Project Management Plan
Grand Calumet Feasibility Study

U.S. Army Corps of Engineers

Chicago District
111 North Canal Street
Chicago, Illinois 60606

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A. Introduction

The International Joint Commission has listed the Grand Calumet River/Indiana Harbor Canal, since 1986, as an Area of Concern (AOC). This designation was based on impairments in 14 beneficial use categories. A number of these use impairments can be directly attributed to the quality of the existing aquatic environment, specifically to the contaminated sediments. Impairments to wildlife, i.e. fish and waterfowl, as well as to recreational uses of the waterway are directly linked to the contaminated sediments. These heavily contaminated sediments continue to be a source of pollutants to the water column, while also providing a toxic environment for aquatic species and foraging wildlife. The Grand Calumet River basin is fairly typical in terms of degraded environmental quality resultant from decades of unchecked industrial and urban development. However, what is unique about this basin, are the potential impacts of restoration and remediation on the ecosystem. The Grand Calumet River Basin contains unique remnants of a once expansive (30,000 acres) dune and swale ecosystem adjacent to Lake Michigan. These remnants (about 2,000 acres) provide habitat for 66 state rare and endangered species. Consequently, restoration of the aquatic habitat and adjacent dune and swale ecosystem will provide many benefits to the local flora and fauna.

The Grand Calumet River system is comprised of the East and West Branches of the Grand Calumet River and the Indiana Harbor Canal and Lake George Canal. The East Branch extends 12 river miles to the junction with the Indiana Harbor Canal, while the West Branch extends 4 river miles from the junction with the Indiana Harbor Canal to the Illinois-Indiana State line. The upstream reach of the Indiana Harbor Canal is about 1.5 miles in length and the Lake George Canal extends about 0.5 miles. The flow regime of the river system is complex and driven primarily by lake level fluctuations in Lake Michigan, in addition to the many discharge and withdrawal points along the river that are associated with the heavy urbanization/industrialization of this watershed.

The purpose of the Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study is to investigate and recommend remediation alternatives, including dredging and disposal of the contaminated sediments in the Grand Calumet River and in the non-federal portions of the Indiana Harbor and Lake George Canals, Indiana, and ecosystem restoration within the river channel and adjacent areas. This Project Management Plan describes the tasks involved in the completion of the Feasibility Study, including the development of the appropriate study documents.

The Chicago District, U. S. Army Corps of Engineers will conduct the Feasibility Study in conjunction with its non-Federal sponsor, the Indiana Department of Environmental Management (IDEM). Staff from the Corps of Engineers, Chicago District (Chicago District), or its contractors, and the Indiana Department of Environmental Management, or its contractors will perform the tasks described within the Project Management Plan. The goal of the study is to develop an implementable project that meets federal, (including Corps of Engineers), state and local criteria.

Preliminary alternatives identified in the Grand Calumet River/Indiana Harbor Canal Sediment Cleanup and Restoration Alternatives Report (September 1997) included sediment removal options, sediment disposal options, and ecosystem restoration within the river channel and adjacent areas.

Anticipated dredging volumes range from 2.1 million cubic yards to 4.6 million cubic yards. The total estimated Feasibility Study cost comes out to $6.0 million (including general and site selection contingency). The tentative initiation date for the Feasibility Study is Spring 2004.

B. Study Authorization

This study is being conducted under the authority of Section 312 of Public Law 101-640 (WRDA 1990), Environmental Dredging. Section 312 authorizes the removal of contaminated sediments from federal navigation projects (Section 312 (a)) and in other, non-project specific locations (Section 312 (b)). Section 312(a) is advanced maintenance dredging for purpose of operation and maintenance, and Section 312(b) is for removal of contaminated sediments for the purpose of environmental enhancement and water quality improvement. Section 205 of Public Law 104-303 (WRDA 1996) modified Section 312. Section 205 revisions addressed revised funding limits for Section 312 and also the inclusion of specific areas where priority would be given. Section 312 was also modified in Section 224 of PL 106-53 (WRDA 1999). The Section 224 amendments changed the cost sharing for the dredging and disposal of contaminated sediments. Guidance for implementation of Section 312 will be provided under CECW-P/CECW-O, dated April 25, 2001.

C. Study Area Description

The study area is located in northwest Indiana in the communities of Gary, East Chicago, and Hammond, Indiana. The study area includes the non-federal upstream portion of the Indiana Harbor Canal, the non-federal upstream portion of the Lake George Canal, the West Branch of the Grand Calumet River to the Illinois-Indiana state line, the East Branch of the Grand Calumet River (excluding the U.S. Steel dredging project area), and the Lagoons. The Illinois portion of the Grand Calumet River, which extends 2.45 miles to the confluence with the Calumet River, is not included in the study area.

Resuspension of contaminants in the sediment is the primary source of contamination to the Grand Calumet River system. The influent water quality from the outfalls to the river (which make up 90 percent of the average flow) is presently acceptable. Recontamination of the system to the extent that it is currently impaired is unlikely based on the controls in place of these outfalls. There is a potential, however, for a combined sewer overflow (CSO) release that could impair water quality on a temporary basis. There is also a potential for an industrial spill, which could result in a temporary impairment. Legal controls currently in place would require the responsible party to clean up in the event of an industrial spill. In addition, while the groundwater in the area has some contamination it does not pose a threat of recontamination to current degraded levels.

D. Statement of Problems/Opportunity

Industrial development of the Grand Calumet River region began around the 1870s. By 1890, the West Reach of the Grand Calumet River was heavily polluted by waste from the newly developed steel mills, foundries, a meat packing plant, and glue and cornstarch factories. Similar industrial development occurred along the East Reach between 1890 and 1910. In addition to the industrial

waste that found its way into the canal, the local communities often discharged untreated sewage to the canal. The legacy of those decades of industrial and human waste pollutants is the contaminated sediments in the Grand Calumet River and the Indiana Harbor and Canal. The contaminated sediments continue to affect the water quality of the river and the environment, thus restricting biological, industrial, commercial and recreational uses of the river.

The International Joint Commission (IJC) identified the Grand Calumet River as an "Area of Concern" in 1987. Forty-three AOCs in the Great Lakes (located in the U.S. and Canada) were identified as having some type of impaired use by the IJC. Impairment of beneficial use means a change in the chemical, physical or biological integrity of the Great Lakes ecosystem sufficient to cause any of fourteen use impairments designated by the IJC. The Grand Calumet River Area of Concern was considered impaired for all fourteen beneficial uses.

E. Without-Project Conditions

Regulations regarding the quality of point source discharges to receiving bodies have done much to improve the water discharged to the Grand Calumet River and Indiana Harbor Canal. This has also resulted in an improvement in the water quality of the Grand Calumet River and Indiana Harbor Canal. The hydrology of the system has been so altered by human development that the system receives about 90% of its flow from those discharges. However, the presence of the contaminated sediments in the Grand Calumet River and Indiana Harbor Canal still provides a source of pollutants to the water column, and thus provides a source of impairment. Without removal of the contaminated sediments, restoration of the ecosystem and the 14 beneficial uses of the waterbody (based on the IJC criteria) are unlikely.

At present, the Grand Calumet River, Indiana Harbor Canal and Lake George Branch have waters that are listed as impaired (IDEM-OWM 1998 303 (d) List of Impaired Waterbodies) for some or all of the following (depending on the reach/branch): Cyanide, Lead, Oil and Grease, Pesticides, Copper, Ammonia, Dissolved Oxygen, and Chlorides. Also, a Fish Consumption Advisory for PCBs and Mercury exists, in addition to a listing for Impaired Biotic Communities (303 (d) list). It appears that the contaminated sediments are the source in many pollutants in the water column (TMDL Study).

F. Project Alternatives

The Corps has a current project underway to dredge the federal portions of the Indiana Harbor Canal and the Lake George Branch. The project includes the construction of a confined disposal facility for the containment of the contaminated dredged material. This study will look at removal and disposal of contaminated sediments upstream of the federal channel. The study will evaluate the beneficial impacts to the ecosystem associated with the removal of the contaminated sediments in upstream areas. The study may include an analysis of the quantity of contaminated sediments likely to migrate downstream to the Indiana Harbor Canal, thus necessitating the re-dredging of contaminated sediments from the Indiana Harbor Canal. Figure 1 is a map of the study area illustrating an example of reach delineation.

A range of project alternative feature has been tentatively identified for analysis in the feasibility study. The alternative features include:

Dredging soft sides and over dredging (Max Dredging)
Dredging without soft sides and over dredging, with bank stabilization (Min Dredging)
Addition of clean fill without dredging or after dredging (Capping)
Addition of weirs, pools and riffles
Localized removal of contaminated bank materials
Localized removal of berm material
Localized wetland dredging (in backwater areas, from stream ditches or in riparian wetlands adjacent to river)
Wetland restoration/exotic removal
Disposal option 1
Disposal option 2
Disposal option 3

The three disposal options under consideration are: (1) disposal in the Indiana Harbor Canal Confined Disposal Facility for the cost shared Federal Navigation project (those sediments that would be covered under advanced maintenance navigation dredging or potential source of future dredging in the navigation channel, which is currently estimated at 2.8 million cubic yards); (2) disposal in a new facility, the location and size of which would be determined in this study; and (3) offsite disposal at an existing commercial or other facility.

Preliminary cost estimates have been developed for some of the features. A preliminary listing of possible alternatives, or combinations of, for initially identified reaches (see Figure 1) are illustrated in Table 1. Initially identified alternatives and alternative costs are contained in the Grand Calumet River/Indiana Harbor Canal Sediment Cleanup and Restoration Alternatives Report.

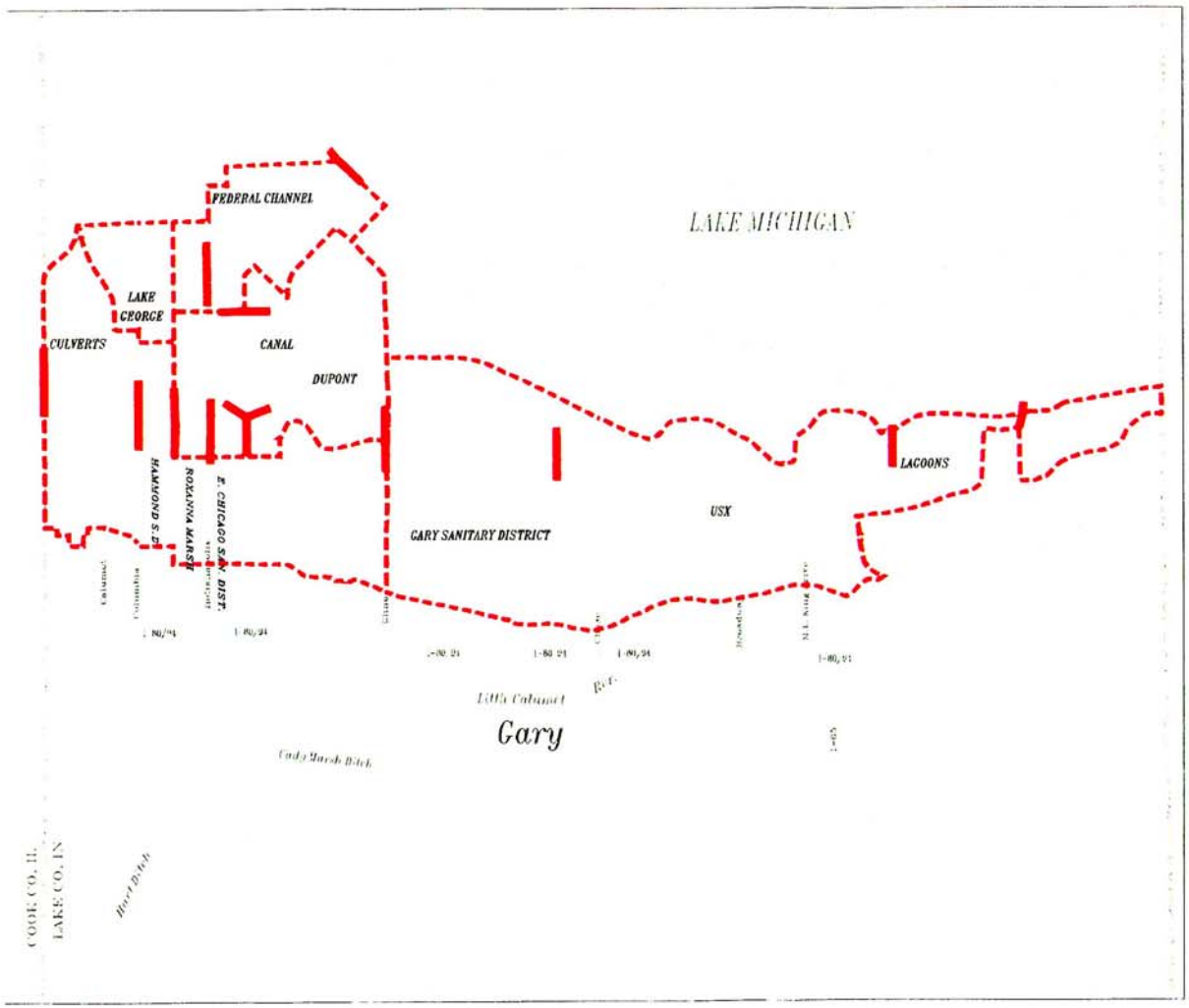

Figure 1: Map of the study area illustrating delineation of reaches.

Table 1 - Feature Alternatives for Analysis in the Feasibility Study

Reach Name	Max Dredging	Min Dredging	Capping	Weirs, Pools, Riffles	Localized Bank Removal	Localized Berm Removal	Localized Wetland Dredging	Wetland Restoration / Exotic Control	Disposal Option #1	Disposal Option #2	Disposal Option #3
Culverts	X	X	X	X	X					X	X
HSD	X	X	X	X	X			X		X	
Roxana River & Marsh	X	X			X			X	X	X	
ECSD	X	X	X	X	X			X	X	X	
Canal	X	X	X	X	X			X	X	X	
Lake George	X	X							X	X	
DuPont	X	X	X	X	X		X	X	X		
GSD	X	X	X	X	X	X				X	
Lagoons	X	X	X		X			X		X	X

II. Scope of Studies

A. Feasibility Study

The Feasibility Study is the second phase of the Corps of Engineers planning process, and follows a favorable Reconnaissance Report and execution of a Feasibility Cost Sharing Agreement (FCSA) between the Chicago District and the non-Federal sponsor. The purpose of the feasibility study is to fully evaluate all reasonable solutions to the problems identified during the reconnaissance phase. The Grand Calumet River/Indiana Harbor Canal Feasibility Study was authorized by Section 312 of Public Law 101-640 (WRDA 1990), Environmental Dredging. Section 312 authorizes the removal of contaminated sediments from federal navigation projects (Section 312 (a)) and in other, non-project specific locations (Section 312 (b)). Guidance for implementation under Section 312 will be provided by CECW-P/CECW-O, dated April 25, 2001.

Future administration support for budgeting for possible implementation depends on an alternative being economically justified with high priority outputs. Benefits justifying a 312(a) project will be based on cost savings associate with maintaining the existing federal channel. Efforts spent on evaluating recreation benefits may not add high priority outputs or administration support.

Study Area

The study area is located in northwest Indiana in the communities of Gary, East Chicago, and Hammond, Indiana. The study area includes the non-federal upstream portion of the Indiana Harbor Canal, the non-federal upstream portion of the Lake George Canal, the West Branch of the Grand Calumet River to the Illinois-Indiana state line, the East Branch of the Grand Calumet River (excluding the U.S. Steel dredging project area), and the Lagoons. The Illinois portion of the Grand Calumet River, which extends 2.45 miles to the confluence with the Calumet River, is not included in the study area.

Study Goals and Objectives

The Chicago District and non-Federal sponsor (IDEM) have identified the following goal for the Feasibility Study: to remediate and restore the Grand Calumet River in accordance with the Natural Resource Damages Assessment Consent Decree developed between IDEM, Indiana Department of Natural Resources, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, and local responsible parties.

Project Management Plan (PMP)

The PMP for the Grand Calumet River/Indiana Harbor Canal Environmental Dredging was developed in accordance with the applicable Engineering Circular and Engineering Regulations. The Chicago District developed this PMP in conjunction with the non-Federal sponsor, IDEM. The purpose of the PMP is to present a plan for investigating, developing, and evaluating alternatives for remediating and disposing of contaminated sediments, restoring the ecosystem within the river channel and on adjacent areas, and improving water quality.

This PMP describes the scope, budget and schedule of the tasks required to develop, initiate, and complete the Feasibility Study. A detailed work task description, cost-summary table, work breakdown structure, division of responsibilities and preliminary schedule are included.

Study Scope

The Feasibility Study will produce a report, accompanied by an environmental document that complies with the National Environmental Policy Act (NEPA). This report will provide all of the necessary documentation to permit project authorization by the U.S. Congress for construction of a Federal project, if justified. The Feasibility Study will build upon existing information and look at the watershed as a whole system and assess the potential for a multi-objective and environmentally friendly project in the study area. The feasibility phase consists of a study and development of a Feasibility Report to include:

Problem Identification
Evaluation and Assessment
Report Preparation
Project Agreements

Management and Coordination

This effort is a partnership between the Chicago District and the non-federal sponsor (IDEM). Overall study management shall be the responsibility of an Executive Committee, which at a minimum will consist of members from the Chicago District and IDEM. Other agencies maybe added to the Executive Committee if deemed appropriate after initiating the study. A Project Delivery Team (PDT) will coordinate on all matters relating to prosecution of the study. This includes cost estimates, schedules, and prosecution of work elements, financial transactions, and recommendations to the Executive Committee for actions to be taken on modifications to the PMP. The Executive Committee will either meet collectively or by other means of communication.

The Executive Committee will manage the overall study by: (1) maintaining a working knowledge of the feasibility study; (2) assisting in resolving emerging policy issues; (3) ensuring that evolving study results and policies are consistent and coordinated; (4) directing the study management team; (5) rating decisions made by the study management team; and (6) maintaining authority over approving budget variations.

