtain and evaluate for applicability the updated WIS wave and wind data performed by CHL (Q404)
- Currents - Compile recent current measurement data and models within the District for the entire New Jersey open ocean coast. Identify potential data gaps and the need for current meters to be deployed in the field (Q404)
- Sediment Transport - Compile and create a database of previously published sediment transport rates for the coastal projects for the entire New Jersey open ocean coast. Update the rates using the compiled and updated wave database (Q404)
- Borrow Areas – Compile and create database of borrow area bathymetry to support model assessment of borrow area impacts (Q404)

**Task II: Develop Numerical Modeling System based on Coastal Process Modeling Database Development**

- Develop a numerical modeling system for individual prioritized projects utilizing existing data within the District and ongoing data collection at individual projects. Data gaps in the input for the numerical modeling system will be identified (Q405)

**Task III: Erosional Hotspot Modeling and Assessment**

- Perform a modeling study of coastal processes to assess and determine erosional hotspots and the causes of long term erosion and storm damage of the shoreline for individual prioritized projects (FY06)

**Task IV: Coastal Process Modeling Database Enhancement**

- Incorporate Coastal Process Modeling Database Developed in Task I into State-of-the-Art Modeling Package such as CEDAS and GIS-based coastal models, tools and applications (FY07)

**Task V: Develop Model Application Guidelines to Support Regional Management of New Jersey's Beach Nourishment Projects**

- Enhance coastal processes modeling to determine existing and future sediment transport conditions, storm impacts, and to evaluate impacts of alternative solutions at individual projects (FY07)
- Develop framework and procedures for using modeling system to address regional project management issues and to improve efficiency of renourishment activities. Integrate modeling framework into the comprehensive management plan described in Phase 2.6: Comprehensive Beach, Inlet and Borrow Area Management Plan Development (FY08).

In summary, the following products will be developed associated with this Study Phase:

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- Create comprehensive Atlantic coast of NJ coastal process modeling database of waves and water levels, currents, sediment transport and borrow areas (Q404)
- Develop a numerical modeling system for individual projects (Q405)
- Model and assess erosional hotspots and causes of long-term erosion for individual projects (FY06)
- Coastal Process Modeling Database Enhancement (FY07)
- Enhance coastal processes modeling to determine existing and future sediment transport conditions, storm impacts, and to evaluate impacts of alternative solutions at individual projects (FY07)
- Develop model application guidelines for regional project management (FY08)

**2.2 Regional Sediment Budget Development**

A regional sediment budget for the Atlantic coast of New Jersey will be developed through coordination between CENAP and CENAN utilizing historic monitoring data and computer modeling results. This effort will be based on the development of a regional coastal processes model database, and the modeling system and erosional hotspot inventory discussed in the 'Regional Coastal Processes Enhanced Understanding Phase' above. The regional sediment budget, used in conjunction with the coastal processes models, will be important tools to evaluate project performance, address impacts of projects on adjacent areas, evaluate alternatives, and establish a comprehensive sediment management plan.

The following tasks have been prioritized and will be performed associated with this Study Phase.

**Task I: Regional Sediment Budget Development**

- Review existing data and develop database of existing sediment budget and sediment transport rates developed for existing Atlantic coast of NJ projects for the Atlantic coast of New Jersey. Identify any data gaps that may exist for future data collection and numerical modeling efforts (Q405)
- Review existing data and develop database of existing inlet sediment bypassing rates for the Atlantic coast of New Jersey. Identify potential data gaps. Review existing data to determine if rates can be updated or if additional data requirements are needed (Q405)
- Develop a regional sediment budget for the Atlantic Coast of New Jersey using the Sediment Budget Analysis System (SBAS) computer program. This sediment budget should ultimately help in better assessing and predicting sediment sources, sinks (loss mechanisms) and pathways, beachfill migration, and impacts to areas adjacent to projects (FY07)

This budget should employ the PC-based SBAS. This modeling system was developed to document existing sediment-management practices, and to provide a uniform platform from which to forecast consequences of planned changes to existing procedures. The system has been applied on a regional scale, covering hundreds of kilometers and including several managed inlet systems and a range of engineering activities on adjacent lands and within the waterway systems.

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An effort should be made to reference and become familiar with the techniques used in previous SBAS models such as for the South Shore of Long Island, the east coast of Florida, and the Florida panhandle spanning the states of Florida and Alabama which have incorporated multiple beach fill and dredging events.

In summary, the following products will be performed associated with this Study Phase.

- Develop database of existing sediment budgets and sediment transport rates (Q405)
- Review existing data and develop database of existing inlet sediment bypassing rates for all Atlantic coast of New Jersey inlets (Q405)
- Develop a regional sediment budget for the Atlantic coast of New Jersey (FY07)

#### **2.3 Data Archive and Distribution**

The ultimate goal of this phase is to develop a coastal GIS database which serves as an archive for all CENAP coastal data (future discussions will be held between CENAP and CENAN to discuss the possibility and complexity of merging CENAP and CENAN GIS data). This GIS provides scientists and engineers with an interface to hydrographic, topographic, photogrammetric, and historic dredge material data which can be distributed to stakeholders and the general public. This GIS will address the data management and data analysis requirements of the NJALTN and Regional Sediment Management (RSM) studies.