The PDT will consist of the designated team members for the Chicago District and the Non-Federal sponsor. The study will be managed within the Chicago District and will be accomplished under team project management. PDT meetings will be held at 4- to 6-week intervals, but may be more frequent at critical decision points.

The PDT will consist of the following disciplines from the Chicago District: Project Manager, Lead Planner (Planning Branch) or Technical Study Manager, Lead Engineer (Technical Services Division), Real Estate, Contract Specialist, and Public Affairs. Chicago District's Office of Counsel, Resource Management, Information Management and Construction will be consulted as necessary. In addition, the non-Federal sponsor's designated representatives will be on the PDT. The PDT will coordinate activities with the respective product team members responsible for developing the study in order to facilitate completion.

During the feasibility phase, the team leader will be the Project Manager. The project manager will coordinate with the members of the product team and will be the main point of contact with the PDT and Non-Federal sponsor. The project manager will make monthly progress reports to the PDT.

Administrative and Technical Committees will also be established. The following technical sub-committees will be established:

Hydrology, Hydraulics and Water Quality
Ecosystem
Dredging and Disposal
Plan Formulation and Economics
Geographic Information System (GIS)
Communications

Feasibility Study Products

This Section of the PMP provides a definition of the products and a description of the tasks to be accomplished during the course of the Feasibility Study. A complete listing of the tasks must be accomplished in order to meet all Federal laws, statutes and policies. This PMP covers the development of four products prior (Feasibility Report and NEPA documentation, Project Agreements, Project Management Plans, and Other Supporting Plans) to the initiation of the Preconstruction Engineering and Design (PED) phase.

Feasibility Report and NEPA compliance documentation

This includes all activities leading to the approval of the final Feasibility Report and appropriate NEPA documentation by the Chief of Engineers. It addresses in detail all of the goals and objectives of the non-Federal sponsor and stakeholders. It entails all of the problem identification and formulation activities required, and identification of a recommended plan for implementation. It will also include the appropriate NEPA and other environmental compliance documents. It will include an independent technical review by another Corps District, IDEM and possibly a non-Corps agency; and policy reviews by the Great Lakes and Ohio River Division and Corps of Engineers Headquarters for transmittal to Congress.

The NEPA document, an Environmental Impact Statement (EIS) or Environmental Assessment (EA) will include all activities leading to the assessment of environmental impacts of the various alternatives and recommended plan in compliance with NEPA requirements. These activities include scooping and preparation of the environmental document, coordinating the Fish and Wildlife Coordination Act Report with U.S. Fish and Wildlife, public coordination and review, and notification of findings. The alternatives analysis will investigate the positive and negative aspects of alternatives proposed at the study area.

Project Agreements

The Preconstruction Engineering and Design (PED) agreement will be prepared and revised, as necessary, to accompany the Feasibility Report and Project Management Plan (PMP). This

agreement will include the PED cost estimate for all Federal and non-federal costs for PED from the date of the Division Commander's Notice to the award of the first Federal construction contract. The Chicago District and the non-Federal sponsor will identify the PED activities and complete the cost estimate.

As the details of the recommended plan are finalized, coordination will be undertaken with the non-Federal sponsor to review the language of the draft Project Cooperation Agreement (PCA) for construction of the project. Letters of Intent that acknowledges the requirements of the draft PCA and express good faith intent to provide those items for the recommended project will be developed. Additionally, the non-Federal sponsor will develop preliminary plans for financing their share of the project costs. The Chicago District will then complete the assessment of these plans and an ability to pay analysis. The coordination of the draft PCA and preliminary financing plans will be completed in conjunction with the draft Feasibility Report.

Project Management Plan

This PMP addresses the development of the Feasibility Study will be updated as necessary. In addition, a draft PMP for PED activities will be prepared based on the recommended project identified in the Feasibility Study, the baseline cost estimate and schedule for these activities. These activities include the design documentation report and preparation of plans and specifications for the initial construction contracts. The draft PMP will address the development of additional products and more detailed plans for successful management and completion of the project. The draft PMP will be completed in conjunction with the Feasibility Report.

Other supporting Plans

Other supporting plans will be developed as needed as the study progresses to address specific items such as local cooperation, real estate acquisition, quality control, value engineering, environmental and cultural matters, health and safety, security, contract acquisition, and operation and maintenance. The following supporting plans required for the study are attached: draft Quality Control Plan (Appendix A), Risk Based Corrective Action Process (Appendix B), Preliminary Discussion of the Site Safety and Health Plan (Appendix C), Communications Plan (Appendix D), Risk Management Plan (Appendix E) and Change Management Plan (Appendix F). It is important to note that the communications, which will include an outreach program, needs to be developed early in the process. The communication plan may be accomplished by using a District consultant.

B. Task Descriptions

The feasibility study will include the formulation of multiple purpose plans producing both NED (National Economic Development) and NER (National Ecosystem Restoration) outputs. An array of combination plans will be developed and compared to determine the tradeoffs (see ER 1105-2-100, paragraph E-62.c.). The recommended plan will reasonably maximize the sum of net NED and NER benefits while achieving the best balance between the two objectives. Acceptability, completeness, effectiveness, and efficiency are the four evaluation criteria specified in the Planning Guidance Notebook (ER 1105-2-100, paragraph 1.6.2)). Additionally, the recommended plan will be economically justified (i.e. maximized net benefits or/and cost effective), environmentally sustainable, technically feasible, and socially and politically acceptable.

The feasibility study will utilize a watershed study approach during the assessment of problems and opportunities. Existing studies will be used to lay the basis for the study investigation, which will likely be focused on environmental restoration, recreation and navigation. Flood damages are not a concern in this basin. A watershed resource management plan will be coordinated with the local stakeholders and when finalized incorporated into the feasibility study. The feasibility report will be prepared in conjunction with appropriate regulations, policies and guidelines and will contain the sub-product descriptions listed herein.

The various tasks to be accomplished are listed in the following paragraphs. In addition, the specific tasks designated to each resource along with the corresponding estimated time and cost will be listed in subsequent sections of the PMP.

JA000 Engineering Appendices

Engineering Appendices will be prepared that provide detailed design and cost information to support the alternative analyses and the recommended plan. Each engineering discipline will be contributing an appendix. The Engineering Appendices will be prepared in accordance with applicable design regulations and with ER 1110-2-1150. The Engineering Appendices shall contain sufficient level of detail to allow the development of a defensible baseline cost estimate. The Engineering Appendices will include the results of the feasibility phase design studies and analyses under a wide array of disciplines. The detailed features of the Engineering Appendices are listed in the following major and minor tasks.

JAA00 Surveying and Mapping

JAAA0 Topographic and Utility Surveys

Existing aerial and topographic survey data will be utilized if the data meets project study team requirements. Updated aerial and topographic survey data will be obtained where necessary. All surveying activities will be performed in accordance with EM 1110-2-1000, EM 1110-1-1003, ER 1110-1-1003, and EM 1110-1-1005. In addition, utility data and real estate information will be collected for all project reaches where dredging, disposal or restoration is proposed for the project. The Chicago District's Design Branch and their A/E contractor will perform the work.

JAAB0 GIS Database & Mapping Development

GIS database information for the Grand Calumet River Watershed from all available sources will be compiled in a GIS database. All new and existing data obtained for this feasibility study will also be included in the GIS database. New and existing data will include, but not be limited to, the following information: sediment quality data, probing location, sediment thickness at probing location, water quality data, land use information, topography, municipal information, wetland delineation, real estate mapping, HTRW sites in the region, utility identification, and infrastructure that may be impacted upon by dredging/disposal operations (i.e. bulkheading, bridges). The GIS database will be utilized in the design and analysis of project features. Development of the database will be coordinated with all appropriate Chicago District and non-Federal sponsor disciplines taking part in the feasibility study. The non-Federal sponsor will manage the overall database, and Planning Branch will take the District lead on this task.

JAAC0 Sediment Probings & Hydrographic Soundings

Detailed sediment probings and hydrographic soundings have been carried out in the project reaches of the Harbor Canal, Lake George Branch, the East Branch Grand Calumet River, the West Branch Grand Calumet River and the Lagoons. The data will be entered in a microstation and Arc GIS compatible format.

JAB00 Hydrology and Hydraulic Studies/Report

A Hydrologic and Hydraulic Engineering Appendix will be prepared that will include the results of the hydrologic, hydraulic and sediment transport analysis and modeling. The appendix will also include hydraulic structure analysis and design. Analyses will be completed in accordance with EM 1110-2 1417, EM 1110-2-1416, EM 1110-2-4000, Hydraulic Design Charts, and computer simulation model manuals and practices. The appendix shall include a discussion of all data, models, model development, calibration, as well as stage and flow hydrographs and water surface profiles. Updates to existing modeling are described in the following sections. The report will provide detailed information about the model development and modifications related to this study – relying heavily on previously developed reports (i.e. SCRAP and TMDL). The appendix shall also include design details for hydraulic structures, including riprap-sizing analysis, as appropriate. Additional analyses shall be performed to develop a dredging plan. This analysis shall include evaluation of dredged material quantity and quality, determination of the probability of risk factors (CSO and industrial spills) to be incorporated into the economic analysis, in additional to disposal area and effluent treatment plant designs. A separate Environmental Engineering Appendix shall be prepared. Funding for this task is included in the costs for Task JF, HTRW Report.

JABA0 Hydrologic Modeling

JABAA Update Existing Conditions Hydrologic Modeling

The existing HSPF and SCALP models for the Grand Calumet River watershed will be updated to include currently available hydrologic data (i.e., rainfall, temperature, cloud cover, and solar radiation) and discharge data from industries and sewage treatment plants. Model calibration, previously accomplished for the SCRAP study will be discussed in the appendix but not redone. The model will be run for the extended period of record (Oct 1, 1991 – Sept 30, 2001).

JABAB Future Conditions Sensitivity Analysis

An assessment of potential impacts of future conditions on the watershed will be developed (i.e., changes in land use/population) as a sensitivity analysis. Modification of model parameters will be accomplished in order to provide future conditions hydrology in accordance with the future conditions analysis. Data from dischargers will be adjusted by the same factors and an evaluation will be performed to determine if all structures, etc. are appropriately sized for projected future conditions.

JABB0 Hydraulic Modeling

JABBA Update Existing Conditions Hydraulic Modeling

Updated hydrologic data will be used to provide updated water surface profiles using existing HEC-RAS modeling. Model calibration, previously accomplished for the TMDL study, will be recollected in the appendix but not redone. The model was converted from UNET to HEC-RAS for the TMDL study and recalibrated. Therefore, the baseline model will be the TMDL model of the Grand Calumet River and the calibration from that study will be used. New profiles will be developed on the extended period of record (Oct 1, 1991 – Sept 30, 2001).

JABBB Hydraulic Modeling Project Conditions

HEC-RAS modeling will be accomplished for both existing and project conditions. Project conditions may include removal, partial removal, and/or some backfilling dependent upon other analyses such are structural, geotechnical, ecosystem, habitat, etc. A structural and stability analysis will be performed by Geotechnical Engineering to estimate the impacts of sediment removal on the stability of existing structures, and the costs resulting from these impacts.

JABBC Sediment Transport for Existing Conditions

Sediment transport analysis to assess sediment movement in the Grand Canal River/Indiana Harbor Canal will be considered after an economic analysis of potential advance maintenance dredging has been performed. In the event that sediment modeling is necessary to complete the analysis, the PMP will be modified to include this additional effort. If included in the study, the existing QSNET modeling will be updated with the extended period of record hydrologic modeling. The sediment transport/erodibility equations will be re-evaluated based on tests of the sediment qualities. Results of the sediment transport modeling from the Grand Calumet River and upstream reaches of the Harbor and Lake George Canals will be utilized to determine existing conditions loading into the Federal portions of the Indiana Harbor Canal.

JABBD Sediment Transport for Project Conditions

If included in the study, the existing QSNET modeling will be updated with extended period of record hydrologic modeling. Results of the modeling, in conjunction with the existing conditions sediment transport modeling, will be used to project the reduction in sediment transport into the federal portion of the Indiana Harbor Canal under with project conditions. This information will be utilized for the economic analysis of the project.

JABC0 Hydraulic Structure Design

JABCA Structure Design Analysis

Detailed analysis and design of hydraulic structures for maintenance of water levels will be accomplished for each project reach during the detailed design phase. Structure analysis will include, but not be limited to, the following: weir design and analysis to maintain water levels, analysis and design of bank stabilization systems, including riprap sizing and placement design. The baseline feasibility cost estimate will be developed from previously completed structure design analysis (SCRAP Report).

JABD0 Hydrology and Hydraulic Alternative Analyses

JABDA Computer Simulation of Project Alternatives

As discussed under Sub-Task JABCA, hydraulic model simulations of project conditions will be performed for the project alternatives. The results of the analyses will be used to evaluate the effectiveness of the various alternatives.

JABDB Future With-Project Conditions Hydraulic Modeling

As discussed under Sub-Task JABEA, hydraulic model simulations of future with-project conditions will be performed for the project alternatives. The results of the analyses will be used to evaluate the effectiveness of the various alternatives.

JABDC Sediment Transport Simulations of Alternatives

As discussed under Sub-Task JABCD, sediment transport model simulations of with-project conditions will be performed for the project alternatives. The results of the analyses will be used to evaluate the effectiveness of the various alternatives. As noted previously, these simulations will only be performed if it is determined that sediment transport modeling is required for study evaluations.

JABE0 Dredging Plan Development

As part of the feasibility study process, a dredging plan will be developed for the removal of contaminated sediments from the Grand Calumet River, the Indiana Harbor Canal and the Lake George Canal. The final plan should include the following items:

Dredged material volume
Dredged material quality
Dredging sequence – taking into consideration other dredging projects in the watershed (USX, NIPSCO, USACE-Federal channel).
Dredging method
Disposal method
Disposal locations
Dewatering and effluent treatment requirements
Effluent treatment plant design

JABEA Sediment Quality Evaluation

Extensive analysis has been undertaken by a number of state, federal and local agencies and advocacy groups to evaluate the quality of the sediment in the Grand Calumet River watershed. The sediment injury report produced by IDEM and the USFWS will be incorporated into the feasibility study report. The Indiana Department of Environmental Management (IDEM) has updated this information, in coordination U.S. Environmental Protection Agency (USEPA), local municipalities and all concerned groups. The revised database will be included in this report within the Environmental Engineering Appendix, Environmental Impact Statement (EIS) and in the GIS database. The non-Federal sponsor's credit for prior work is noted under Task JDJ, Other Environmental Services.

Sediment cleanup objectives will be determined on a site-specific basis. They are dependent on impacts to aquatic health, human health, and habitat.

JABEB Dredging Plan

During the development of the dredging plan, alternative analysis on sequencing, and dredging methods will be accomplished. The dredging plan will be finalized once the alternative analysis, including the economic analysis, has been completed.

JABEC Disposal Area Design

Alternative analysis will also include various options for sediment disposal. Designs and costs will be developed for the alternative analysis. Detailed disposal area designs will be accomplished for the selected plan(s) as needed for feasibility level design.

JABED Effluent Treatment Plant Design

Effluent treatment plants will be utilized during the dewatering of the dredged material. Preliminary treatment plant designs and costs will be developed for the alternative analysis. Detailed treatment plant designs will be accomplished for the selected plan, as needed.

JABF0 Hydrology and Hydraulics Appendix

A report containing the results of hydrologic, hydraulic, sediment transport and structural design analysis will be prepared for inclusion in the Hydrology and Hydraulics Engineering Appendix. The report will contain information concerning design, analysis and computer simulations. The designs shall be in sufficient detail for the development of costs associated with those elements and the determination of the probability of risk factors to be utilized in the economic analysis.

JABG0 Environmental Engineering Appendix

A report containing the results of the environmental engineering assessment, including sediment quality evaluation, dredging plan development, disposal area design, and effluent treatment, will be prepared for inclusion in the Environmental Engineering Appendix. This information will be presented for the alternatives as well as the selected plan. The report will contain sufficient detail for the development of costs associated with these elements and the determination of the probability of risk factors to be utilized in the economic analysis.

JAC00 Geotechnical Studies/Report

Geotechnical Studies will be undertaken to assess the physical properties of the dredged material and to evaluate the designs of alternative disposal facilities, bank stabilization in areas where removal of contaminated soft sides may cause bank sloughing, and in stream fill material to maintain pre-project condition water levels. This study will rely on the existing information from extensive analyses and testing that has been previously completed. Additional data or evaluations will be performed if necessary to fill in the data gaps. This information will be utilized in the development of dredging, dewatering and disposal options.

The Geotechnical Appendix will contain documentation on the analyses associated with various alternative analysis, as well as detailed design information for the final plan.

JACA0 Review Existing Information

Review existing information to determine additional data requirements and evaluations to be performed. In addition, the review will provide necessary information such as depth to groundwater, etc. that may impact designs and project costs.

JACB0 Analysis of Dredged Material Properties

This information on chemical composition may be found in the sediment injury reports and will be incorporated into the feasibility study report. However, additional physical data will be needed to determine handling, pliability, strength, etc. Where appropriate, existing data and analysis of sediment quality will be utilized in the study.

JACBA Sediment Investigation

During detailed design, a contract will be let to obtain and test the material properties of the sediments in the Grand Calumet River (East and West Branches), Lagoons, the Lake George Canal, and the non-Federal portions of the Indiana Harbor Canal. Also, depths of contaminated sediment will be established for all of the portions of the study area.

JACC0 Disposal Area Designs

Design analyses will be performed for three alternative disposal areas, including the Federal CDF, in conjunction with other team members. Disposal area design elements for Geotechnical Engineering will include stability analysis, capping design, assistance with structure designs, and investigating liner requirements. Subsurface investigations required for evaluating disposal areas will be completed during detailed design.

JACD0 Bank Stabilization Designs

Bank stabilization may be necessary in certain portions of the West Reach, dependent on the amount of material that is excavated below steep banks. Stabilization design will be based on methods used in environmentally sensitive areas. Literature review will be undertaken to determine current methods, as well as to evaluate the success rates of non-traditional bank stabilization. Additional material sampling and testing which is necessary for the stabilization designs will be performed during detailed design.

JACE0 In-Stream Fill Material Design/Specifications

Additional fill material and/or capping may be included in portions of the river based on the depth of contaminated sediment and the existing condition of the stream, bridges or culverts in that location. Geotechnical analysis will include specification of material size, properties and thickness. Some alternative analyses of replacement fill versus partial replacement and capping will be included in the plan formulation. Alternative designs will contain sufficient detail for preliminary costs to be developed. Final designs will be developed to a feasibility level. All placement of in-stream materials, quantities and contouring will be in conjunction with habitat restoration features.

JACF0 Structural Analysis

Geotechnical Engineering will assist Structural Engineering with a structure and stability analysis to estimate the impacts of sediment removal on the stability of existing structures, and resulting costs.

JACG0 Geotechnical Appendix

A report containing the results of the Geotechnical investigations regarding sediment properties and depths, disposal area design, bank stability, and fill material specifications will be prepared for inclusion in the Geotechnical Appendix. This information will be presented for the alternatives as well as the selected plan. The report will contain sufficient detail for the development of costs associated with these elements.

JAD00 Engineering and Design Analysis Report with Preliminary Drawings

Engineering and Design Analysis will include computation of dredged material quantities, disposal area layouts and quantities, preliminary and final designs, and real estate drawings and quantities for all other project features.

JADA0 Dredging Quantity Takeoffs

Dredging quantities for the study will be developed from new boring and sounding survey information averaged for each reach. A final quantity of material to be removed will be developed for the final selected plan based on existing information. Additional borings may be required during the detailed design phase to finalize dredging quantities.

JADB0 Disposal Site Layouts

Preliminary layouts for three disposal sites will be developed. The preliminary layouts will contain sufficient detail to prepare cost estimates and to analyze the alternatives. Final disposal area layouts will contain sufficient detail for the development of a feasibility level cost estimate.

JADC0 Preliminary Drawings

Preliminary drawings of project features will be developed for the disposal area, in-stream weirs, dewatering weirs, fill and/or capping material locations, and ecosystem restoration locations. Preliminary drawings will be utilized to evaluate the alternatives and to provide a foundation for the detailed design of the final plan.

JADD0 Detailed Designs

Designs will be developed for the elements of the selected plan, for the purposes of plan illustration, as well as an aid in the development of the baseline cost estimate. Final Drawings will be prepared for the detailed design phase following the completion of the feasibility study.

JADE0 Civil Design Appendix

A report containing the results of the design analyses, as well as the preliminary and detailed designs and drawings, will be prepared for inclusion in the Civil Design Appendix. This

information will be presented for the alternatives as well as the selected plan. The report will contain sufficient detail for the development of costs associated with these elements.

JADF0 Structural Engineering and Design Analysis/Report

Preliminary structural analysis of design elements will be performed on the conceptual designs developed by Hydraulic Engineering. Structural analysis and design of hydraulic structures, such as weirs, will be accomplished for the preliminary design, the alternative analyses for comparative purposes, and the final design. Design analyses and assumptions will be documented in the Design Appendix.

Task JADG0 Structural Design Appendix

The Structural Design Appendix will include the design analyses for all the hydraulic structures and the analyses and design performed for elements of the disposal facilities. Structural Engineering will perform a structure and stability analysis with assistance from Geotechnical Engineering to estimate the impacts of sediment removal on the stability of existing structures, and resulting costs.

JB000 Socioeconomic Studies/Report

Socioeconomic studies will be performed in compliance with the requirements of ER 1105-2-100. The purposes of socioeconomic studies are to assist in problem identification, to characterize the social and demographic characteristics of affected populations, and to describe the social and economic benefits and costs of alternative solutions. Specifically, the socioeconomic studies will describe and quantify (where possible) the impacts of alternative plans on National Economic Development (NED), and Other Social Effects (OSE). In addition, socioeconomic studies will include ability to pay analysis, analysis of non-Federal sponsor financing capability, and risk-based analyses, as required by ER 1105-2-100.

JBA00 Economic Analysis

The purpose of the economic analysis report is to quantify the benefits associated with the project. The benefits will be those associated with advance dredging, recreation and improved access/navigation in the upper reaches of the Indiana Harbor Canal. Ecosystem restoration benefits will be evaluated in terms of cost effective incremental analysis (CEIA) and will not be included in the traditional economics analysis.

Incorporating risk and uncertainty into the economic analysis is required by the Planning and Implementation guidance. The Corps has been developing specific evaluation methods to quantify risk, however, no specific guidance has been issued to all aspects of navigation benefits analysis. Risk and uncertainty will be considered in this analysis and the most appropriate methods available will be used as applicable.

JBAA0 Baseline Damages for Existing Conditions

An assessment of baseline damages for existing conditions will be developed. Baseline damages will consider the economic impacts of the presence of contaminated material upstream of a Federal navigation channel. The local economy and regional benefits will be considered. An assessment of future conditions on the watershed will be developed.

A preliminary analysis will be performed at the onset of the project to determine the magnitude of benefits that can be claimed for advance maintenance dredging. This assessment will be used to determine the necessity of analyses related to Section 312(a) efforts described in the following paragraphs. If it is determined that there are insufficient benefits available under an advance maintenance scenario to balance projected costs, the analyses related to Section 312(a) will not be performed. The PDT is responsible for making this determination. This determination will be made early in the Feasibility Study.

JBAB0 Maintenance Dredging Economic Analysis (Section 312(a))

It is necessary to determine all of the costs and benefits associated with the project. An analysis will be required to determine the quantity of clean and/or contaminated material incurred from normal deposition from upstream in the Federal project area. This analysis is required only if advance maintenance dredging is pursued under Section 312 (a). This project will occur some time after the Indiana Harbor Canal Confined Disposal Facility (IHC CDF) dredging so material from normal deposition needs to be considered for the Grand Calumet River/Indiana Harbor Canal Environmental dredging. It will determine the quantity of clean and/or contaminated material, and associated costs incurred from normal deposition from upstream in the Federal project area after the IHC CDF dredging has occurred.

JBABA Normal Maintenance Dredging with Contaminated Sediments

An analysis will be performed to determine the cost of dredging and disposal that would be incurred when contaminated materials from upstream of the federal project would have to be removed from the dredged area. The task would involve a determination as to the likely quantity of material involved and the length of time that it would take for that quantity to migrate to the Indiana Harbor Canal. The economic analysis will also balance those benefits previously utilized for the justification of the IHC CDF and determine if excess benefits can be attributed to the advance maintenance dredging of the upstream areas. This detailed analysis will only be performed if it is determined that there are sufficient benefits to pursue advance maintenance dredging.

JBABB Normal Maintenance Dredging w/o Contaminated Sediments

Grand Calumet River/Indiana Harbor Canal Environmental Dredging will occur at some point after the IHC CDF dredging so the material from normal uncontaminated deposition needs to be taken into account. An analysis will be performed to determine the costs of dredging and disposal that would be incurred when normal deposition of uncontaminated material from upstream occurs in the Federal project area. The task would involve a determination as to the likely quantity of material involved and the length of time that it would take for that quantity to migrate to the Indiana Harbor Canal. This detailed analysis will only be performed if it is determined that there are sufficient benefits to pursue advance maintenance dredging.

JBAC0 Economic Analysis of Ecosystem Benefits

JBACA Cost Effectiveness of Ecosystem Improvements associated with the removal of contaminated materials.

A CEIA will be performed for alternatives that provide for the removal and disposal of contaminated materials from the channel. In addition, the sequencing of dredging, sediment

disposal design and cost, and treatment plant design and cost are subject to economic based selection and optimization criteria as well. The analysis will be accomplished with IWR-PLAN, or a like program, which evaluates the cost effectiveness of the alternatives under consideration for ecosystem restoration/improvements. This task will be completed as part of the Corps efforts under Task JD, Environmental Studies/Reports/EIS. A separate and independent NER evaluation may be performed if deemed appropriate.

JBACB Cost Effectiveness of Ecosystem Improvements (CEIA) for in channel habitat improvements after dredging.

A CEIA will be performed for alternatives that provide for inclusion of in-stream habitat enhancements such as pools, riffles, weirs and clean fill. The analysis will be accomplished with IWR-PLAN, or a like program, which evaluates the cost effectiveness of the alternatives under consideration for ecosystem restoration/improvements. A separate and independent NER evaluation may be performed if deemed appropriate.

JBACC Cost Effectiveness of Ecosystem Improvements for wetland restoration efforts

A CEIA will be performed for alternatives that provide for inclusion of ecosystem restoration. The restoration alternatives can include the restoration of wetlands, the removal of exotic species, as well as improvements to the hydrology of a specific area. The analysis will be accomplished with IWR-PLAN, or a like program, which evaluates the cost effectiveness of the alternatives under consideration for ecosystem restoration/improvements. A separate and independent NER evaluation may be performed if deemed appropriate.

JBACD Investigation of the Value of Ecosystem Improvements and Recreational Opportunities to the Community

The District will conduct a survey of the Gary/Chicago Metropolitan area to determine what value residents place on the ecosystem improvements and recreational opportunities that would result from the project implementation. The District has the lead responsibility in conducting these surveys, and they will accomplish this work in the most efficient manner in accordance with budget and time constraints.

JBAD0 Benefit-Cost Analysis of Project Conditions

JBADA Advance Maintenance Dredging (Section 312 (a))

Benefits and costs will be analyzed for with project conditions, i.e., advance maintenance dredging under Section 312 (a). A determination will be made regarding the feasibility of advance maintenance dredging and disposal will be made early in the study process.

JBAE0 Recreation Benefit Analysis

An analysis of recreation benefits will be conducted for any plans that will result in increases in recreational usage of the waterways. Recreation features may be added during the feasibility, such as canoe launches, passive recreation areas (bird outlooks) or recreation trails, which will take advantage of existing and restored ecosystem features of the project area.

JBAF0 National Economic Development Analysis

An analysis of the NED benefits associated the project will be developed for the feasibility study. This information will be provided to the study team for use in evaluating alternatives and also will also be used in the NEPA document in the sections on socioeconomic impacts and environmental justice. Benefits included in the NED analysis will include advance maintenance and recreation benefits.

JBAG0 Socioeconomic Analysis Report

The results of socioeconomic studies will be presented in an Appendix to the feasibility report. Summary results also will be incorporated into the main body of the Feasibility Report and NEPA document.

JBAH0 Economics Appendix

An Economics Appendix will be prepared to include analysis and discussion of the traditional economic analyses associated with the NED analysis. This appendix will also include the CEIA associated with the ecosystem/restoration components of the study. The analyses will include the CEIA related to dredging and disposal, in-stream restoration, bank restoration and wetland restoration.

JBB00 Social Studies/Report

The existing sociological, economic, and demographic conditions for the project area will be documented in the feasibility report. Impacts to be considered under the social impact assessment include community and regional growth; community cohesion, displacement of people; property values and tax revenues; public facilities and services; life, health and safety; business and industrial growth; employment and labor force; farm displacement; noise levels; and aesthetics. Impacts will be incorporated into the NEPA document.

JBC00 Financial Analysis

A financial analysis will be performed regarding the financial capability of the non-Federal sponsor. The Financial Analysis will include an assessment of the sponsor's financial capability. The financial analysis will also include a statement of financial capability/ability to pay and a financing plan.

JBCA0 Statement of Financial Capability/Ability to Pay

The Statement of Financial Capability is a clear and convincing description, submitted by the non-Federal sponsor, of their capability to meet their financial obligations for the project in accordance with the project-funding schedule. The Statement of Financial Capability will include evidence of the non-Federal sponsor's authority to utilize the identified sources of funds and will provide information on the non-Federal sponsor's capability to obtain remaining funds, if any.

An ability to pay analysis will be prepared in compliance with the requirements of ER 1105-2-100 and the provisions of WRDA 1986. The analysis will determine the non-Federal sponsor's

eligibility to reduce its cost-sharing responsibilities based on local economic conditions. The statement must be certified by the District Engineer, which may require an analysis/verification of abilities by the District's F&A office.

JBCB0 Financing Plan

The Chicago District will prepare a Financing Plan that clearly and convincingly describes how the non-Federal sponsor intends to meet their financial obligations for the project in accordance with the project funding and Operation, Maintenance, Repair, Rehabilitation and Replacement (OMRR&R) schedules. The financing plan will (1) include a current schedule of estimated Federal and non-Federal expenditures by Federal fiscal year (1 October - 30 September), (2) exactly reflect cost-sharing policy, and (3) agree with estimated cost figures in the feasibility report. In addition, a schedule of the sources and uses of non-Federal funds during and after construction, by Federal fiscal year, will be included. The schedule will include project outlays and income, as well as outlays and income related to project construction and financing. Also, the schedule of the sources and uses of funds will be consistent with the schedule of estimated Federal and non-Federal expenditures. Finally, the Financing Plan will explain the method of finance for all non-Federal outlays, including OMRR&R, associated with the project. The Chicago District will perform this task.

JBCC0 Assessment of Financial Capability

The District Commander's assessment of the non-Federal sponsor's financial capability is to determine if it is reasonable to expect that ample funds will be available to satisfy the non-Federal sponsor's financial obligations for the project. Consideration will be given to prior performance of the non-Federal sponsor on similar projects, certainty of revenue sources and method of payment, and overall financial position of the non-Federal sponsor. The assessment will demonstrate that (1) the sponsor has adequate funds to meet their financial obligations as delineated by the project funding schedule provided by the Chicago District; (2) the reliability of the sources of funds has been demonstrated; (3) the sponsor has full and legal access to those funds; and (4) all parties providing funding essential to meeting the sponsor's financial obligation are legally committed to providing those funds. The Chicago District and the non-Federal sponsor will perform this task.

Task JBCD0 Financial Analysis Report

A financial analysis report will be prepared that consists of the non-Federal sponsor's statement of financial capability, their preliminary financing plan, and the Chicago District's assessment of the non-Federal sponsor's financial capability. The financing plan will include a current schedule of estimated Federal and non-Federal costs, by fiscal year; a schedule of the sources and uses of non-Federal funds during and after construction, by fiscal year; and the method of finance for all non-Federal outlays, including OMRR&R associated with the project. The non-Federal sponsor's statement of financial capability will include evidence of its authority and ability to obtain and commit the identified sources and uses of funds.

Task JBCG0 Division Review & Approval

Division level review and approval of the Financial Analysis will be accomplished prior to the completion for public and headquarters review of the feasibility report. Review documentation and approval will be included in the feasibility report prior to release for public and headquarters review.

JBD00 Institutional Studies/Report

An investigation will be conducted and a report prepared to identify the jurisdictions, concerns and authorities of the non-Federal sponsor, and to determine the level of interest of agencies and organizations that may be involved in the study. The legal and institutional requirements for implementation of project features (including those to be implemented by the non-Federal sponsor) will also be identified.

JC000 Real Estate Analysis/Documents

It is essential that the real estate requirements for a water resource project are adequately identified and the estimated cost and schedule for land acquisition are accurately established before authorization. Therefore, a comprehensive Real Estate Plan (REP) to the Feasibility Report is required for all water resource projects, whether cost shared or full Federal.

For cost shared projects, real estate acquisition and performance of facility and utility relocations are major responsibilities of the non-Federal sponsor. Therefore, Real Estate should participate with Planning, Project Management and other District elements in the discussion of project requirements with the non-Federal sponsor. Further, Real Estate should initiate discussions with the non-Federal sponsor regarding acquisition procedures and policies, including compliance with P. L. 91-646, as amended, lands, easements, rights-of-way, relocations and disposal areas (LERRDs) crediting procedures, and milestones for land acquisition. Real Estate must also regularly consult with the non-Federal sponsor throughout the feasibility phase as to the LERRD and facility/utility relocation requirements of the project as it proceeds to final formulation. No LERRDs shall be acquired prior to signing the project cooperation agreement (PCA).

JCA00 Real Estate Supplement/Plan

The Real Estate Plan (REP) identifies and describes the lands, easements and rights-of way (LERRDs) required for the construction, operation, and maintenance of a proposed project, including those required for relocations, borrow material, dredged and excavated material disposal, staging/storage areas, facility/utility relocations, and mitigation. Further, the REP describes the estimated LERRD value, together with the estimated administrative and incidental costs attributable to providing project LERRD, and the acquisition process (e.g., who will be acquiring, types of ownerships, non-Federal sponsor's ability to acquire land) that will be required to support project implementation.

JCB00 Gross Appraisal/Report

A Gross Appraisal Report will be prepared, which contains general statements as to character, present use and highest and best use of the land; local economic conditions that may affect the trend of real estate values in the community; and the gross estimate of value for the area to be acquired under the REP.

JCC00 Preliminary Real Estate Acquisition Maps

Real Estate will review maps showing the area that is the subject of the REP, indicating the acquisition guide lines, contour lines, the tentative blocked out fee lines, and lands in which the acquisition of easements is recommended. The maps will show the estates required, the impact of utilities, identify property owners, and the tabulation of estates. In addition, the maps will show the borrow areas and the spoil areas.

JCD00 Physical Takings Analysis

The REP will also include a physical taking analysis, which includes a realistic estimate of administrative costs, giving due recognition to existing and foreseeable conditions. Included as a minimum requirement will be estimated administrative costs for mapping review, appraising, title evidence, negotiating and closing direct purchases, condemnation, and relocation assistance, a summary of project real estate costs, a schedule of acquisition, discussion and recommendations concerning the non-standard estates proposed for acquisition, and the extent of the existing navigational servitude in accordance with ER 1165-2-302.