RSM requires the capability for stakeholders in management decisions to explore the broad spatial and temporal impacts of potential management actions. A GIS with specialized applications will be developed to provide baseline information for regions including hydrographic and topographic data, shoreline position, aerial and oblique photography, dredging records, nautical charts, borrow area character and inventory, and other data regarding regional utilities, infrastructure, and land use. Customized GIS applications have been and will be developed to retrieve pertinent hydrologic information, to extract dredging information from district databases via reporting tools, to compare current beach profile data to historical data, and to create bathymetric surfaces to compute volume changes. The GIS will also incorporate existing technology in regards to numerical models.

Optimally, this GIS will be populated on an ongoing, consistent basis with all future CENAP (and potentially CENAN) coastal information. The leveraging of funds between the NJALTN and individual projects will help facilitate the development of such a GIS, and is a topic of initial discussion associated with this Task.

A more detailed description of tasks associated with this Study Phase can be found at [\\Nap-fs1ph\CENAP-PL\pl-p\CoastalPlanning\\_PL-PCALTN\GIS\\_Planning\\_Docs\GIS\\_Work\\_Proposal.doc](\\Nap-fs1ph\CENAP-PL\pl-p\CoastalPlanning_PL-PCALTN\GIS_Planning_Docs\GIS_Work_Proposal.doc)

The following tasks have been prioritized and will be performed in this Study Phase.

Task I: Coastal Inventory Development

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- Develop inventory of all digital (and eventually analog) coastal data for selected critical CENAP coastal projects. The initial effort has included the development of an inventory for coastal data for the Ocean City, Cape May and Barnegat Inlet projects back to 1990 (Q404). This inventory will be coordinated with the following sections: Coastal Planning, Surveys, Geotechnical, Environmental, Civil and Structural Design, Economics, Civil Works Project Management, and Hydrology and Hydraulics.

**Task II: Coastal GIS Development**

- ArcInfo upgrade (v. 8.3) and annual maintenance contract (Q204)
- Develop GIS Structure – Develop GIS Structure including establishing data standards and conventions for current in-house applicable data and future data, based on Mobile District efforts (Q404)
- Research state-of-the-art coastal GIS technology regarding coastal RSM applications (Q204)
- Populate GIS/ArcMap with existing datasets for OC, CM, and BI including: (Q305)
  - Comprehensive NJ base map with several layers
  - Digital aerial orthophotography
    - collected in 1998/1999, May 2002 (Aerial Express), October 2002, and October 2003.
    - 1995 and 1997 from NJ Geographic Information Network
    - CENAP scanned hardcopy historical aerial photographs
  - Shorelines based on orthophotographs
    - historical shoreline database (from NOAA and NJDEP)
    - NJDEP is digitizing shorelines from aerial photography for the period prior to 1996.
  - Bathymetric and offshore surveys
  - Coastal process data (waves, water levels, currents and tides)
  - Borrow area data including locations, cores, historic dredging quantities (discussed in more detail in Section 2.4)
  - Environmental data including cultural, architectural and biological data (discussed in more detail in Section 2.4)
  - Topographic beach profile surveys

**And of secondary importance:**

- Coastal structure inventory data
  - Social and economic data
  - Cultural/real estate/demographic data
- Continue populating coastal GIS database with additional CENAP (and potentially CENAN) individual projects based on an analysis of environmental, borrow area and inlet conditions, problems and needs. This effort will also consider large-scale monitoring programs such as the NJDEP quarterly beach profile survey program performed by Richard Stockton College (FY06).

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Task III: Outreach and Reporting

- Membership in NJ Geographical Information Network (NJGIN)(Q304)
- Attend CENAD RSM GIS workshop and present progress-to-date and (Q404)

Task IV: Metadata Standards (Q205)

- Develop metadata standards for all future contracted projects involving surveying efforts. An effort for requesting surveying metadata in contracts is presently ongoing.
- Participate/assist in the development of metadata standards for Scope of Works involving environmental, geotechnical, hydrology and hydraulics efforts. Developing environmental a metadata request will be a first effort
- Participate/assist in the development of metadata standards for Indefinite Delivery Contracts with Bob Bense

In summary, the following products will be performed associated with this Study Phase.

- ArcInfo upgrade (v. 8.3) and annual maintenance contract (Q204)
- Research state-of-the-art coastal GIS technology regarding coastal RSM applications (Q204)
- Membership/become partner in NJ Geographical Information Network (NJGIN)(Q304)
- Attend CENAD RSM GIS meeting and present progress-to-date and gameplan (Q404)
- Coastal inventory development (Q404)
- Develop GIS Database structure based on Mobile District efforts (Q404)
- Develop metadata standards (Q205)
- Populate GIS/ArcMap with existing datasets for OC, CM, and BI (Q305)
- Develop coastal GIS database of additional CENAP (and potentially CENAN) individual projects (FY06).

#### **2.4 Borrow Area Inventory and Assessment**

The first of three goals of this phase is to populate and create a GIS with comprehensive borrow area data for both State and Federal waters. This GIS database will help to assess borrow areas with respect to location, capacities, historic dredging quantities, bathymetric changes, geotechnical analyses (including vibracores and grain size analyses), survey and environmental (cultural, archaeological and biological) information. This GIS would serve as the central repository for all data related to all existing CENAP borrow area-related data, and would be populated on an ongoing, consistent basis with all future borrow area information (ongoing discussions will be held between CENAP and CENAN to discuss merging CENAP and CENAN GIS data).