JCE00 Preliminary Attorney's Opinion of Compensability

The Preliminary Attorney's Opinion of Compensability will be prepared for every utility facility potentially affected by the project. It is a description of the facility or utility relocations that must be performed, including information regarding the general nature of the impact to each facility or utility; the identity of the owners of the affected facilities and utilities; the purpose of the affected facilities and utilities; whether the owners have compensable real property interests in the land on which the impacted portion of the facility or utility is located; the conclusions reached in the Attorney’s Opinion of Compensability prepared in support of the relocation determinations; whether special legal authority or direction affects relocation classification (for example, the project’s authorizing legislation or reports referenced therein; Section 111 of the River and Harbor and Flood Control Act of 1958 (33 U.S.C. §633)); and other information relevant to the proper identification and performance of relocations necessitated by construction, operation, or maintenance of the project.

JCF00 Rights of Entry

Rights-of-entry for survey and exploration will be obtained as required.

JCG00 HTRW Evaluation

Real Estate will evaluate the HTRW information provided by the Technical Services Division.

JCH00 All Other Real Estate Analyses/Documents

Property owner identification will be obtained; preliminary title reviews will be reviewed; location and ownership of utilities in the project boundaries will be identified. Additional tasks include team meetings and non-Federal sponsor coordination.

JD000 Environmental Studies/Reports/EIS

Environmental studies will be performed to assist in the identification, design, evaluation and selection of proposed dredging, disposal, and ecosystem restoration alternatives. Environmental reports will present a full evaluation and documentation of the significance of the environmental impacts, in accordance with National Environmental Policy Act (NEPA), ER 1105-2-100, ER 220-2-2, and other applicable laws, statutes, Executive Orders, and regulations. A NEPA document will be prepared to accompany the feasibility report. NEPA documentation will be coordinated with State and Federal environmental agencies and the public. Through appropriate guidance from IDEM either a Water Quality Certification or waiver will be obtained during the feasibility study or during the PED phase.

Resuspension of contaminants in the sediment are the primary source of contamination to the Grand Calumet River system. The influent water quality from the outfalls to the river (which make up 90 percent of the average flow) is presently acceptable. Recontamination of the system to the extent that it is currently impaired is unlikely based on the controls in place for these outfalls. There is a potential, however, for a CSO release that could impair water quality on a temporary basis. There is also the potential for an industrial spill, which could result in a temporary impairment. However, legal controls in place would require a clean up by the responsible party, in the event of an industrial spill. In addition, while the groundwater in the area has some contamination it does not pose a threat for recontamination to current degraded levels. Based on a 2001 USGS study on chemical loads from groundwater to the waterway "the majority of the concentrations measured in 21 wells for PCBs, pesticides and polynuclear aromatic hydrocarbons were measured less than the method reporting limit, resulting in small loads to the river. Maximum loads estimated for the PCBs, pesticides and polynuclear aromatic hydrocarbons were less than 0.1 kg/d".

JDA00 Documentation of Scoping Meetings

A formal record will be made of discussions with the public and resource agencies, which define the environmental concerns related to the evaluation of project alternatives and the selection of the recommended plan. The non-Federal sponsor and the Chicago District will perform this task.

JDB00 Environmental Impact Statement (EIS)

The primary focus of the Environmental Impact Statement (EIS) will be the identification of environmentally amenable dredging, disposal, and ecosystem restoration alternatives in the Grand Calumet River watershed. The presence of pollutants in the sediment poses a potential risk for wildlife that feed on fish, invertebrates or vegetation in the channel. Removal of contaminated sediment will have positive long-term effects on the ecosystem. Minimizing the potential for contaminant loss associated with sediment re-suspension during dredging and sequencing of sediment removal activities will be requisite in the overall cleanup effect; therefore, it should be included in a risk assessment as detailed plans are developed.

Dredging removes the contaminated sediments from the system but does not in and of itself rehabilitate the impaired uses. An ecosystem restoration plan must be developed concurrently with the sediment removal alternative to assure consideration and management of the habitat after sediment cleanup. The EIS will be developed primarily by the non-Federal sponsor, in close conjunction with the Corps, and will include assessments performed by the sponsor on the existing

ecological impacts of the contaminated sediments, as well as all other environmental investigations and required coordination.

JDC00 Coordination Documents with Other Agencies

Letters, meeting records, etc., will be prepared that indicate and describe the dialogue between agencies regarding the proposed project. This task will be the responsibility of the Corps.

JDD00 Environmental Resource Inventory Report

An inventory will be prepared describing the natural resources that are located within the study areas. The inventory report will specify the needs and opportunities for ecosystem restoration opportunities within the project area. Previous studies have been undertaken and will be incorporated into the report. The non-Federal sponsor will undertake this task.

JDDA0 Biological Data Literature Review

All relevant data and prior biological investigations will be collected and reviewed in order to assess current understanding of the biological traits of the basin. This review also will identify data gaps that will need to be addressed. Potential sources for information include academia, government agencies (USEPA, USGS, NRCS, Indiana Department of Environmental Management, Indiana Department of Natural Resources, etc.), and private/non-profit groups (Nature Conservancy, etc.).

JDDB0 Biological/Field Sampling Plan

Whenever possible, existing assessments of the river habitat available from the non-Federal sponsor will be utilized. The TMDL study has provided sufficient surface water quality data. Fish and macro invertebrate inventories have been completed and will be incorporated into this section. Plant and waterfowl data still need to be gathered. Development of the field-sampling plan will include planning and logistics for collection of plant, bird and herpetofauna data.

JDDC0 Plant, Waterfowl, Fish, and Macro-invertebrate Sampling

Plant, waterfowl, and herpetofauna communities will be sampled as necessary to supplement existing data and to determine the overall condition of the aquatic ecosystems. All data collection will follow EPA protocols in order to ensure that past and future environmental studies in the Grand Calumet River Basin can be compared to data collected during the feasibility phase of the proposed investigation.

JDDD0 Identify Significance of Study Area

The regional and national significance of natural resources within the study area will be described and evaluated, based on special river/stream or land within the basin by Federal or State agencies, and may include threatened and endangered species; rare, unusual, or scenic habitat types; land forms; or waterways.

Task JDDE0 Environmental Participation

The Chicago Wilderness and SOLEC (Paul Labus) have completed this section. The Chicago District and the non-Federal sponsor will participate in tasks JDCB, JDCC, and JDCD.

JDE00 Mitigation Analysis Report

Because this study will focus on environmentally amenable dredging, disposal and ecosystem restoration alternatives in the Grand Calumet River watershed, it is not anticipated that fish and wildlife mitigation will be required. However, the analyses required under NEPA will be carried out and documented in the Environmental Impact Statement by the non-Federal sponsor.

JDF00 Endangered Species Analysis

This section has been accomplished by the non-Federal sponsor as part of the Remedial Action Plan and will be documented in the EIS. The non-Federal sponsor's costs for this work are reflected in the prior studies for JDI, Other Environmental Studies.

JDG00 Ecosystem Restoration Alternative Design

Ecosystem Restoration Alternative will be developed for the Grand Calumet River (in-stream), as well as for areas adjacent to the bank. Restoration alternatives for specific sites will be designed. Design elements will include engineered features such as water level and sediment control structures, riffles and pools and placement of clean fill (also for water level control). Alternatives will also include backwater dredging, bank scalloping and berm removal, and wetland restoration. Alternative restoration plans will be developed for each reach. This plan will be coordinated with the non-Federal sponsor as part of their work on the Environmental Impact Statement.

JDH00 Section 404(b)(1) Analysis Report

Upon completion of the recommended plan analysis and environmental assessment, a report will be prepared as required by the Clean Water Act, which summarizes any water quality impacts associated with the placement of fill in waters of the United States. The Chicago District's Planning Branch and Technical Services Division will complete this task.

JDHA0 401 State Water Quality Certification

A Water Quality Certification or a waiver will be obtained from the State of Indiana to ensure that any proposed actions will not result in a violation of State water quality criteria. The Chicago District's Environmental Engineering Section will seek appropriate guidance from IDEM, and support the Planning Branch in performing this task.

JDI00 Statement of Findings (SOF)

A comprehensive summary of all environmental coordination and record of environmental compliance will be prepared in conjunction with preparation of the EIS by the Chicago District's Planning Branch and Technical Services Offices.

JDJ00 Other Environmental Documents

Several other environmental studies and documents will be prepared for the project, as detailed below. The Chicago District and the non-Federal sponsor will perform this work.

JDJA0 Water Quality and Sediment Sampling Report

The feasibility phase of the study will include an inventory and analysis of current water quality and physical habitat conditions in selected stream reaches of each sub-basin, as well as at each potential project site. Detailed information regarding fluctuations in discharge and chemical constituents is necessary to properly design ecosystem restoration projects. As indicated previously, a comprehensive sediment quality database exists for the Grand Calumet River watershed. Additional sediment samples will be collected to fill in data gaps, if necessary. Therefore, an extensive sampling program is not anticipated. If the Federal and non-Federal sponsor determine that there is a need for extensive sampling during the course of the study, additional sampling will be completed during detailed design.

JDJAA Review of Existing Water Quality Data and Baseline Surface Water Data Collection

Existing surface water data will be analyzed. Data gaps were identified and additional sampling proposed. Based upon these findings, sufficient water data required to fulfill Section 404(b)(1) requirements and to perform modeling studies has been developed by the non-Federal sponsor.

JDJAB Review Existing Sediment Quality Database, and update Sediment Contaminant Analysis

Sediment samples will be collected from the immediate vicinity of the proposed project sites and analyzed by a licensed laboratory for parameters identified by EPA. Samples will be collected as needed to supplement available data from local, state and federal sources. The Chicago District's Technical Services Division (or its contractor) or the non-Federal sponsor and a Certified Laboratory will perform this task during detailed design of specific project sites.

Extensive analysis has been undertaken by a number of state, federal and local agencies and advocacy groups to evaluate the quality of the sediment in the Grand Calumet River watershed. Previous reports, including the SCRAP, have included extensive compilations of sediment quality data. The information contained in the SCRAP report, and other available sediment quality assessments has been updated by the non-Federal sponsor in conjunction with U.S. Environmental Protection Agency (USEPA), local municipalities and all concerned groups. The revised database will be included in this report within the Environmental Engineering Appendix, the EIS and in the GIS database.

JDJB0 Quantification of Ecosystem Restoration Outputs

The purpose of this task is to establish a system of prioritizing areas for restoration features and quantifying future benefits. The non-Federal sponsor, has completed this effort as part of the prior work under Task JDI, Other Environmental Studies. The non-Federal sponsor will document the results of this analysis in the EIS.

JDJBA Develop Habitat Based Assessment Procedure and Establish References

The habitat assessment task and entire functional assessment procedure will entail (1) identifying one or more functional indicators for each function that can be readily measured in the field and combined to provide an index of function; (2) identifying a number of sites in the field that represent the full range of impacts from very disturbed to rather pristine; (3) testing the methodology by inventorying and collecting data from each site; and (4) analyzing the data to see which variable(s) are statistically insignificant and can be dropped from the assessment procedure and if the sites cluster on an ordination in a predicable manner (i.e., those sites representing "good habitats" cluster together and apart from the "impaired" sites).

Data collection will be conducted by technicians and then analyzed and presented to the product development team for comments and revisions. Once analyzed with the selected tool or tools, this set of data representing the ecological condition of the sites in each basin becomes the baseline condition for comparison with project alternatives. In addition, the baseline condition model will also assist the team in defining restoration objectives (goals).

JDJBB Establish Level of Ecological Function under Existing and Improved Conditions

The habitat assessment techniques adopted for the specific habitat or indicator species in the Sub-Task JDIBA will be employed to establish existing condition ecological functions in the project area, assist in the formulation of habitat restoration alternatives, and quantify increases in ecological outputs associated with plans and plan scales.

Project ecologists will participate as study team members in the formulation of habitat restoration alternatives by assisting in the following tasks: (1) selection of restoration goals, (2) determination of appropriate structures and functions to be restored; and (3) identification of restoration techniques to potentially reduce impairment. After the initial screening process, project ecologists will quantify the expected ecological outputs and gains associated with each alternative (and scale of alternative) for use in conducting the CEIA. Project ecologists also will identify the relationships (i.e., dependencies, non-additivity, mutual exclusivity) between management measures.

JE000 Fish and Wildlife Coordination Act Report

As required by the Fish and Wildlife Coordination Act, as amended, Public Law 85-624; 16 U.S.C. 661, et seq., the Chicago District will coordinate with the U.S. Fish and Wildlife Service to ensure that fish and wildlife resources conservation is given equal consideration with other purposes in project selection.

JEA00 Coordination District

Study team ecologists will coordinate with the USFWS in providing and reviewing information necessary to assist the USFWS in rendering an opinion under the Coordination Act.

JEB00 Preparation of Coordination Act Report

An inter-agency transfer of funds will be provided to the USFWS to compensate them for their involvement in the study and preparation of the Coordination Act Report. The USFWS will

participate in the study scoping, identification of fish and wildlife concerns, identification of available information, determination of the significance of fish and wildlife resources, and quantification of anticipated impacts. The Coordination Act Report will be prepared by the USFWS to accompany the Feasibility Report and NEPA document. Funding in the amount of $5,000 will be provided by the Chicago District to the USFWS in accordance with the current Corps/FWS Transfer Funding Agreement.

JF000 HTRW Studies

JFA00 HTRW Report

HTRW investigations will be conducted in accordance with the guidance provided in ER 1165-2-l32: Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects, EM 1110-1-502: Technical Guidelines for Hazardous and Toxic Waste Treatment and Cleanup Activities and ASTM Standard E 1527-00 - Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. A report will be prepared that identifies recognized environmental conditions within and nearby the project study area that indicate a potential for HTRW contamination.

On and near the project area, various data sources will be evaluated to determine the potential presence of HTRW sites (**Error! Reference source not found.**). Non-HTRW sites will also be identified. An evaluation of potential for impacts of these sites to the remediation project will be conducted. The report will include findings from a site reconnaissance; review of facility and regulatory agency records and databases; review of available mapping and aerial photography; and interviews with landowners, knowledgeable individuals, and regulatory agencies.

A similar process will be followed to evaluate potential disposal sites once they have been chosen. During this process, any sites identified as having a potential for HTRW contamination will be excluded from consideration as borrow or disposal areas. The location of all known, reported or suspected HTRW sites will be documented in the HTRW report.

This work under task JFA00 will be performed by the Chicago District's Environmental Engineering Section and by the non-Federal sponsor.

JFB00 HTRW Remedial Investigation (RI)

The HTRW RI/FS will essentially involve all investigations, analysis, evaluations, public and regulatory coordination, and permitting necessary to prepare a full and complete remedial design for subsequent removal or remedial action activities.

For the proposed dredging area, the majority of the information that must go into this RI report already exists and will be collected and included in an RI for this area.

For disposal site evaluation, it is projected that sites with potential HTRW problems will be excluded from further consideration. Therefore, an HTRW RI will not be required for any disposal sites. In the unlikely event that a given site is highly desirable, and there are HTRW problems at the site, additional funds would have to be requested to do the necessary follow-up studies and remedial design work. The additional costs would have to be shared by the Federal and non-Federal sponsor.

JFC00 All Other HTRW Documents

It is projected that no further HTRW documents will be required. Water quality and sedimentation analysis studies (major task JDI) necessary to meet Clean Water Act requirements will incorporate the assessment of toxic substances such as heavy metals, pesticides, herbicides, and PCBs.

JG000 Cultural Resource Report

Section 106 of the Historic Preservation Act of 1966 requires Federal agencies or project sponsors seeking Federal funding and/or permits to conduct cultural resource surveys and literature searches to locate historic properties eligible for, or listed on, the National Register of Historic Places and to determine the effects of the proposed project (undertaking) on those properties. The impact of alternative plans and undertakings and their effects on historic properties will be developed in consultation with the State Historic Preservation Officers (SHPO). During the development of the alternative plans and proposed undertakings, areas having significant historic properties potentially eligible or listed on the National Register of Historic Places shall be provided the fullest consideration for receiving protection. This effort will be undertaken by the Chicago District's Planning Branch in conjunction with the Social Studies (Socioeconomic Report JB).

JGA00 Site Survey Field Report

The cultural resources investigations will be conducted in a phased approach. Step 1 will consist of collecting information from regional histories, historic maps, and existing GIS databases for each state and identifying known sites in the Grand Calumet River Basin. In Step 2, field surveys will be conducted at these alternative disposal or borrow sites, consisting of walkovers and inspections of exposed surfaces. Phase I level field-testing will also be performed using systematically determined shovel tests. No Phase II site testing will be conducted; however, the Phase I survey will be conducted in sufficient detail to determine the potential Register eligibility of identified sites.

JGB00 Data Collection and Analysis Report

The report will briefly describe the identified and potential historic sites that would be impacted by the alternatives analyzed in this study and the NEPA document. Historic resource considerations that may influence the plan recommendations will be clearly identified in the Feasibility Report. Comprehensive documentation of these results will be provided to the respective State Historic Preservation Offices (SHPO) for Section 106 consultation and review. The Advisory Council on Historic Preservation and respective SHPO's will be consulted to ensure compliance with the National Historic Preservation Act (NHPA) and other applicable state requirements. The project archaeologist will provide an account of the cultural resources investigation, a map that identifies the location of known, reported or suspected cultural sites, and recommendations for the appropriate treatment of cultural resources on proposed project sites. Chicago District's Planning Branch will perform this work.

JGC00 Mitigation Plan Report

Alternatives will be screened to exclude impacts on significant cultural resources, whenever possible. It is not anticipated that a mitigation plan report will be required.

JGD00 Memorandum of Agreement

Identification of historic properties and project impacts will be accomplished in a timely manner. A Memorandum of Agreement (MOA) between the District, the SHPO, the Advisory Council on Historic Preservation, and other consulting parties is not anticipated unless adverse effects occur.

JGE00 One Percent Waiver

Section 3-7 (in Chapter 3, "Historic Preservation") of ER 1105-2-50 (29 January 1982) states that the cost of archaeological or historic work (Phase I survey, Phase II testing, or Phase III mitigation) may not exceed 1% of the cost of construction for projects other than CAP projects, unless a waiver is obtained from Congress.