A second goal is to assess borrow area impacts from USACE dredging for shore protection projects. This effort will help to make recommendations regarding dredging practices for optimal maintenance of the borrow area over time. For instance, dredging at ebb or flood shoal extremities where periodic erosion occurs, or at offshore ridges or swales might be considered. Similar recommendations could

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be considered to result in the least environmental impact to the borrow area which could be shared with environmental resource agencies.

A third goal will assess the impact on environmental resources of using borrow areas as a sediment source for beach nourishment projects. Monitoring data will be assembled and subsequently analyzed where appropriate to demonstrate that borrowing sand does not have/has less of a significant impact on environmental resources than previously determined. This information can be discussed during close coordination with stakeholders to reduce environmental regulation hurdles and constraints on the federal and state levels to nourish beaches, and to develop an acceptable approach for using a site that minimizes environmental impacts.

Some specific efforts associated with this environmental resources goal include: the development of a GIS and management tools for use by federal, state and local entities to better assess, and understand the regulations and implications of borrowing sand for beach nourishment projects; the development of a National Environmental Policy Act (NEPA) document made available to the public which addresses the environmental impacts and benefits associated borrowing sand; the comparison of pre-/post-construction environmental resource data with dredging records over time in order to perform impact assessments and compare the changes of bathymetry with biological indicators; the development of environmental metadata standards to ensure future data can be placed in a GIS for comparison with other datasets, and; the development of management guidance and procedures for addressing environmental resource concerns at future beach nourishment projects.

A field data collection Task of this Phase may be necessary to complement existing borrow area data in State and Federal waters with more comprehensive data. Much of this additional data may be available at different resource agencies which will be determined through various workshops described below. The leveraging of funds between this project and individual projects would be helpful to perform borrow area field data collection efforts. These field efforts will use a combination of vibracoring, sub-bottom profiling, and hydrographic surveying (bathymetry), and will help to perform alternative borrow material compatibility analysis.

Three products associated with this Phase include:

- prioritize borrow areas for potential use with respect to historic use, existing and future sediment availability, and cumulative impacts on an individual project basis for the Atlantic coast of New Jersey
- the development of a borrow area master plan template and the application of that borrow area master plan template to an individual project
- close coordination with environmental stakeholders to facilitate reduced environmental regulations and constraints associated with the borrow sand for beach nourishment projects along the Atlantic coast of NJ.

The following tasks have been prioritized and will be performed associated with this Study Phase.

Task I: Borrow Area GIS Database Development

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- Populate a borrow area database (i.e. Access or excel) for prioritized CENAP (OC, CM and BI) (and potentially CENAN) coastal projects including borrow area location, capacities, historic dredging surveys and quantities, geotechnical analyses (including vibracores and grain size analyses) and survey data (Q404).
- Populate and develop a GIS with borrow area location, capacities, historic dredging quantities, geotechnical analyses (including vibracores and grain size analyses), survey, and environmental information for prioritized projects (Q305)
- Convene Workshop with CENAP, CENAN, NJDEP, New Jersey and Delaware Geological Surveys, and MMS to discuss progress-to-date, specific geotechnical (location and capacities), and GIS aspects of State and Federal borrow areas, and the dissemination/data sharing measures (Q405)
- Enhance borrow area GIS with NJ and DE Geological Survey and NJDEP, and MMS GIS borrow area. The completion date of this task will be dependent upon workshops and data sharing facilitation, and is scheduled for FY06.

**Task II: Environmental Resources Inventory & Assessment**

- Create environmental metadata standards/format for future data collection efforts that adheres to previously developed metadata standards (Q105)
- Develop and populate borrow area environmental resource database including environmental (cultural, archaeology and biological) data for all CENAP (and potentially CENAN) coastal projects. Data types to consider include benthic reports, cultural surveys, sea turtle monitoring, fishery habitat reports, piping plover reports etc. Prioritized projects include Ocean City, Cape May and Barnegat Inlet (Q205).
- Convene Workshop with CENAP, CENAN, MMS, USFWS, NJDEP, NMFS and USEPA to discuss progress-to-date, and environmental regulations (cultural, archaeology and biological) associated with USACE beach nourishment projects. Some specific USACE recommendations should be brought to this workshop (Q405)
- Develop NEPA document to address the environmental impacts and benefits associated with borrowing sand. This document would include sections including: existing project conditions; purpose and need for the project; alternatives to the existing project; and impacts to the project associated with alternatives (FY07)
- Develop borrow area environmental impact assessments to determine biological recovery for individual areas using pre- and post-construction monitoring data (FY07)
- Develop management guidance, tools and procedures addressing environmental resource concerns associated with borrowing sand for application at individual future CENAP shore protection projects (FY07). This task will be integrated into the comprehensive management plan described in Task VI of this Phase and Phase 2.6: Comprehensive Beach, Inlet and Borrow Area Management Plan Development.

**Task III: Economic Assessment (FY06)**

- Perform economic analyses to determine cost/benefit ratios for borrow areas for individual projects. A comparison will be made between using borrow areas located in State and Federal waters

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Task IV: Borrow Area Modeling and Impact Assessment (FY07)

- Perform a modeling study (wave refraction, shoaling, shoreline/beach profile change) of different borrow area dredging scenarios to determine least-impact dredging areas for individual prioritized projects
- Perform geomorphic study of sand body/ebb shoal evolution to determine least-impact dredging areas

Task V: Borrow Area Master Plan (FY08)

- Develop Borrow Area Master Plan template and recommendations for implementation on an individual project basis
- Develop Borrow Area Master Plan for one or more prioritized projects

In summary, the following products will be performed associated with this Study Phase.

- Borrow area database (i.e. Access or excel) population (Q404)
- Create environmental metadata standards/format for future data collection efforts that adheres to previously developed metadata standards (Q105)
- Borrow area environmental resource database development and population (Q205)
- Borrow area GIS development (Q305)
- Convene Workshop with CENAP, CENAN, NJDEP, New Jersey and Delaware Geological Surveys and MMS to discuss progress-to-date, specific geotechnical (location and capacities), and GIS aspects of State and Federal borrow areas, and the dissemination/ data sharing measures (Q405)
- Convene Workshop with CENAP, CENAN, MMS, NJDEP, NMFS, USFWS and USEPA to discuss environmental considerations (cultural, archaeology and biological) associated with USACE beach nourishment projects (Q405)
- Perform economic analyses to determine cost/benefit ratios for borrow areas for individual projects. A comparison will be made between using borrow areas located in State and Federal waters (FY06)
- Enhance borrow area GIS with NJ and DE Geological Survey and DEP, and MMS GIS borrow area (FY06)
- Develop NEPA document to address the environmental impacts and benefits associated with borrowing sand (FY07)
- Perform a modeling study (wave refraction, shoaling, shoreline/beach profile change) of different borrow area dredging scenarios to determine least-impact dredging areas for individual prioritized projects (FY07)
- Perform geomorphic study of sand body/ebb shoal evolution to determine least-impact dredging areas (FY07)
- Develop borrow area environmental impact assessments to determine biological recovery for individual areas/projects using pre- and post-construction monitoring data (FY07)
- Develop management guidance, tools and procedures addressing environmental resource concerns associated with borrowing sand for application at individual future CENAP shore protection projects (FY07).

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- Borrow Area Master Plan template and recommendations (FY08)
- Borrow Area Master Plan for one or more prioritized project (FY08)

**2.5 Regional Monitoring/Data Collection Program Assessment and Enhancement**

The primary goal of individual project monitoring programs is to assess project performance and potential modifications. Project performance is assessed based on the collection and analysis of field data including digital aerial orthophotography, shoreline mapping, beach profile data, sediment and biological sampling, coastal processes measurements (waves and water levels), and bathymetric surveys of inlet channels, ebb/flood shoals, and offshore sand bodies.

The ultimate goal of this phase is to coordinate with and supplement the USACE CENAP coastal monitoring program to improve shore protection project data collection methodologies and construction techniques. These efforts will help to reduce the amount of sand needed, life-cycle costs, and environmental impacts to beach nourishment projects.

The four main goals associated with this Phase include:

- Develop and implement improved data collection methodologies to enhance individual project monitoring programs;
- Develop project construction techniques and guidelines to improve individual project performance;
- Develop project performance planning and management tools and tracking databases including the CENAP coastal project scheduling tool, and;
- Implement a regional (Atlantic coast of New Jersey) long-term monitoring program in order to manage all New Jersey beach nourishment projects as a system

The NJALTN Study will coordinate with and supplement the USACE CENAP coastal regional monitoring through three tasks discussed below.

**Task I: Develop Methodologies for Improved Data Collection**

Data collection methodologies are being assessed, improved and implemented at individual beach nourishment and tidal inlet projects on an ongoing basis through the existing USACE CENAP coastal regional monitoring program. The NJALTN Study will complement this effort by developing specific improved data collection methodologies and technologies, and participating in field data collection efforts to support their development. These efforts will help to more accurately quantify sediment movement over the life of a shore protection project in more efficient ways than used presently.

Efforts associated with Task I include, but are not limited to:

- Develop and field-test sediment tracer methodology and consider improved technologies to develop guidelines for application at future individual projects. This effort will help to determine the sediment transport patterns and implications on high-erosion areas such as ‘hot spots’, and will consider modeling applications addressed in Phase 2.1 Regional Coastal Processes Enhanced Understanding (Q205)

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- Perform field test and document ATV technology for use along regional shoreline and for pre-/post-beach nourishment and -storm surveying and analyses (Q205)
- Develop sediment sampling technology and program at inlets and borrow areas to better document sediment compatibility for beach nourishment projects (Q405)
- Investigate additional data collection efforts (wave/current/water level gauges) to determine if cost effectiveness and data-collection efficiency can be achieved on an individual project or regional level (Atlantic coast of New Jersey) basis (Q405)

Task II: Develop project construction techniques and guidelines to improve individual project performance

Efforts associated with Task II include:

- Assess and categorize individual inlets for potential sediment bypassing/backpassing and maintenance modifications including dredging, weirs, deposition basins etc. (Q304)
- Evaluate and modify existing dune design performance including dune slope/cross section, aeolian, vegetation, and snow fencing concerns to enhance shore protection and habitat qualities of constructed dunes (Q305)
- Review and analyze past performance of design beachfill templates used in the District (FY07)

Task III: Develop project performance planning and management guidance, tools and tracking databases

Project performance planning and management guidance, tools and tracking databases will be developed to enhance the USACE capabilities to monitor and assess project performance on an individual basis. These databases will be maintained on an ongoing basis and will be used to supplement the development of a GIS discussed in Phase 2.3: Data Archive and Distribution. The end product of this Task is to develop and implement a regional (Atlantic coast of New Jersey) long-term monitoring program in order to manage all New Jersey beach nourishment projects as a system.