Section 3-8 (in Chapter 3, "Historic Preservation") of ER 1105-2-50 (29 January 1982) states that the "one percent limitation" has been waived for Continuing Authority projects, under the 1980 amendments of the National Historic Preservation Act.

Impacts to significant cultural resources will be avoided, as much as possible. Mitigation will only be conducted where adverse effects are unavoidable. Therefore, a waiver request is not anticipated.

JGF00 All Other Cultural Resources Studies/Reports

No additional cultural resource documents will be needed.

JH000 Cost Estimates

This activity includes all deliverables required to prepare life cycle cost estimates needed to support the Feasibility Report and to prepare the baseline project cost estimate. Cost estimates will be developed in accordance with the guidance contained in ER 1110-2-l302, Civil Works Cost Engineering, using the MCACES cost estimating system. Cost estimates will be presented in the Civil Works Breakdown Structure (CWBS). Cost estimates will include both Federal and non-Federal costs for construction; real estate; engineering and design; construction management; environmental, cultural resources and HTRW investigations; operation and maintenance replacement, repairs and rehabilitation of alternatives; and the recommended project. Revisions to the estimates prepared for the draft report and comparative cost estimates used for alternative analysis also will be included. In addition, this product will include an estimate of the cost of the preparation of the cost estimate updated during the Preconstruction Engineering and Design (PED) phase.

Risk-based methods in developing estimates of implementation will be considered (IWR Report 00-09, Risk Analysis Framework for Cost Estimation).

JHA00 Study Cost Estimate Updates

This activity includes all deliverables related to the preparation of and revisions to the Feasibility Study Cost Estimate. The Chicago District’s Planning, Programs and Project Management Division will use this opportunity to review all costs with the non-Federal sponsor. Updating the study cost estimates with the non-Federal sponsor will ensure that the overall feasibility study costs will

remain in check and that miscommunications on fiscal matters will be held to a minimum. This task will be performed as a joint effort near the completion of the interim feasibility study as part of the Project Management effort.

JHB00 PED Cost Estimate

The Preconstruction Engineering and Design (PED) cost estimate will be prepared and revised, as necessary, to accompany the Feasibility Report and Project Management Plan (PMP). The PED cost estimate will include all Federal and non-federal costs for PED from the date of the Division Commander's Notice to the award of the first Federal construction contract. The Chicago District's Project Management Branch, with input from each District element responsible for a portion of the PED investigations, will perform this task (costs for preparation of individual elements of the PED estimates are included in the Feasibility Study cost estimates for each technical discipline). In addition, it is important that the non-Federal sponsor helps prepare the PED Cost Estimate to insure they have a complete understanding of the cost of the work involved in PED before entering into the PED agreement. The Chicago District and the non-Federal sponsor will complete this task as part of the Project Management effort.

JHC00 Project Cost Estimate

Project cost estimates will be prepared using a phased approach, as described below. Project cost estimates will be prepared in accordance with the requirements of ER 1110-1-1300 and ER 1110-2-1302. The Chicago District's Project Management and Technical Services Divisions will perform this work. Risk-based methods in developing estimates of implementation will be considered (IWR Report 00-09, Risk Analysis Framework for Cost Estimation).

JHCA0 Preliminary Cost Estimates

Reconnaissance level cost estimates will be prepared for the initial set of alternatives to support the plan formulation and screening of alternatives. This cost screening will be conducted after the alternatives have been screened based on environmental, institutional, and technical criteria. Comparative cost estimating techniques will be used to support alternative screening and preliminary incremental analyses. Chicago District's Technical Services Division will perform this task.

JHCB0 Feasibility Level Cost Estimates

Feasibility level cost estimates will be prepared for each of the considered alternatives. Detailed cost estimates will be prepared for the selected alternative using the MCACES cost-estimating program and will be documented with notes to explain the assumed construction methods, crews, productivity, sources of materials, and other specific information. Labor costs will be based on the prevailing Davis-Bacon wage rates for each trade. Equipment costs will be based on EP 1110-1-8, Construction Equipment Ownership and operation Expense Schedule. Contingencies will be developed and applied where areas of uncertainty exist. Detailed costs for all of the non-construction cost items (lands and damages, construction management, PED) will be provided by the appropriate offices and incorporated into the estimate.

JHD00 OMRR&R Cost Estimate

This activity includes all deliverables related to the preparation of the Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R) cost estimates. The preliminary, comparative cost estimates that were used for alternative screening and incremental analyses also will be included. The Chicago District's Project Management and Technical Services Divisions will perform this major task.

JHE00 Baseline Fully Funded Cost Estimate (MCACES)

The fully funded cost estimate will be prepared based on the project cost estimate developed in Task JHCB - Feasibility Level Cost Estimate. The project cost estimate will be updated, revised, and escalated for inflation through completion of the project. The fully funded cost estimate will be used to support the Project Management Plan (PMP) and upward reporting requirements. The Chicago District' s Planning, Programs and Project Management Division and the non-Federal sponsor will perform this task.

JHF00 All Other Cost Estimates

A cost estimate will be developed for a monitoring program that begins two years prior to construction and ends two years following completion of construction. This estimate will be included in the feasibility level and fully, funded cost estimates. Chicago District's Planning, Programs and Project Management Division will perform this major task in cooperation with the non-Federal sponsor.

JHG00 Cost Engineering Appendix

The Cost Engineering Appendix will include a written description of the methodology used to develop the baseline cost estimate. The appendix also will include a description of the scope of the projects included in the estimate and a description of the potential risk and uncertainty associated with the estimate. Estimates will include both Federal and non-Federal costs for construction, real estate, engineering and design, cultural resources, construction management, HTRW investigations, and remediation of potential project impacts. The preliminary, comparative cost estimates that were used for alternative screening and incremental analyses also will be included in the appendix. The Chicago District's Technical Services Division will perform this task.

JI000 Public Involvement Documents

The feasibility study will include a public involvement program designed to meet NEPA requirements; inform the public and government agencies about the condition of the Grand Calumet River Basin and its problems; obtain public input to the problem identification, alternative formulation and project selection process; ensure that public and agency concerns are addressed; and keep the public and agencies apprised of the study goals, study progress, and proposed projects. The results of the public involvement program will be documented in a Public and Agency Coordination Appendix to the Feasibility Report. This appendix will include notices of meetings, meeting summaries, copies of pertinent correspondence, coordination letters with relevant agencies, and other items appropriate to public involvement (ER 1105-2-100, Appendix L - Public Involvement).

The goals of a public involvement plan are to inform and educate the public and solicit feedback through open communication, and to include in the plan formulation process all public groups interested in and affected by the study recommendation(s). Various "public groups" have been identified as target audiences for public involvement and coordination for this study. These groups include, but are not limited to the following: (1) elected congressional officials: (2) Federal agencies: U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Environmental Protection Agency, U.S. Department of Agriculture (NRCS), the International Joint Commission (IJC), National Oceanic and Atmospheric Administration (NOAA); (3) State agencies: Illinois Department of Natural Resources, Illinois Environmental Protection Agency, Illinois Department of Agriculture, Indiana Department of Natural Resources, Indiana Department of Environmental Management, and local Soil and Water Conservation Districts; (4) local offices/groups: Grand Calumet River Restoration Fund Council (GRRF), Care Committee, Grand Cal Task Force, county officials, city governmental officials, farm bureaus, Nature Conservancy, Sierra Club, Izaak Walton League, Audubon Society, Ducks Unlimited, North American Waterfowl Association, and other special interest groups; (5) the media; and, (6) the unaffiliated general public.

JIA00 Public Meetings

It is proposed to hold four public meetings to correspond with critical points in the study. The first will be held near the study's initiation; the second at the study's mid-point prior to final selection of the alternatives for detailed analysis; the third just prior to the finalization of the recommended plan; and the fourth after the public comment period. Meeting dates will be developed after initiation of the feasibility study and coordination with the non-Federal sponsor and stakeholders. The Chicago District's Programs and Project Management Division, with assistance from other divisions as appropriate, and the non-Federal sponsor will perform this major task.

JIAA0 Risk Communication/Outreach Plan

A very proactive approach to risk communication and public outreach plan will be established as one of the first tasks in the study. The risk communication and outreach plan will describe the steps to undertake for effective public participation for the project. The objectives of the plan will be to find out community concerns and develop a strategy to respond to them in a timely manner, establish effective interactions with the community and relationships with all stakeholders, and develop tools for education and outreach. This task maybe accomplished by using a District consultant.

JIAB0 Study Initiation Public, Scoping Meetings, and Public Workshops

A public meeting will be held early about six months after the study's initiation. Letters, notices, newspaper articles, and radio announcements will be employed to inform the public of public meetings. The public meeting will be designed to educate the public on the purpose and goals of the feasibility study and to ask the public's assistance in identifying problems, opportunities, and issues relating to the study. After a presentation by the study team, the public will have the opportunity to participate by asking questions and providing oral and written statements. The meeting conduct and results will become part of the official meeting record and will be designed to supplement the NEPA scoping requirements.

Alternatively, the meeting may be held in a less traditional format, where poster board displays are set up throughout a large room staffed by Corps folks. That way the public can learn about the project in a more personal, less confrontational manner. Cards can be available for people to write their comments, and they can be responded to in writing, and posted to the intranet Frequently Asked Question (FAQ) page. A court reporter may also be made available at a side table if people have more detailed issues they want formally recorded and responded to.

Tasks will include designing the public meeting, making logistical arrangements (including meeting room and audio-visual equipment), preparing informational material (e.g., sign-in sheets, comment sheets, notice for inclusion in the study newsletter), and attending the meeting.

JIB00 Minutes of Public Meeting(s)

After each of the four meetings described above, Chicago District's Planning Branch will prepare an After-Action Report, which will summarize the logistics of the meeting, the effectiveness of the meeting, and the comments received at the meeting. The After-Action Report will be provided to the study team. A summary of the After-Action Report will be included in the subsequent newsletter and will be used to supplement the Public and Agency Coordination Appendix to the Feasibility Report. The Chicago District's Planning Branch and the non-Federal sponsor will perform the work under this major task.

JIC00 Public Comments Report

Comments received during and after the public meetings, workshop and Issue Resolution Conference, as well as those received in response to study newsletters, will be compiled and kept on file in the Chicago District. The summary of the comments is called content analysis. Content analysis is necessary to identify public opinion, study concerns and potential controversy. It will ensure that the public involvement plan is responsive to the level of interest and concern expressed by the public, and it will assess the effectiveness of the public involvement techniques. ER 1105-2-100, Appendix L, states that the objectives of content analysis techniques are to "summarize and display public comment in such a way that maximum information is available to decision-makers and the public about what was said."

Content analysis techniques and automated measures code, store, retrieve, summarize and display public comments in a systematic, objective, visible and traceable manner. This allows for maximizing information available to decision-makers.

A statistical assessment of comments received, viewpoints expressed, and support or opposition to proposed alternatives will be summarized and stored using microcomputer software. The information will be furnished to all members of the study team and will be used to supplement the Public and Agency Coordination Appendix to the Feasibility Report. Chicago District's Planning and Project Management Branches, in coordination with the non-Federal sponsor, will perform this major task.

JID00 – Newsletters

A study newsletter will be prepared at the beginning of the study and about every six months thereafter until the study's completion. (Note: The dates listed for the five newsletters may vary somewhat to coincide with study activities.) Several sub-tasks are involved in preparing and

releasing a newsletter. Before a newsletter can be released to the public, the public must be identified, and the newsletter must be written, prepared for printing, printed, prepared for mailing, and mailed. The tasks involved in releasing a newsletter to the public are described below. The Chicago District's Planning Branch and non-Federal sponsor will prepare and distribute the newsletters.

JIDA0 Identify Affected Publics, Build/Maintain Mailing List

Agencies, organizations, and individuals affected by or interested in the study will be identified by gathering names from an existing data base, public meetings, telephone communications, and correspondence. The mailing list will be stored on a computer database that will be updated throughout the study. When sending information to the public, mailing labels will be prepared from the updated database.

JIDB0 Prepare Newsletters

A study newsletter will be prepared at the beginning of the feasibility study, which will include study initiation information and a public meeting announcement. Interim study newsletters will be prepared with updates regarding the study progress. A final study newsletter will be released in 2004, which will include the study conclusion information and the final public meeting announcement.

This task includes gathering information for the newsletter; writing the newsletter; preparing a camera-ready copy of the newsletter for printing; scheduling, coordinating, and printing the newsletter; preparing the newsletter for mailing; and mailing the newsletter.

JIE00 All Other Public Involvement Documents

Other public involvement tasks that will occur throughout the study are listed below. The Chicago District's Planning and Project Management Branches and Public Affairs Office, and the non-Federal sponsor will perform this major task.

JIEA0 Public and Agency Coordination Appendix

The results of the public involvement program will be documented in a Public and Agency Coordination Appendix to the Feasibility Report. The appendix will summarize the public involvement techniques used to involve the public throughout the study and the effectiveness of those techniques: summarize the results of all public meetings; and summarize all public comments received.

JIEB0 Provide Assistance to Study Team

Other public involvement activities will include assisting study team members with the following tasks: responding to inquiries from the general public, agencies, and congressional interests; preparing briefings; and preparing visual aids for briefings.

JIEC0 Attend Study Team Meetings

Attendance at all study team meetings is necessary to keep current on study progress.

JIED0 Prepare Logistics for Feasibility Phase Issue Resolution Conference (FRC)

ER 1105-2-100, Appendix O, requires that a Feasibility Phase Issue Resolution Conference be held before the release of the feasibility report to the public. ER 1105-2-00, Appendix O, further details the structure of a typical FRC.

Tasks will include making logistical arrangements for the Feasibility Phase Issue Resolution Conference (including meeting room and audiovisual equipment), helping with the preparation of meeting materials, and attending the meeting.

JIEE0 Coordinate with District Public Affairs Office

Newsletters and other study information will be provided to Chicago District's Public Affairs Office. The Public Affairs Office will then create a news release for dissemination to the media. (Note: Public Affairs costs are not a part of this cost estimate.)

JJ000 Plan Formulation and Evaluation Report

The study team will follow the six-step planning process specified in ER 1105-2-100 and the guidelines for conducting ecosystem restoration studies provided in EC 1105-2-210. Steps in the plan formulation process will include the following:

The specific problems and opportunities that will be addressed in the study will be identified, and the causes of the problems will be discussed and documented. Planning goals will be set, objectives will be established, and constraints will be identified. Ecosystem structures and functions that will influence the success of the effort will be identified. The quantitative measures that will be used to measure the outputs of ecosystem restoration and advance maintenance dredging will be developed and identified.

Existing and future without-project conditions will be identified, analyzed and forecasted. The existing condition of resources, problems and opportunities critical to plan formulation, impact assessment and evaluation will be characterized and documented.

The study team will formulate alternative restoration and project plans that will address the planning objectives. Potential alternatives will be screened to lessen the number of projects subject to detailed design and cost estimates. Scales of alternatives will be developed, as appropriate, for each project site. Nonstructural plans for watershed management considered to be essential to the success of restoration efforts (e.g., storm water management, non-point source pollution control, erosion and sedimentation reduction measures) will be identified and formulated.

Alternative project plans will be evaluated for effectiveness, efficiency, completeness and acceptability. The impacts of alternative plans will be evaluated using the system of accounts framework specified in Principles and Guidelines and ER 1105-2-100 (NED, EQ, OSE, CEIA).

Alternative plans will be compared. A CEIA will be conducted to prioritize and rank alternatives. The public involvement program will be used to obtain public input to the alternative evaluation process.

A plan will be selected for recommendation and a justification for plan selection will be prepared.

The Project Manager (PM) assigned from the Chicago District's Planning, Programs and Project Management Division will lead the plan formulation effort with the Planning Branch's Plan Formulator (PF) providing day-to-day support. The non-Federal sponsor also will assign study coordinators to work with the Corps Project Manager and coordinate non-Federal in-kind services. The Project Manager and non-Federal study coordinators will lead the study team and coordinate the plan formulation process. The non-Federal sponsor will perform this task as part of their role in the development of the EIS.

The Project Manager, his or her supervisor, and the non-Federal sponsor's study coordinator will complete the following tasks. The costs of participation in plan formulation activities by the rest of the study team are included in their technical study estimates under the appropriate Sub-Products.

JJA00 District Coordination Meeting

A coordination meeting will be scheduled shortly after the initiation of the feasibility phase. The purpose of the meeting will be to plan and coordinate activities between the different technical disciplines responsible for performing portions of the feasibility study investigations. The Chicago District's Planning, Programs and Project Management Division, and the non-Federal sponsor will coordinate this task.

JJB00 Establish Without-Project Conditions

Without-project conditions will be developed and refined in the early stages of the Feasibility Study based on environmental, hydrologic, institutional and socioeconomic input. The Chicago District's Planning Branch and the non-Federal sponsor will perform this task.

JJC00 Preliminary Formulation and Screening of Alternatives

The Lead Planner will guide the efforts of the study team, which will be comprised of representatives from the Corps and non-Federal sponsor, in identifying and screening alternative sites and projects. Based on review of existing data and limited field reconnaissance, the study team will identify potential alternative sites, develop concept level designs and preliminary cost estimates, and conduct a qualitative assessment of ecosystem restoration outputs. This information, plus information obtained from the public in the initial public workshops, will be used to screen sites and alternatives into a final set, which will be subject to detailed evaluation. The results of this step will be documented in a technical memorandum that will be provided to the Executive Committee, HQ USACE and LRD prior to the Alternative Formulation briefing. The Lead Planner will summarize the results of the technical studies leading to plan selection, and prepare a brief summary document that will provide preliminary designs and cost estimates for each alternative recommended for further study. A preliminary CEIA will also be provided to support the alternative selection process. The Chicago District's Planning, Programs and Project Management Division and the non-Federal sponsor will perform this task.

JJD00 Alternative Formulation Briefing and Report

A checkpoint conference will be scheduled mid-way through the formulation effort after the preliminary formulation of alternatives to ensure that the Corps and the non-Federal sponsor focus their resources on alternatives that are in the Federal interest. The checkpoint conference will take the form of the Alternative Formulation Briefing (AFB) in accordance the Planning Guidance Notebook.

The Alternative Formulation Briefing is an interim checkpoint conference attended by the Chicago District, the non-Federal sponsor, the Great Lakes and Ohio River Division (LRD), and Headquarters, USACE. The purpose of the AFB is to review study findings concerning ecosystem problems and needs; to evaluate the array of alternatives and determine their consistency with the Federal interest; and to review the preliminary analysis of the environmental, economic, social and regional impacts of alternatives. The AFB will be scheduled when technical studies, such as hydrologic modeling and baseline environmental investigations, have progressed to the point where a determination can be made on whether potential alternatives are in the Federal interest.

This meeting will be a key decision point in determining whether alternatives meet Federal and non-Federal policies and budgetary criteria and should be retained for detailed analysis. The Chicago District's Planning, Program and Project Management Division, and non-Federal sponsor will perform this task.

JJE00 Plan Formulation Management and Report

A Plan Formulator (PF) will be assigned from the Chicago District's Planning Branch to manage the day-to-day plan formulation and report preparation effort under the direction of the Project Manager. The non-Federal sponsor will also assign a Study Coordinator to work with the Corps Project Manager and coordinate non-Federal in-kind services. The Project Manager and the non-Federal Study Coordinator will lead the study team, including coordinate the plan formulation process among the various disciplines and organizations. Management of the plan formulation effort will include such activities as planning and conducting team meetings, upward reporting, preparation of study and project management documents, coordination with the non-Federal sponsor and other agencies, and integration of all technical investigations. Chicago District's Planning, Program and Project Management Division, and the non-Federal sponsor will carryout this major task.

JJEA0 Plan Formulation and Study Management

Plan formulation involves the development and evaluation of alternative solutions to the problems identified during the Reconnaissance Study and refined during the Feasibility Study. "Without-project" future conditions will be assessed for each site selected and compared to the "with-project" future conditions for each alternative. Planning objectives and constraints and plan formulation rationale and criteria will be developed. Technical plan formulation activities will include restoration site selection, development of alternative plans, and supervision of the alternative evaluation and selection process. The evaluation of alternatives will compare the costs and benefits associated with each plan. The plan formulation and selection process will be based on inputs from the CEIA, the analysis of with- and without-project conditions, and the analysis of socioeconomic data. As required by ER 1105-2-100, for planning criteria, the project must be: 1. economically

justified, 2. environmentally sustainable, 3. publicly acceptable and 4. feasible. The plan formulation process will be documented in detail in the Feasibility Report.

The Project Manager will closely monitor the progress of technical investigations and ensure that the study complies with the provisions of ER 1165-2-501, Civil Works Ecosystem Restoration Policy (30 September 1999), and EP 1165-2-502, Ecosystem Restoration Supporting Policy Information (30 September 1999). All measures formulated during the feasibility study must demonstrate that the proposed restoration measures will result in restoration of unique and significant habitat. Restoration activities must result in measurable improvements to fish and wildlife habitat, and not solely water quality benefits.

In accordance with ER 1110-1-12, E&D Quality Management, the Project Manager will prepare a Quality Control Plan (QCP) for executing each engineering product. The plan will include discussion on the conduct of the Independent Technical Review (ITR); customer requirements and expectations; technical criteria; technical and policy design quality verification procedures; schedule; and compliance checklists for quality control reviewers.

The Chicago District's Project Manager will also develop a detailed study plan, and monitor funds and work progress to ensure tasks are completed on time and within budget. The Project Manager will ensure that all data collection activities are proceeding as scheduled and that the information collected is properly disseminated. Study management activities include frequent coordination with technical elements, response to congressional or other study related inquiries, annual preparation of the budget testimony and maintenance of open dialogue with the non-Federal sponsor and LRD. The Chicago District's Planning, Programs and Project Management Division will perform this task with assistance from the non-Federal sponsor.

JJEB0 Plan Formulation Report

The Plan Formulator will summarize the results of the technical studies leading to plan selection in the plan formulation report. This report will document the alternative formulation, evaluation and selection process used to identify the NED, NER and the tentatively selected plans. The costs and benefits and environmental and hydraulic impacts of alternatives presented in the report will be developed at the feasibility level of detail, although the detailed technical appendices will not be prepared by this time. This task will be performed by the Chicago District's Planning Branch or Technical Study Manager (as deemed appropriate), and the non-Federal sponsor.

JJF00 Plan Formulation Conference

The purpose of the plan formulation conference is to review the selection of NED, NER and the recommended plans. The final problem identification, impact analysis, CEIA will be reviewed and discussed. The plan evaluation criteria and alternative selection process will be presented and discussed, as well as the issue of continuing Federal and sponsor interests. Proposed alternatives will be reviewed at the meeting. If the non-Federal sponsor has a preferred alternative that differs from the federally recommended plan, it will be identified and reviewed at this time. The plan formulation report will be submitted to HQ USACE/LRD at least two (2) weeks before the conference. The sponsor's ability to pay its share of project implementation and OMRR costs will be reviewed. Study team members from the Chicago District in conjunction with the non-Federal sponsor will perform this task.

JJG00 LRD Approves Formulation Material

LRD will approve the plan formulation material presented at the plan formulation conference as a basis for the District to prepare the Draft Feasibility Report. This task will be performed by LRD and funded out of separate Civil Works appropriations.

JK000 Draft Report Documentation

A draft Feasibility Report and Draft EIS will be prepared following the guidance contained in ER 1105-2-100. With minor revisions, the plan formulation report will be suitable for incorporation into the Feasibility Report as the main report section. Detailed appendices will be prepared documenting the results of the technical analyses. The contents of the Draft Feasibility Report are summarized below:

A concise main report summarizing the study's technical findings, conclusions and recommendations;

A Draft NEPA (EIS) document;

Technical appendices presenting the detailed backup and results of individual tasks;

An appendix containing the sponsor's financial capability statement and preliminary financing plan; and

Other supporting documentation includes the Project Management Plan (PMP).

JKA00 Product Team (PT) Review

This task involves review of the Feasibility Report by the product team members in accordance with the Project and District Quality Control Plans. The product team is responsible for producing quality services and/or products. The technical element assembling the Feasibility Study is the Plan Formulation Section. Methodology, concurrence, technical adequacy and product quality (i.e., format, grammar, spelling, consistency, computations, etc.) are obtained through periodic internal reviews by the product team members and technical supervisors. Appropriate review documentation, including checklists and/or comments, will be provided to the Quality Manager subsequent to the team review.

JKB00 – Independent Technical Review (ITR)

This task involves a review of the adequacy and policy compliance of the Feasibility Report. The particular aspects of this product on which the ITR team should concentrate its focus on the following technical and policy criteria: conformance to basic planning principles relative to the identification, evaluation, and recommendation of project plans. The ITR review is intended to be on-going through out product development, using a team concept, not a cumulative process performed at the end. Representatives of the Buffalo District, the non-Federal sponsor and possibly a non-Corps agency (to be identified early in the study process) will perform this task. Appropriate documentation, as outlined in the District Quality Management Plan (QMP) and the QCP for the feasibility study (draft provided in appendix A), will be provided by the Corps Project Manager.

ITR guidance is shown in Attachments 3 and 4 of Appendix, the team if necessary can provide additional guidance for appropriate conduct of the ITR and comment/resolution process.

JKC00 – Feasibility Review Conference (FRC) Documents

The Project Manager will prepare a Memorandum for the Record (MFR) documenting the issues discussed and decisions reached at the FRC. The MFR will be prepared by the District's Planning, Programs and Project Management Division and forwarded through LRD to Headquarters, U.S. Army Corps of Engineers (HQUSACE) for approval, along with other appropriate documents, as required. See subtask JOE, Conference Minutes.

JKD00 Public Review Comments

This task involves reviewing and preparing responses to letters received from agencies and the public in response to the Draft Feasibility Report. Responses to the comments will be included in the Final Feasibility Report. The Chicago District's Planning Branch will perform this task.

JKE00 Project Guidance Memorandum (PGM)

This task includes directive guidance prepared by HQUSACE for the work to be accomplished to obtain approval of the Final Feasibility Report. This task will be performed by HQUSACE and will be funded through separate appropriations.

JKF00 All Other Draft Feasibility Documents

Preparation of the Draft Feasibility Report includes assembling, writing, editing, typing, drafting, reviewing, reproducing, and distributing the draft report, Draft NEPA document and other related documentation required for transmittal by USACE to higher authorities for use as a decision document. The District's Program and Project Management and Planning Offices will prepare the Draft Feasibility Report and Draft NEPA document. The costs of preparing the Draft NEPA document and the technical appendices to the Feasibility Report are included under other Sub-Products. The Chicago District's Program and Project Management, and Planning Offices will perform preparation of the Draft Feasibility Report.

JL000 Final Report Documentation

The Final Feasibility Report will incorporate comments from agencies, the public and higher authority review. The steps in producing a Final Feasibility Report include the following:

Finalize Draft Feasibility Report for internal/sponsor review;
Conduct review board meeting;
Revise and reproduce draft report for submission to LRD and HQUSACE;
Revise draft report in response to LRD and HQUSACE comments;
Modify draft report in response to comments during agency and public comment review;
Coordinate with non-Federal sponsor and internal elements; and
Reproduce Final Feasibility Report for distribution.

JLA00 Division Commander's Notice

A public notice will be prepared announcing completion of the Division Commander's Report, based on his endorsement of the findings and recommendations of the District Commander, and indicate that the report has been submitted for Washington Level Review. The Chicago District's Planning Branch will perform this function.

JLB00 – All Other Final Feasibility Report Documents

The District's Project Management and Planning Branches, and the non-Federal sponsor will prepare the Final Feasibility Report and Final NEPA document. The costs of preparing the final NEPA document and the technical appendices are included under other Sub-Products.

JM000 Washington Level Report Approval

This Sub-Product includes activities necessary for submittal of the Final Feasibility Report to Congress after completion of all levels of review. To ensure that the non-Federal sponsor is afforded an opportunity to participate in any significant effort as a result of Washington level review, funding for the District and the non-Federal sponsor are included as a separate work item in the PMP. These costs, including any necessary travel, will be limited to those reasonable costs associated with the review and processing of the Feasibility Report. In accordance with EC 1105-2-108, this item will be 5 percent of the total study cost or $50,000, whichever is less, and will be cost-shared equally between the Corps of Engineers and the non-Federal sponsor. Accordingly, $50,000 is included in the estimate for this task.

JMA00 Policy Review Approval

A written assessment of the final Feasibility Report will be prepared by the Washington Level Review Center (WLRC) to document the Feasibility Report's compliance with current policy. This task will be performed by HQUSACE and will be funded through separate appropriations.

JMB00 Chief's Report

A brief summary of the Feasibility Report, signed by the Chief of Engineers, will be prepared to transmit recommendations to the Assistant Secretary of the Army for Civil Works. This task will be performed by HQUSACE and will be funded through separate appropriations.

JMC00 OMB Report Approval

A letter will be prepared from OMB to ASA (CW) expressing the Administration's position regarding transmitting the report to Congress for authorization. This task will be performed by OMB and will be funded through separate appropriations.

JMD00 ASA (CW) Report Approval

A letter will be prepared from ASA (CW) transmitting the Feasibility Report along with ASA (CW)'s recommendation to Congress. This task will be performed by ASA (CW) and will be funded through separate appropriations.

JN000 All Other Feasibility Studies/Investigations

No additional feasibility studies/investigations will be required.

JO000 Management Documents

This sub-product includes all of the documents related to the management of the Feasibility Report, including A/E contract administration and in-house control.

JOA00 Project Management Plan (PMP)

The purpose of the PMP is to present a plan for investigating, developing and evaluating remediation alternatives for the Grand Calumet River and non-Federal portions of the Indiana Harbor Canal in Indiana. The PMP describes the scope, schedule and budget of the tasks required to develop, initiate, and complete the Feasibility Study. A detailed work task description, cost summary table, work break down structure, division of responsibilities and preliminary schedule is included. This task will be performed by the Chicago District's Planning, Programs and Project Management Division, and the non-Federal sponsor.

JOB00 Acquisition Plan

An acquisition plan will be prepared that lists the procurement actions, contract amounts, and award schedule for A/E contracts to be used to complete the study.

JOC00 A/E Contract Documents

This activity includes preparation of negotiation, award and contract administration documents for the utilization of A/E contractors to complete, or assist in the completion of Feasibility Phase products. The cost of obtaining A/E services are included in the study cost estimates of the technical study sub-products.

JOD00 Coordination Documents

Copies will be made of letters exchanged with the non-Federal sponsor that affect study costs, scopes of work and/or schedules; official correspondence with higher authority on similar subjects; internal memoranda which bear on significant study elements; and, in general, any other correspondence which affects significant aspects of the study. This task will be performed by the Chicago District’s Planning, Programs and Project Management Division and the non-Federal sponsor.

JOE00 Study Funds Control Documents

This task includes preparation and management of internal funds control documents for the allocation of funds and management of the Feasibility Study. The Chicago District's Planning, Programs and Project Management Division's Program Manager is responsible for managing the overall study cost, schedule, present and future budget year submissions, and fiscal coordination with the non-Federal sponsor. A representative of the non-Federal sponsor will assist in project management tasks.

The Chicago District Project Manager (PM) with assistance of the non-Federal project manager will monitor expenditures, keep the PMP current, prepare project management reports, report to the PRB, and report study status and issues to the District Commander and the Executive Committee. The project management structure will continue into the pre-engineering and design and construction phases. Updates of PMP will include regular finance and accounting reports regarding expenditures and obligations, executive summary reports for the PRB, schedule and cost changes, and changes to work elements.

This task includes preparation of budget documents and financial reports. At the end of the study a final audit will be performed. Work required to prepare a sponsor letter of intent to participate in the Preconstruction Engineering and Design (PED) and construction phases will also be prepared under this task. This task will be performed by the Chicago District's Planning, Programs and Project Management Division and the non-Federal sponsor.

JOF00 Trip Reports

PM will prepare written trip reports that document the initial site visits, meetings with the potential non-Federal sponsor, and other significant trips that affect the scope, cost, or schedule of the Feasibility Report or the project. The Chicago District's Planning, Programs and Project Management Division and the non-Federal sponsor will perform this task.

JOG00 Minutes of Review Meetings

Minutes will be prepared on the results of the conferences with LRD/HQ USACE. Comments received on the technical aspects of the Feasibility Report as reviewed concurrently at the conferences with the District, LRD, and HQUSACE and will be documented and responses prepared.

JOH00 All Other Management Documents and Activities

This task includes all other appropriate management documents and activities that may be needed on a case-by-case basis. Responsibility for project management lies with the Chicago District's Programs and Project Management Division in cooperation with the Planning Branch's Lead Planner and the non-Federal sponsor. This task involves macro-level tracking, monitoring and upward reporting of the study progress through LRD and the Washington Level Review conducted by the Corps of Engineers.

The PM will ensure that all required tasks and coordination are performed in accordance with the PMP and FCSA. Budget preparation, correspondence, inter-organizational coordination, and point-of-contact responsibilities are part of project management. The PM will organize, set the agenda for, and moderate the PRB meetings. Duties such as assigning and negotiating study tasks to technical elements, scheduling the study, coordinating between technical elements, monitoring and modifying assigned work items as required, and reviewing results and reports provided by the technical support staff and preparing and responding to technical correspondence are also the responsibility of the Project Manager and are accounted for under Sub-Product JJ - Plan Formulation and Evaluation Report.

For activity/project closeout of the Feasibility Report, the non-Federal sponsor will submit documentation for in kind services. The project manager will verify that all credits are recorded.

K0000 Project Agreements

KA000 Preconstruction Engineering and Design (PED) Agreement

The purpose of the PED phase is to complete all of the detailed technical studies and design needed to begin construction of the project. The PED Agreement will include all Federal and non-Federal costs for PED from the date of the Commander's Notice to award of the first construction contract. PED activities may begin after negotiating and executing the PED Agreement. The non-Federal sponsor will initially provide 25 percent of the PED costs after execution of the PED Agreement. Through execution of the Project Cooperation Agreement (PCA), the non-Federal sponsor's share of the PED costs will be adjusted to provide 35 percent of the PED costs. The non-Federal sponsor will provide any additional funds required to cover their 35 percent share of the PED costs during construction. A draft PED agreement will be developed during the final stages of the feasibility study process and coordinated with the local sponsor and the Corps review levels as appropriate. The PED agreement will be finalized after project authorization.

KB000 Draft PCA

A draft Project Cooperation Agreement (PCA) for implementation of the approved plan of the selected alternative will be developed during the final stages of the feasibility study process. The PCA is a legal binding agreement that sets forth the cost sharing requirements (including credits for LERRDs and work in kind if applicable), non-Federal sponsor's responsibility for obtaining all LERRDs required for the project, shall provide and terms of the relationship between the Federal Government and the non-Federal sponsor for construction, operation and maintenance of the project. The PCA will be finalized during PED.

KC000 Federal/Non-Federal Allocation of Funds Table

An allocation of funds table will be prepared that includes the allocation of funds for each feature, programmed by Fiscal Year (FY), and separated by non-Federal and Federal sponsors. This table outlines cash flow for each partner for project purposes. See ER 1165-2-131, ER 11-2-240, and appropriate Project Management guidance letters. The Chicago District's Planning, Programs and Project Management Division will perform this task.

C. Reference to Statutes, Regulations, and Guidance

This section of the PMP lists statutes, regulations, Corps guidance, and other source materials that will be referred to during the feasibility study to guide completion of feasibility study tasks. A summary of the acronyms and subject matter of various types of guidance is listed below. This list was extracted from the U.S. Army Corps of Engineers, Institute for Water Resources, IWR Report 95-R-15, Draft Planning Manual December 1995, which also is a useful reference document in providing practical suggestions for conducting water resource planning studies.