Efforts associated with Task III include:

- Develop a database of statewide historical and current federal and local beachfill projects to be updated each year. This effort will review and analyze statistics of sand quantities placed for nourishment purposes. The possibility of making this interactive with SBAS will be considered (Q404)
- Develop a 'Beach Nourishment Project Monitoring Database' and 'Scheduling Tool' to consider: data collection program specifics such as data type, frequency, extent and timeline; survey requirements; future nourishment (and mobilization/demobilization) schedule; contract numbers, and; financial/funding status. This database would be maintained on an ongoing basis and would act as a tool to help schedule nourishment projects on a regional, rather than, individual, basis. This effort will also include the development of a 'Beach Nourishment Project History Database' to summarize all

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critical historical information regarding historical beach nourishment projects including: quantities, dates, dredging specifics, contract numbers and contractors (Q105)

- Develop a financial management tool to consider benefit/cost ratios associated with improved construction and monitoring techniques. A goal should be considered to reduce the unit cost of a beach nourishment project by a specific value per cubic yard (FY06)
- Implement a regional (Atlantic coast of New Jersey) long-term monitoring program in order to manage all New Jersey beach nourishment projects as a system (FY08)

Task IV: Implement findings at one or more sites for improved project performance

Specific enhancements to individual beach nourishment and inlet projects including improved data collection methodologies addressed by the USACE CENAP coastal monitoring program and in Task I above will be implemented to existing, and eventually to additional projects in the future. Ongoing projects with developed monitoring programs which could benefit from the development of advanced monitoring and construction techniques include Ocean City (Peck Beach), Absecon Island, Cape May City, and Seven Mile Island. Potential future projects include Lower Cape May Meadows, Brigantine Island, Manasquan to Barnegat, and Barnegat to Little Egg Inlet. These improvements will help to increase beach nourishment project efficiency and reduce costs.

Efforts associated with Task IV include:

- Implement individual enhancements and techniques to individual beach nourishment projects to improve project construction and performance (FY06)
- Implement inlet modifications including bypassing and maintenance modification possibilities (FY07)

Additional project modifications will be implemented in this Task based on ongoing analyses conducted in Task I of this phase.

In summary, the following products will be performed associated with this Study Phase.

- Assess and categorize individual inlets for potential sediment bypassing/backpassing and maintenance modifications including dredging, weirs, deposition basins etc. (Q304)
- Develop a database of statewide historical and current federal and local beachfill projects to be updated each year. This effort will review and analyze statistics of sand quantities placed for nourishment purposes. The possibility of making this interactive with SBAS will be considered (Q404)
- Develop a 'Beach Nourishment Project Monitoring Database' and 'Scheduling Tool' to consider: data collection program specifics such as data type, frequency, extent and timeline; survey requirements; future nourishment (and mobe/demobe) schedule; contract numbers, and; financial/funding status. This database would be maintained on an ongoing basis and would act as a tool to help schedule nourishment projects on a regional, rather than, individual, basis (Q105)

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- Develop and field-test sediment tracer methodology and consider improved technologies to develop guidelines for application at future individual projects. This effort will help to determine the sediment transport patterns and implications on high-erosion areas such as 'hot spots', and will consider modeling applications addressed in Phase 2.1 Regional Coastal Processes Enhanced Understanding (Q205)
- Perform field test and document ATV technology for use along regional shoreline and for pre-/post-beach nourishment and -storm surveying and analyses (Q205)
- Evaluate and modify existing dune design performance including dune slope/cross section, aeolian, vegetation, and snow fencing concerns to enhance shore protection and habitat qualities of constructed dunes (Q305)
- Develop sediment sampling technology and program at inlets and borrow areas to better document sediment compatibility for beach nourishment projects (Q405)
- Investigate additional data collection efforts (wave/current/water level gauges) to determine if cost effectiveness and data-collection efficiency can be achieved on an individual project or regional level (Atlantic coast of New Jersey) basis (Q405)
- Develop a financial management tool to consider benefit/cost ratios associated with improved construction and monitoring techniques. A goal should be considered to reduce the unit cost of a beach nourishment project by a specific value per cubic yard (FY06)
- Implement individual enhancements and techniques to individual beach nourishment projects to improve project construction and performance (FY06)
- Implement inlet modifications including bypassing and maintenance modification possibilities (FY07)
- Review and analyze past performance of design beachfill templates used in the District (FY07)
- Implement a regional (Atlantic coast of New Jersey) long-term monitoring program in order to manage all New Jersey beach nourishment projects as a system (FY08)

**2.6 Comprehensive Beach, Inlet and Borrow Area Management Plan Development**

The ultimate goal of this phase is to develop comprehensive beach, inlet and borrow area coastal planning tool and methodology guidance for use at individual projects to optimize project performance, reduce amount of sand needed to maintain NJ coast beaches, reduce life-cycle costs, and reduce environmental impacts. Such guidance will address and evaluate authorized and budgeted dredging and nourishment requirements, estimate and provide recommendations for optimum utilization of borrow sources, and provide for rapid assessment of project impacts due to storms. These management plans will be constructed to ensure overall improved operations and management efficiency. This Phase will integrate the findings of all of the five preceding Phases.