AR	Army Regulation
EC	Engineering Circular
EM	Engineering Manual
EP	Engineering Pamphlet
OM	Office Memorandum
PGL	Planning Guidance Letter
TL	Technical Letter
1105	Planning
1110	Engineering
1120	Construction - Operations
1130	Construction - Operations
1140	Construction - Operations
1165	Policy

The principal Engineering Regulation (ER) that guides the Corps of Engineers planning process is ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies, 22 April 2000, U.S. Army Corps of Engineers. Appendix A of ER 1105-2-100 contains references to the applicable statutes, public laws, executive orders, and engineering regulations that guide preparation of Corps feasibility studies. Additional references that will be utilized to guide the completion of feasibility study investigations include the following:

CEAO-I Memorandum, dated 10 August 1988, subject: HQUSACE Internal Review Guides - Compliance with Feasibility Study Guidance

CECW-A Policy Guidance Letter No. 24: Restoration of Fish and Wildlife Habitat Resources, 7 March 91, U.S. Army Corps of Engineers

CECW-A Policy Memorandum: Implementation of New Technical and Policy Review Procedures, 14 April 95, U.S. Army Corps of Engineers

CECW-A Policy Memorandum No. 2: Civil Works Decision Document Review - Review Compliance, 6 April 95, U.S. Army Corps of Engineers

CECW-P/CECW-O, Implementation Guidance for Section 312, dated April 2001.

CECW-PM Planning Guidance Letter 97-1: WRDA 96 Implementation, 19 November 1996, U.S. Army Corps of Engineers

CECW-PE, Planning Guidance Letter 97-5, Aquatic Ecosystem Restoration, 18 February 1997, U.S. Army Corps of Engineers

CECW-PE, Planning Guidance Letter 97-10, Shortening the Planning Process, 26 March 1997, U.S. Army Corps of Engineers

CECW-PE, Memorandum, Model Agreement for Feasibility Studies, 21 March 1997, U.S. Army Corps of Engineers

EC 1105-2-210, Ecosystem Restoration in the Civil Works Program, 1 June 1995, U.S. Army Corps of Engineers

EC 1110-2-287, Groundwater Investigations, 31 August 1995, U.S. Army Corps of Engineers

EM 1110-1-1000, Photogrammetric Mapping, 31 March 1993, U.S. Army Corps of Engineers

EM 1110-1-1001, NAVSTAR Global Positioning System Surveying, 1 August 1996, U.S. Army Corps of Engineers

EM 1110-1-1005, Topographic Surveying, 31 August 1994, U.S. Army Corps of Engineers

EM 1110-1-1802, Geophysical Exploration for Engineering and Environmental Investigations, 31 August 1995, U.S. Army Corps of Engineers

EM 1110-2-1415, Hydrologic Frequency Analysis, 05 March 1993, U.S. Army Corps of Engineers

EM 1110-2-1416, River Hydraulics, 15 October 1993, U.S. Army Corps of Engineers

EM 1110-2-1603, Hydraulic Design of Spillways, 16 January 1990, U.S. Army Corps of Engineers

EP 11-1-4, Value Engineering: A Profitable Partnership, 15 May 1995, U.S. Army Corps of Engineers

EP 715-1-4, Architect-Engineer Contracts, 8 June 1994, U.S. Army Corps of Engineers

EP 1110-2-9, Hydrologic Engineering Study Design, 31 July 1994, U.S. Army Corps of Engineers

EP 1165-2-1, Digest of Water Resources Policies and Authorities, 30 July 1999, U.S. Army Corps of Engineers

ER 5-7-1, Project Management System, 1 March 1991, U.S. Army, Corps of Engineers

ER 5-1-1 1, Program and Project Management (draft), U.S. Army Corps of Engineers

ER 220-2-2, Procedures for Implementing NEPA, (33 CFR 230), 4 March 1988, U.S. Army Corps of Engineers

ER 405-1-12 (Chapter 12), Real Estate Handbook - Local Cooperation, 28 May 1991, U.S. Army Corps of Engineers

ER 715-1-16, Selection of Architect-Engineer Firms, 3 March 1995, U.S. Army Corps of Engineers

ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies, 28 December 1990, U.S. Army, Corps of Engineers

ER 1110-1-12, E&D Quality Management, 1 June 1993, U.S. Army Corps of Engineers

ER 1110-1-1003), NAVSTAR Global Positioning System Surveying, 31 December 1994, U.S. Army Corps of Engineers

ER 1110-1-1300, Cost Engineering Policy and General Requirements, 26 March 1993, U.S. Army Corps of Engineers

ER1110-2-1150, Engineering and Design for Civil Works Projects, 31 March 1994, U.S. Army Corps of Engineers

ER 1110-2-1302, Civil Works Cost Engineering, ENG 1738-R, ENG 173 9-R, ENG 1740-R, ENG 1741 -R, ENG 1741 A-R, ENG 1741 B-R, ENG 1741 C-R, 31 March 1994, U.S. Army Corps of Engineers

ER 1110-2-1450, Hydrologic Frequency Estimates, 31 August 1994, U.S. Army Corps of Engineers

ER 1110-2-1460, Hydrologic Engineering Management, 7 July 1989, U.S. Army Corps of Engineers

ER 1110-2-1464, Hydrologic Analysis of Watershed Runoff, 30 June 1994, U.S. Army Corps of Engineers

ER 1110-2-8153, Technical Project Sedimentation Investigations, 30 September 1995, U.S. Army Corps of Engineers

ER 1110-2-8154, Water Quality and Environmental Management for Corps Civil Works Projects (RCS: DAEN-CWH-4), 31 Nov 1995, U.S. Army Corps of Engineers

EP 1165-2-1, Digest of Water Resource Policies and Authorities, 15 February 1996 (updated annually), U.S. Army Corps of Engineers

ER 1165-2-131, Local Cooperation Agreements for New Start Construction Projects, 15 April 1989, U.S. Army Corps of Engineers

ER 1165-2-132, Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects, 26 June 1992, U.S. Army Corps of Engineers

Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, 10 March 1983, U.S. Water Resources Council

IWR Report #95-R-1, Evaluation of Environmental Investments Procedures Manual, Interim: Cost Effectiveness and Incremental Cost Analysis, May 1995, U.S. Army Corps of Engineers, Institute for Water Resources

ER1165-2-501. U. S. Army Corps of Engineers, Civil Works Ecosystem Restoration Policy. Washington, D.C. 30 September 1999.

EP1165-2-502. U.S. Army Corps of Engineers, Ecosystem Restoration Supporting Policy Information. Washington, D.C. 30 September 1999.

Policy Guidance Letter 49. U.S. Army Corps of Engineers, Section 312 of the Water Resources Development Act of 1990, Environmental Dredging, as amended by Section 205 of the Water Resources Development Act of 1996. Washington, D.C., 28 January 1998.

III. Work Breakdown Structure

The work Breakdown Structure (WBS) is a product-oriented Hierarchy of the scope of work, which is broken down into component products and sub-products. The WBS presented below follows the definition of major task, tasks, and subtasks defined in the Scope of Studies (SOS). The WBS is intended to summarize the entire feasibility work effort with an outline of the specific tasks that are to be accomplished to produce the feasibility study products. The WBS follows a consistent set of accounting codes. The accounting codes of the WBS are intended to allow products, tasks, cost, and schedule to be tracked with easy reference throughout the feasibility phase.

The Civil Works Breakdown Structure used here is an accounting system for Corps of Engineers Civil Works projects. The Corps of Engineers Financial Management System (CEFMS) and the Project Management Information System (PROMIS) were designed to directly accept cost data for projects set up using the Civil Works Breakdown Structure. No funds can be spent without a study budget based on the Civil Works Breakdown Structure.

This section presents the work breakdown structure or report produced at the end of the feasibility phase of this project, after completing the tasks in the scope of studies. The major product is the Grand Calumet River/Indiana Harbor Environmental Dredging Plan (EDP), referred to as Level 1 in Table . Shown as Level 2 in Table are the three major products of the EDP, the Feasibility Report, the Draft EIS and Project Agreements (PED Agreement and the draft PCA).

Table 2 - Work Breakdown Structure for Grand Calumet River/Indiana Harbor Project

Level			Description
1			Grand Calumet River/Indiana Harbor Environmental Dredging Plan (EDP)
	2		Major Products of the Plan • Feasibility Report • EIS • Project Agreements
		3	Subproducts of Level 2 Products • Feasibility Report a. Engineering Appendices b. Socioeconomic Studies/Report c. Real Estate Analysis/Documents d. Environmental Studies/Reports/EIS e. Fish and Wildlife Coordination Act Report f. HTRW Studies/Report g. Cultural Resource Report h. Cost Estimates i. Public Involvement Documents j. Plan Formulation and Evaluation Report k. Draft Report Documentation l. Final Report Documentation m. Washington Level Report Approval n. All Other Feasibility Studies/Investigations o. Management Documents • Draft EIS a. Socioeconomic Studies/Report b. Environmental Studies/Reports/EIS c. Fish and Wildlife Coordination Act Report d. Cultural Resource Report e. Public Involvement Documents f. HTRW Studies/Report • Project Agreements a. PED Agreement b. Draft PCA c. Federal/Non-Federal Allocation of Funds Table

IV. Organization Breakdown Structure

The Organizational Breakdown Structure (OBS) identifies the organizations that have lead and support responsibilities for completing each feasibility study task. In addition to identifying task responsibilities, the OBS includes mechanisms for assuring proper coordination between the Federal and non-Federal study teams involved in preparing the feasibility study.
Organizational Work Responsibilities

The OBS describes the responsibility of each organization in providing input to and/or completing tasks identified in the Scope of Studies and Work Breakdown Structure. The following paragraphs identify the management and technical responsibilities for the study. Three levels of management responsibility will be used to guide development of the study: the Executive Committee, the Project Review Boards (PRBs), and the study management team. Responsibilities for performing the technical feasibility study investigations are identified following the description of the management structure.

A. Executive Committee

As indicated in the feasibility cost-sharing agreement (FCSA), the overall study management is the responsibility of the Chicago District Commander, the Deputy District Engineer for Planning, Programs and Project Management; the Chief of Planning Branch; and designated representatives of the non-Federal sponsor. The Executive Committee will meet as needed throughout the study to review study progress, finances, and findings as developed and reported by the study team. Those representing the non-Federal sponsor will be equal partners with the Chicago District representatives on the Executive Committee. The District Commander and his counterpart from non-Federal sponsor will co-chair the committee. The Executive Committee will manage the overall study by: (1) maintaining a working knowledge of the feasibility study; (2) assisting in resolving emerging policy issues; (3) ensuring that evolving study results and policies are consistent and coordinated; (4) directing the study management team; (5) rating decisions made by the study management team; and (6) maintaining exclusive authority over approving budget variations.

The Executive Committee will participate in Conferences with LRD/HQ USACE. The committee is also responsible for resolving any disputes that may arise during the study. The committee will agree on the solutions and study direction, which may include study termination. At least one conference will be held prior to the public distribution of the draft feasibility report to ensure that all issues are resolved before the final report is submitted to higher authority.

As detailed in Article III of the FCSA, the Executive Committee must approve any significant amendments to the FCSA. Significant changes are defined as follows:

Any modification to the FCSA that increases the total study costs, relative to the current study cost estimate;

Any modification in the estimated cost of a study work item or any obligation for a study work item, which changes the total cost of that work item, accounting should be made by the individual project manager of actual costs and adjustments to effectively manage the study budget;

Any extension of the completion schedule for a study work task of more than thirty (30) days beyond the established late finish date from the study schedule; or

Any reassignment of work items between the non-Federal sponsor and the Federal Government.

The Executive Committee is also responsible for any decisions on whether to suspend or terminate studies under Article of the FCSA. The Committee will also resolve any disputes that are not resolved by the study team and will appoint appropriate representatives to serve on the study team.

B. Project Review Boards (PRB's)

PRB's have been established at three levels within the Corps of Engineers to evaluate the status and progress on all studies, projects, and programs. One PRB includes HQUSACE. The HQUSACE PRB is chaired by the Director of Civil Works or designee and includes the chiefs of the elements whose functions are integral to the USACE role in civil works project. The HQUSACE PRB will review the study only if it determines that it needs intensive management at that level or if recommended by the LRD PRB. The HQUSACE PRB will facilitate resolution of major study issues, concerns, and problems through Corps functional channels and make recommendations to the Director of Civil Works, LRD, and the non-Federal sponsor as part of the intensive management. Upon receipt of a Schedule and Cost Change Request (SACCR), the HQUSACE PRB will approve changes in major milestones and significant cost increases in accordance with ER 5-7-1. The HQUSACE PRB will meet bimonthly.

The second PRB will be chaired by the LRD Commander or designee and include the chiefs of the elements whose functions are integral to the role of the Division in civil works projects. The LRD PRB will review monthly the Project Executive Summary (PES) for compliance with the PMP and provide comments to the District. The LRD PRB will facilitate resolution or elevate to the Division Commander or higher authority major issues raised during the study, monitor study contingencies and cost changes against the approved study cost estimate, and take appropriate action on SACCRs in accordance with ER 5-7-1.

A third PRB will be held by the Chicago District and chaired by the District Commander or designee. It will include the chiefs of the elements whose functions are integral to the role of the District in civil works projects. The District PRB will review monthly the PES report (along with all others for the District) for compliance with the PMP and provide comments to the Division and the project manager. The District PRB will facilitate resolution or elevate to LRD major issues raised during the study, monitor study contingencies and costs of changes against the approved study cost estimate, and take appropriate action on SACCR, in accordance with ER 5-7-1. The District PRB also will approve the PMP and any significant changes identified by the study management team and recommended by the project manager in accordance with ER 5-7-1. The non-Federal sponsor may attend the District PRB meetings at their discretion.

C. Project Delivery Team (PDT)

The PDT will include representatives from the Corps of Engineers, the Indiana Department of Environmental Management, U.S. Fish and Wildlife Service, interested environmental interest groups and other agencies, as appropriate. This team will ensure appropriate scopes of services for the technical studies, guide their accomplishment, and participate in plan formulation and selection of potential alternatives. The team will be directly involved in establishing mutual roles for the study team members and in focusing feasibility investigations on the critical issues. The Chicago District representatives will include the project manager and plan formulator from the Planning, Programs, and Project Management Division. The non-Federal sponsor also will appoint representatives to the study management team. The team will recommend to the Executive Committee the tasks to be conducted and the extent of planning and evaluation to be carried out in the feasibility phase. The team also will report to the Executive Committee and PRB on the results of studies and recommend alternative courses of action for project implementation.

The PDT is responsible for accomplishment of the study in accordance with the FCSA, PMP and appropriate Federal and State guidance and regulations. The PDT will meet regularly to coordinate on study progress, interim findings, financial status, and all matters related to conduct and completion of the study. Work performed or contracted out by the Federal and non-Federal sponsors is to be jointly coordinated and reviewed.

The PDT is composed of representatives from the Chicago District Technical Services; and Planning, Programs and Project Management Divisions. Representatives of the non-Federal sponsor(s) are also included as part of the PDT. The study will be managed within the Chicago District and will be accomplished under team project management.

The PDT will consist of the following disciplines from the Chicago District: Project Manager, Lead Planner (Planning Branch) or Technical Study Manager, Lead Engineer (Technical Services Division), Real Estate, Contract Specialist, and Public Affairs. Chicago District's Office of Counsel, Resource Management, Information Management and Construction will be consulted as necessary. In addition, the non-Federal sponsor's designated representatives will be on the PDT. The PDT will coordinate activities with the respective product team members responsible for developing the study in order to facilitate completion.

During the feasibility phase, the team leader will be the Project Manager. The project manager will coordinate with the members of the product team and will be the main point of contact with the PDT and Non-Federal sponsor. The project manager will make monthly progress reports to the PDT.

Administrative and Technical Committees will also be established. PDT meetings will be held at 4- to 6-week intervals, but may be more frequent at critical decision points.

The PDT has the responsibility for study formulation, technical project management, and development of the feasibility report. The development of a timely, quality product within the established task budget is the responsibility of the Project Manager (PM). In addition, the Federal and non-Federal sponsors are jointly responsible for scope of work preparation, contract negotiation, and performance of any work to be completed by consultants or other Federal agencies.

Corps of Engineers, Chicago District

Planning, Programs and Project Management Division (PM)

Project Management Branch (PM-PM)

The PM is the primary representative of the USACE Commander and serves as point of contact with the non-Federal sponsor. The project manager is responsible for reporting to Chicago District's Project Review Board and for preparation of required Life Cycle Project Management (LCPM) reports. The PM responsibilities include the development and monitoring of project schedules and finances, processing of schedule and cost change requests, management of contingencies, review of budget documents, coordination of the FCSA, PED Agreement and the draft Project Cooperation Agreement (PCA), and identification of problems and issues.

Planning Branch (PM-PL)

A representative from the Plan Formulation Section is the Planning Branch team member and is responsible for performing plan formulation activities under the direction of the PDT. These activities include assisting in plan formulation, monitoring the progress of technical work, and assisting in preparing the feasibility report. The Economic and Social Analysis Section will be responsible for developing economic data and demographic information and evaluating economic impacts. The Environmental and Social Analysis Section will assist in developing environmental and cultural data, developing incremental analyses for justification of environmental projects, assessing environmental impacts, preparing mitigation plans, and ensuring environmental compliance, and coordinating the GIS efforts required during the study in conjunction with the efforts of the non-Federal sponsor.

Real Estate Branch (PM-RE)

The Real Estate Branch will be responsible for performing all required real estate activities for the project. Real estate activities will include reviewing land ownership information (developed by the survey contractor), developing the real estate gross appraisal, and preparing the real estate plan that will include a baseline cost estimate for real estate, development of a detailed schedule of acquisition milestones, and a general description of the area and total acreage to be acquired, with fee and easement breakdown. The Appraisal Branch will prepare gross appraisals. The Acquisition Branch will obtain rights-of-entry, prepare preliminary real estate acquisition maps and prepare the real estate appendix to the feasibility report. The Real Estate Branch will also prepare the physical takings analysis and the preliminary attorney's opinion of compensability. Real Estate Branch will prepare and coordinate the Project Agreements (PED Agreement and draft PCA).