The following products will be performed associated with this Study Phase.

- Develop coastal planning tool and methodology guidance for a specific individual beach nourishment projects (FY09)
- Develop a management plan template for application at future individual projects (FY09)

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- Develop regional management plan guidelines for the Atlantic coast of New Jersey (FY09)

### **3.0 STUDY MANAGEMENT/SPONSOR COORDINATION**

#### Study Management

Study management will be performed by the project manager to coordinate study tasks, budget and manage funds, schedule work completion, and coordinate with the non-Federal Sponsor, the New Jersey Department of Environmental Protection. Study results will be coordinated with the sponsor through regular status reports and meetings. Draft study documentation and management plans will be provided to the sponsor for review and input, to ensure products meet the sponsors needs and expectations.

#### Meetings/Coordination

The following meetings will be held on a regular basis throughout the length of the project. Each meeting will be held with specific goals and action items. Deliverable dates are presented where applicable.

- *Sponsor coordination meetings will be occur on a bi-annual basis*
- *CENAP PDT meetings will occur on an approximate bi-monthly basis. Meeting minutes will be distributed to PDT members and their section chiefs, appropriate branch and division chiefs, and others as requested. Any problems/issues will be documented in these meeting minutes. Regular project updates will be made at the Project Review Board meetings.*
- *Individual Technical Implementation Team meetings will occur on an approximate monthly basis for each phase while active work is being performed on that specific phase.*
- *CENAD, CENAN and HQ Coordination meetings will be held on an as needed basis, and are expected to occur on a bi-annual basis. CENAP will coordinate with CENAN on a regular basis to ensure that study tasks for the entire coast of New Jersey are met. This correspondence is necessary as the portion of the New Jersey coastline from Sandy Hook to Manasquan Inlet lies within the CENAD jurisdiction. CENAN representatives are involved in the Project Delivery Team and on individual Technical Implementation Teams.*
- *Stakeholders will be contacted initially through a 'Letter of Intent' to establish communication and generate support/interest. Meetings with Stakeholders will be held on an as-needed basis to pursue initiatives as warranted (Q404).*
- *State and local agencies, special interest groups, and other federal agencies will be contacted for the purpose of data sharing and coordinating data collection efforts.*

#### Reporting

Work will be documented in periodic deliverables which will be coordinated with the sponsor. The final deliverable will summarize results of each study task, and document a regional

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sediment management strategy for the coast of New Jersey. Reports will be distributed to the sponsor and other interested parties. Monthly status sheets will be developed to discuss work effort status and action items.

**4.0 PROJECT BUDGET/COST**

Total study costs are \$4,024,000 for the 7-year duration of the project as stated in the Project Memorandum of Agreement dated 30 December 2002. The sponsor's share is \$2,012,000 for the 7-year duration of the project. These budget estimates are in current (FY04) price level. Budget estimates by fiscal year are provided in Table 1 below.

<b>Table 1. Budget Estimates by Fiscal Year</b>								
<b>Funds</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>TOTAL</b>
Federal	158	149	256	300	560	500	89	2,012
Non-Federal, Cash	0	307	256	300	560	500	89	2,012
<b>TOTAL</b>	158	456	512	600	1120	1000	178	4,024

Study efforts and funding priorities can be broken down into four periods, which results in the basis of estimated funding for each of the six study tasks as provided in Table 2.

- Period I (FY03-05)
 

	<u>Team</u>	<u>Deliverable</u>
▪Identify individual prioritized projects	PDT	Q204
▪Form working group of non-USACE stakeholders	PDT	Q404
▪Inventory and develop coastal databases		
▪Coastal process modeling database	Coastal Processes	Q404
▪NJ State beachfill database	Regional Monitoring	Q404
▪Borrow area environmental resources database	Borrow Area	Q205
▪Borrow area GIS database	Borrow Area	Q305
▪Coastal GIS database	GIS	Q305
▪CENAD data management transfer/meeting support	All	Q404
  
- Period II (FY05-08)
  - Coastal process modeling including:
    - borrow area impact assessment
    - regional sediment budget development
    - individual beachfill project performance analysis.
  
- Period III (FY06-08)
  - Individual project performance improvement implementation
  - Borrow area master plan for each individual shore protection project

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- Period IV (FY07-09):
  - Beach, inlet and borrow area management guidance development.

<b>Study Phase</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>TOTAL</b>
Regional Coastal Processes Enhanced Understanding	5	80	132	100	110	100	0	527
Regional Sediment Budget Development	5	20	65	100	275	160	0	625
Data Archive and Distribution	33	110	90	40	70	30	10	383
Borrow Area Inventory & Assessment (incl. Environmental)	45	80	80	90	120	160	5	580
Regional Monitoring/Data Collection Program Assessment	20	46	20	100	285	220	20	711
Comprehensive Beach, Inlet and Borrow Area Management Plan Development	5	10	15	60	140	210	100	540
Study Management/Sponsor Coordination	45	80	90	90	100	100	33	538
CENAN Data Management Transfer/Meeting Support	0	30	20	20	20	20	10	120
<b>TOTAL</b>	<b>158</b>	<b>456</b>	<b>512</b>	<b>600</b>	<b>1120</b>	<b>1000</b>	<b>178</b>	<b>4,024</b>

5.0 STUDY SCHEDULE AND PRODUCTS New Jersey Alternative Long-Term Nourishment Study Feasibility Phase			
Number	Product	Team Interest	Deliverable Date
	<b>FY04</b>		
1	Identify individual prioritized projects	PDT	Q204
2	ArcInfo upgrade (v. 8.3) and annual maintenance contract	GIS	Q204
3	Research state-of-the-art coastal GIS technology regarding coastal RSM applications	GIS	Q204
4	<b>Assess and categorize individual inlets for potential sediment bypassing/backpassing and maintenance modifications</b>	Regional monitoring	Q304
5	Membership/become partner in NJ Geographical Information Network (NJGIN)	GIS	Q304
6	Coordinate with CENAN to develop plan and incorporate CENAN coastal data into CENAP database	PDT	Q304
7	Attend CENAD RSM GIS meeting and present progress-to-date	GIS	Q404
8	Develop GIS Database structure formatting based on Mobile District efforts	GIS	Q404
9	Populate borrow area database (i.e. Access or excel)	Borrow area	Q404
10	<b>Develop a database of statewide historical and current federal and local beachfill projects</b>	Regional monitoring	Q404
11	<b>Create comprehensive CENAP and CENAN coastal process modeling database</b>	Coastal processes	Q404
12	Form working group of non-USACE stakeholders including the development of a project intent letter	PDT	Q404
13	<b>Coastal inventory development for Ocean City, Cape May, and Barnegat Inlet</b>	GIS	Q404
	<b>FY05</b>		
14	Develop 'Beach Nourishment Project Monitoring Database'	Regional monitoring	Q105
15	Populate GIS/ArcMap with existing datasets	GIS	Q105
16	Create environmental metadata standards that adheres to previously developed metadata standards	Environmental/Borrow area	Q105
17	Develop and field-test sediment tracer methodology	Regional monitoring	Q105
18	Perform field test and document ATV technology for use along regional shoreline and for pre-/post-beach nourishment and -storm surveying and analyses	Regional monitoring	Q205
19	<b>Develop borrow area environmental resource database</b>	Environmental/Borrow area	Q205
20	Develop metadata standards	GIS	Q205
21	Evaluate and modify existing dune design performance	Regional monitoring	Q305
22	<b>Develop borrow area GIS</b>	Borrow area	Q305
23	<b>Populate and develop coastal GIS for Ocean City, Cape May, and Barnegat Inlet</b>	GIS	Q305
24	Convene Workshop with CENAP, CENAN, NJDEP, New Jersey and Delaware Geological Surveys and MMS and CENAN to discuss progress-to-date, specific geotechnical, and GIS aspects of State and Federal borrow areas, and the	Borrow Area	Q405

	dissemination/ data sharing measures		
25	Develop a numerical modeling system for individual projects	Coastal processes	Q405
26	Develop database of existing sediment budgets and sediment transport rates	Sediment budget	Q405
27	Review existing data and develop database of existing inlet sediment bypassing rates for all inlets on the Atlantic coast of New Jersey	Sediment budget	Q405
28	Develop sediment sampling technology and program at inlets and borrow areas	Regional monitoring	Q405
29	Investigate additional data collection efforts to determine cost effectiveness and data-collection efficiency	Regional monitoring	Q405
30	Convene Workshop with CENAP, CENAN, MMS, NJDEP, NMFS, USFWS and USEPA to discuss environmental considerations (cultural, archaeology and biological) associated with USACE beach nourishment projects (FY05)	Environmental/Borrow area	Q405
	<b>FY06</b>		
31	Model and assess erosional hotspots and causes for individual projects	Coastal processes	FY06
32	Continue populating coastal GIS with additional CENAP and CENAN coastal projects	GIS	FY06
33	Enhance borrow area GIS with NJ and DE Geological Survey and DEP, and MMS GIS borrow area	GIS/Borrow area	FY06
34	Perform borrow area economic analyses to determine cost/benefit ratios	Borrow area	FY06
35	Develop financial management tool to consider benefit/cost ratios	Regional monitoring	FY06
36	Implement individual enhancements and techniques to individual beach nourishment projects	Regional monitoring	FY06
	<b>FY07</b>		
37	Develop NEPA document to address the environmental impacts and benefits associated with borrowing sand	Environmental/Borrow area	FY07
38	Develop management guidance, tools and procedures addressing environmental resource concerns with borrowing sand for application at individual projects	Environmental/Borrow area	FY07
39	Perform borrow area modeling and impact assessment including geomorphic study of sand body/ebb shoal evolution to determine least-impact dredging areas	Borrow area	FY07
40	Perform geomorphic study of sand body/ebb shoal evolution to determine least-impact dredging areas	Borrow Area	FY07
41	Enhance coastal processes modeling to determine future sediment transport conditions, storm impacts and to evaluate impacts of alternative solutions at individual prioritized projects	Coastal processes	FY07
42	Develop a regional sediment budget for the Atlantic coast of New Jersey	Sediment budget	FY07
43	Develop borrow area environmental impact assessments for individual areas using pre- and post-construction monitoring data	Environmental/Borrow area	FY07
44	Develop environmental resource management guidance, tools and procedures for borrowing sand for application at individual future CENAP shore protection projects	Borrow area	FY07
45	Develop management guidance, tools and procedures addressing environmental resource concerns associated with borrowing sand for application at individual future CENAP shore protection projects (FY07).	Environmental/Borrow area	FY07

46	Coastal Process Modeling Database Enhancement		Coastal processes	FY07
47	Implement inlet modifications including bypassing and maintenance modification possibilities		Regional monitoring	FY07
48	Review and analyze past performance of design beachfill templates		Regional monitoring	FY07
	<b>FY08</b>			
49	Develop borrow Area Master Plan template and recommendations		Borrow area	FY08
50	Develop borrow Area Master Plan for one or more prioritized project		Borrow area	FY08
51	Implement a regional (Atlantic Coast of NJ) long-term monitoring program in order to manage all NJ beach nourishment projects as a system		Regional monitoring	FY08
52	Develop model application guidelines for regional project management		Coastal processes	FY08
	<b>FY09</b>			
53	Develop a coastal planning tool and methodology guidance for a specific individual beach nourishment project		Management plan	FY09
54	Develop a management plan template for application at future individual projects		Management plan	FY09
55	Develop regional management plan guidelines for the Atlantic coast of New Jersey		Management plan	FY09

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**6.0 WHAT DOES PROJECT SUCCESS LOOK LIKE**

Success of this effort will be measured not only by improvements to beach nourishment projects, but also to the future reduction of physical and environmental resources and costs to efficiently manage the Atlantic coast of New Jersey. Success will include adjustments to existing projects as well as those under development.

**The project will be deemed successful when the following goals are met:**

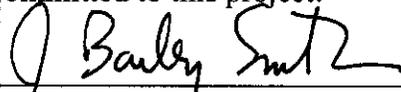
- Coastal Geographic Information System (GIS) development
- Comprehensive Atlantic Coast of New Jersey coastal process modeling database development
- regional sediment budget development for the Atlantic coast of New Jersey
- existing and alternative borrow area GIS database including environmental restraints, and borrow area management guidance development ('template') for application at individual projects
- regional monitoring program improvements to better analyze and assess beach nourishment project performance, and application of recommendations to an individual project
- comprehensive beach, inlet and borrow area coastal planning tool and methodology development, and application at individual beach nourishment projects for improved performance

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**7.0 PROJECT DELIVERY TEAM REVIEW/APPROVAL**

The following members of the PDT have been identified and are committed to this project:

Project Manager, Coastal Planning Section



J. Bailey Smith

Chief, Coastal Planning Section



Jeff Covert

Biologist, Environmental Resources Branch



Beth Brandreth

Engineer, Civil Works Project Management Section



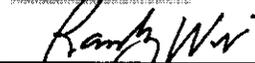
Monica Chasten

Engineer, Civil Works Project Management Section



Keith Watson

Engineer, Hydrology & Hydraulics Section



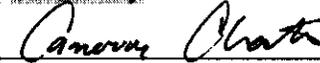
Randy Wise

Engineer, Geotechnical Section



Dan Kelly

Chief, Civil & Structural Design Section



Cam Chasten

Engineer, Operations & Maintenance Section

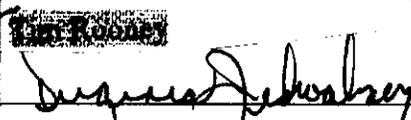


Engineer, Construction Branch/Pomona Resident Office

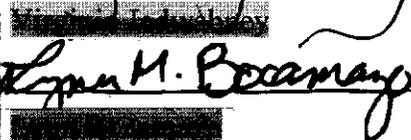


Mark S. Wheeler

Program Analyst, Programs and Project Management Division



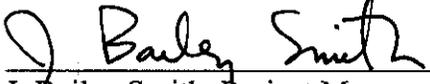
Engineer, CENAN/Engineering Division



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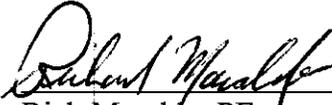
**8.0 PROJECT MANAGEMENT PLAN COORDINATION**

Presented for Approval by:

  
\_\_\_\_\_  
J. Bailey Smith, Project Manager

Approved by:

Deputy District Engineer for PPM, CENAP-DP

  
\_\_\_\_\_  
Rich Maraldo, PE

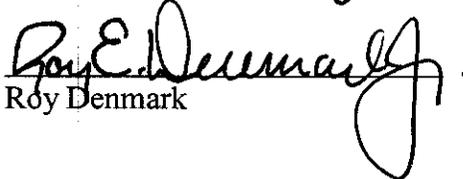
Chief, Engineering and Construction Division, CENAP-EC

  
\_\_\_\_\_  
Peter M. Tranchik, PE

Chief, Planning Division, CENAP-PL

  
\_\_\_\_\_  
Minas M. Arabatzis

Chief, Operations Division, CENAP-OP

  
\_\_\_\_\_  
Roy Denmark