Technical Services Division (TS)

The Technical Services Division will be responsible for supporting the plan formulation effort and alternatives analysis and preparing the Engineering Appendix. The Cost Engineering and Specs Section will be responsible for developing cost estimates for initial construction and operation and maintenance of alternative plans and the selected plan. The Civil Design, Structural Design and Technical Support Sections will be responsible for preparing construction quantities and materials, and the preliminary drawings and layouts for the project’s engineering features for each of the selected alternatives. The Hydraulic Engineering Section will be responsible for conducting and/or

overseeing hydrologic and hydraulic analysis and design. The Environmental Engineering Section will be responsible for conducting and/or overseeing air, sediment and water quality and HTRW studies and analyses. The Design Branch will be responsible for developing designs and drawings, structural investigations, and surveying and mapping activities. The Geotechnical Engineering Section will perform and/or oversee drill borings, soils testing, and geotechnical analyses (slope stability, bearing capacity, settlement and borrow material analyses) in support of the study.

Office of Counsel (OC)

A representative from Office of Counsel will perform quality assurance and legal sufficiency review of all technical documents and support study team members in addressing legal issues as they develop during the feasibility study.

Public Affairs Office

A representative from the Public Affairs Office will participate on the PDT. Public Affairs will be a major participant in scoping meetings, public meetings; and preparing public newsletters, project internet sites and project intranet sites.

Contracting Office

A representative from the Contracting Office will participate in the PDT. The Contract Specialist will provide support to the PDT in terms of facilitating the award of analysis, design and/or construction contracts throughout the project life.

Support Offices/Organizations

Information Management

Provides technical and document support for the PDT for all project IT functions including internet, intranet, public meetings, etc. In addition Information Management will facilitate report reproduction and distribution.

Resource Management

Provides support for project funding to the Project Manager. Handles transfers of funds from local sponsors as well as funds tracking on an as needed basis.

LRD-GL

A representative from the Lakes and Rivers Division (Great Lakes Office) will provide support to the PDT on an as needed basis. The LRD representative will help coordinate all review conferences with HQUSACE, as well as participating in the conferences.

Study Partners

Numerous internal and external agencies/organizations will be consulted throughout the study for their input. Some agencies will participate in all projects, and others will only participate in the plan formulation process for specific projects. Those organizations that control property, have shown a special interest in the study, or have a certain area of expertise for product development will be included throughout the study period.

Non-Federal Sponsor (Indiana Department of Environmental Management)

The non-Federal sponsor for the environmental restoration and environmental dredging feasibility study is the Indiana Department of Environmental Management (IDEM). IDEM has provided a letter of intent to cost-share and stated their willingness to proceed in negotiating an FCSA.

The sponsor will be involved in all aspects of the feasibility study to ensure agreement with the findings of the study. The Corps will fully coordinate with the non-Federal sponsor to tap the experience and expertise of the staff in the watershed. The non-Federal sponsor will attend progress meetings and public workshops, participate in the plan formulation process, provide scientific and technical input to field studies, assist in the development of recommended plans, perform quality assurance, and review the reports.

Task Force/Public Interest

Numerous agencies and organizations will be consulted throughout the study. The following list includes some of the organizations that have shown a special interest in the study, or that have a certain area of expertise required for the study. They will participate in the plan formulation process for specific aspects of the project (i.e. Technical Committees). This is not intended to be an all-inclusive list. Many other organizations are included on the study mailing list that is not shown here.

Federal:
U.S. Fish and Wildlife Service
U.S. Geological Survey
Environmental Protection Agency
U.S. Department of Agriculture (Natural Resource Conservation Agency)

State:
Indiana Department of Natural Resources
Illinois Environmental Protection Agency
Indiana Department of Environmental Management
Soil and Water Conservation Districts

Local:
Grand Calumet River Restoration Fund Council (GRRF)
Care Committee
Grand Cal Task Force
Northwest Indiana Forum
County Government officials

City Government officials
Hammond Sanitary District
East Chicago Waterway Management District
Gary Sanitary District
The Nature Conservancy
Sierra Club
Izaak Walton League
Audubon Society
North American Waterfowl Association

The Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study will require input from many different work elements, the sponsor, and other external organizations, such as consultants, universities, and other government agencies. Proper coordination among these study participants is essential to maintain the project schedule, to avoid duplication of efforts, to detect problems in a timely manner, and to maintain agreement and cooperation on the direction of the study. Therefore, formal coordination mechanisms are described in the PMP.

D. Description of Coordination Mechanisms

Internal Coordination Mechanisms

Internal coordination mechanisms will be used to ensure that effective internal command, control, and coordination is maintained during the feasibility study. The primary internal coordination mechanisms will be the monthly PRB and PDT meetings; and conferences scheduled at critical phases of the study. An earned value analysis will also be accomplished on a monthly basis. The purpose of the earned value analysis is to assess actual study progress against scheduled progress with regard to both cost and schedule. Performing this analysis also will provide an early warning mechanism to identify and avoid potential cost and schedule variances.

Product team members and reviewers are responsible for reading all written documents related to the project. Scheduled project meetings may be held during the project life, and can be used as a forum for discussing issues related to product quality. Project team members and reviewers are responsible for attending project meetings as appropriate. Product team and ITR members are responsible for communicating issues, concerns and problems to the team as soon as they are recognized, so that appropriate solutions can be developed in a timely fashion

A work plan also will be developed annually, which will reflect anticipated funding levels and work efforts based on the PMP. The District PRB will review the Project Executive Summary (PES) report for compliance with the PMP monthly and provide comments to LRD and the project manager. The plan will include reports on study progress to date, a schedule for the efforts planned for the coming year, specific work tasks required to complete feasibility study investigations, estimates of costs from each discipline, and other pertinent information. The Executive Committee will approve annual work plans**.**

External Coordination Mechanisms

Coordination outside the Chicago District and non-Federal sponsor will be necessary to ensure the success of the feasibility study. External agency counterparts for the environmental work effort include: U.S. Environmental Protection Agency (EPA), State Historic Preservation Officers (SHPO), State of Indiana, Natural Resources Conservation Service (NRCS), U.S. Fish and Wildlife Service (USFWS), special interest groups, State and local legislators, and county and city officials.

Public Meetings/Workshops

Public meetings and workshops will be scheduled throughout the study period to gather input, report on study progress, or to report study findings. The Chicago District's PM and Lead Planner and non-Federal sponsor's representative will arrange for, coordinate, and report on public meetings/workshops.

Risk Communication/Outreach Plan

A very proactive approach to risk communication and public outreach plan will be established as one of the first tasks in the study. The risk communication and outreach plan will describe the steps to undertake for effective public participation for the project. The objectives of the plan will be to find out community concerns and develop a strategy to respond to them in a timely manner, establish effective interactions with the community and relationships with all stakeholders, and develop tools for education and outreach. This task maybe accomplished by using a District consultant.

Study Briefings and Fact Sheets

Study briefings will be provided and fact sheets prepared throughout the study period for congressional representatives, State and local officials, and others, as appropriate.

Newsletters

Newsletters will be developed throughout the feasibility study by the Chicago District's PM, Lead Planner and Public Affairs Officer with information provided by each technical study element. Newsletters will be sent to individuals and groups on the study mailing list, which will be updated throughout the course of the study.

Internet

Major study documents will be located on the Chicago District, U.S. Army Corps of Engineers home page, address: http://www.usace.army.mil/lrc/. A schedule of major public meetings, fact sheets and a FAQ page related to the project may also be included in the case of high public interest.

E. Responsibility Assignment Matrix

A set of Resource Codes has been developed for accounting and administrative purposes. The resource codes presented in include abbreviations of the technical elements responsible for conducting portions of the feasibility study. These abbreviations are also used in the Responsibility Assignment Matrix, and are listed in Table

The Responsibility Assignment Matrix (RAM) is a tabular representation of the organizational responsibilities for performing the work efforts defined in the Work Breakdown. It defines the intersection of the Organizational Breakdown Structure and the Work Breakdown Structure (WBS). Table presents the RAM for Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility. WBS codes (1st through 5th levels) are represented vertically in the first column of the matrix and adopt the accounting system of the Civil Works Breakdown Structure. The second column includes an abbreviated description of each activity. The Resource Codes of the OBS are represented horizontally in the first row of the matrix. The individual cells of the matrix identify the responsible organization for each WBS activity. Contributing organizations are identified with an "X".

Table 3 – Resource Codes for Feasibility Study

Resource Code	Technical Element/Resource Code Description
LRC	Chicago District, U.S. Army Corps of Engineers
PM	Planning, Programs & Project Management Division
PM-PM	Project Management Branch
PM-PL	Planning Branch
PM-PL-F	Plan Formulation and Economic Analysis Section
PM-PL-E	Environmental Formulation and Analysis Section
PM-RE	Real Estate Branch
TS	Technical Services Division
TS-D	Design Branch
TS-DE	Cost & Specs Section
TS-DC	Civil Design Section
TS-DS	Structural Design Section
TS-DM	Mechanical/Electrical Design Section
TS-T	Technical Support Section
TS-H	Hydraulic and Environmental Engineering Branch
TS-HE	Environmental Engineering Section
TS-HH	Hydraulic Engineering Section
TS-DG	Geotechnical Engineering Section
OC	Office of Counsel
PA	Public Affairs Office
IM	Information Management Office
RM	Resource Management Office
HQUSACE	Headquarters, U.S. Army Corps of Engineers
LRD	Great Lakes and Ohio River Division, U.S. Army Corps of Engineers

Table 4 - Responsibility Assignment Matrix for Grand Calumet River/Indiana Harbor Canal Environmental Dredging FS Tasks.

WBS CODE	ACTIVITY	PM	PM-PM	PM-PL	PM-PL- F	PM- PL-E	TS -DE	TS -D	TS -DM	TS –DC	TS –DS	TS - T	TS -H	TS –HE	TS -HH	TS -DG	CT	HQ/LRD/OTH	OC	PA	PM-RE	SPONSOR
J	Feasibility Report																					
JA000	Engineering Appendices																					
JAA00	Surveying & Mapping				X			X		X				X	X							X
JAB00	Hydrology & Hydraulics									X	X		X	X	X							
JAC00	Geotechnical Studies							X		X	X					X						
JAD00	Engineering and Design & Preliminary Drawings Appendix							X		X	X	X										
JAE00	Structural Engineering Appendix							X			X	X										
JB000	Socioeconomic																					
JBA00	Economic Analyses			X	X	X							X	X	X							
JBB00	Social Studies			X	X	X																
JBC00	Financial Analysis			X	X																	
JBD00	Institutional Studies			X	X	X																
JC000	Real Estate																					
JCA00	Real Estate Supplement									X											X	
JCB00	Gross Appraisal																				X	
JCC00	RE Acquisition Maps									X											X	
JCD00	Physical Takings																				X	
JCE00	Attorney’s Opinion of Compensability																				X	
JCF00	Rights of Entry																				X	
JCG00	HTRW Evaluation													X							X	
JCH00	All Other RE Analyses																				X	

Table 4 (cont'd) – Responsibility Assignment Matrix for Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Tasks.

WBS CODE	ACTIVITY	PM	PM-PM	PM-PL	PM-PL- F	PM- PL-E	TS -DE	TS -D	TS -DM	TS -DC	TS –DS	TS - T	TS -H	TS –HE	TS -HH	TS -DG	CT	HQ/LRD/OTH	OC	PA	PM-RE	SPONSOR
JD000	Environmental Studies/Reports/EIS																					
JDA00	Documentation of Scoping Meetings		X	X	X	X																X
JDB00	Environmental Impact Statement			X	X	X								X								X
JDC00	Coordination Other Agencies			X	X	X																X
JDD00	Environmental Resource Inventory				X	X																X
JDE00	Mitigation Analyses				X	X																X
JDF00	Endangered Species				X	X																X
JDG00	Ecosystem Restoration Alternative Design				X	X	X	X			X	X		X	X	X						X
JDH00	Section 404 (b) (1) Analysis Report				X	X								X								
JDI00	Statement of Findings				X	X																
JDJ00	Other Environmental																					
JE000	Fish & Wildlife Coordination																					
JEA00	District Coordination			X	X	X																
JEB00	Coordination Act Report			X	X	X																
JF000	HTRW																					
JFA00	HTRW Preliminary Assessment												X	X								X
JFB00	HTRW Site Inspections												X	X								X

Table 4 (cont'd) – Responsibility Assignment Matrix for Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Tasks.

WBS CODE	ACTIVITY	PM	PM-PM	PM-PL	PM-PL- F	PM- PL-E	TS -DE	TS -D	TS -DM	TS -DC	TS –DS	TS - T	TS –H	TS –HE	TS -HH	TS -DG	CT	HQ/LRD/OTH	OC	PA	PM-RE	SPONSOR
JFC000	HTRW RI/FS Report												X	X								X
JFD00	All Other HTRW												X	X								X
JG000	Cultural Resources																					
JGA00	Site Survey			X		X																
JGB00	Data Collection/Analysis			X		X																
JGC00	Mitigation Plan			X		X																
JGD00	Memorandum Of Agreement			X		X																
JGE00	One Percent Waiver			X		X																
JGF00	All Other Cultural Resources			X		X																
JH000	Cost Estimates																					
JHA00	Study Cost Updates		X																			
JHB00	PED Costs		X																			X
JHC00	Project Costs		X				X	X														
JHD00	OMRR&R Costs		X			X	X	X														
JHE00	Baseline Fully Funded	X	X																			
JHF00	All Other Costs	X	X				X															
JFG00	Cost Engineering Appendix		X				X															
JI000	Public Involvement																					
JIA00	Public Meetings		X	X	X	X								X						X		X
JIB00	Minutes of Public Meetings		X	X	X	X														X		X
JIC00	Public Comments Report		X	X	X	X																X

Table 4 (cont'd) – Responsibility Assignment Matrix for Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Tasks.

WBS CODE	ACTIVITY	PM	PM-PM	PM-PL	PM-PL- F	PM- PL-E	TS -ED-E	TS -ED	TS -ED-M	TS –ED-C	TS –ED- S	TS - T	TS -H	TS -HE	TS -HH	TS -ED-G	CO	HQ/LRD/OTH	OC	PA	PM-RE	SPONSOR
JID00	Newsletters		X	X	X	X														X		X
JIE00	All Other Public Documents		X	X	X	X														X		X
JJ000	Plan Formulation & Evaluation Report																					
JJA00	District Coordination Meeting			X	X																	X
JJB00	Without Project Conditions		X	X	X	X							X	X	X							X
JJC00	Preliminary Alt. Screening		X	X	X	X		X		X			X	X	X							X
JJD00	Alt. Formulation Briefing		X	X	X	X		X		X			X	X	X			X			X	X
JJE00	Plan Formulation Mngt.			X	X																	
JJF00	Plan Formulation Conf.			X	X			X					X			X		X			X	X
JJG00	LRD Approval																	X				
JK000	Draft Report & Draft EIS																					
JKA00	PT Review[1]		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X				X
JKB00	ITR[2]																	X				X
JKC00	Feasibility Review Conference			X	X			X		X			X			X		X			X	X
JKD00	Public Review Comments			X	X	X	X	X	X	X	X	X	X	X	X			X			X	X
JKE00	PGM	X	X	X	X													X				X
JKF00	All Other Draft Report	X	X	X	X													X				X
JL000	Final Report																					
JLA00	LRD Commander's Notice	X	X	X	X													X				
JLB00	All Other Final	X	X	X	X													X				
JM000	Washington Review																	X				

Table 4 (cont'd) – Responsibility Assignment Matrix for Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Tasks.

WBS CODE	ACTIVITY	PM	PM-PM	PM-PL	PM-PL- F	PM- PL-E	TS -ED-E	TS -ED	TS -ED-M	TS –ED-C	TS –ED- S	TS - T	TS -H	TS -HE	TS -HH	TS -ED-G	CT	HQ/LRD	OC	PA	PM-RE	SPONSOR
JMA00	Policy Review Approval	X		X	X	X												X				
JMB00	Chief's Report				X													X				
JMC00	OMB Approval																	X				
JMD00	ASA (CW) Approval																	X				
JN000	All Other FS Studies	X	X	X	X	X												X				
JO000	Management Documents																					
JOA00	PMP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
JOB00	Acquisition Plan	X	X				X	X	X	X		X					X					
JOC00	A/E Contracts		X					X		X			X	X	X	X	X					
JOD00	Coordination		X	X	X																	X
JOE00	Study Funds Control	X	X																			
JOF00	Trip Reports		X																			
JOG00	Conference Minutes		X																			
JOH00	All Other Mgmt. Activities		X																			X
K0000	Project Agreements																					
KA000	Draft PED Agreement	X	X																X		X	X
KB000	Draft PCA	X	X																X		X	X
KC000	Fed./Non-Fed. Funds		X															X	X		X	X

[1] PTR – Product Team Review.
[2] ITR performed by OTH – Other Corps Office.

V. Feasibility Study Schedule

The feasibility report will be prepared in accordance with the guidance contained in the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (1983) and Guidance for Conducting Civil Works Planning Studies (ER 1105-2-100, 22 April 2000). The feasibility report will present recommendations for Federal action. Upon approval by HQUSACE and ASA (CW), these recommendations will be passed to Congress to support a project authorization decision.

The schedule for a typical feasibility phase covers 30 to 36 months, including a public review period. The investigations accomplished in the reconnaissance study will be reevaluated to determine how that information will affect the feasibility study schedule. Development of a firm schedule for the feasibility study will be part of the negotiations leading to a final FCSA.

The feasibility study initiation date is tentatively scheduled for Spring 2004. The feasibility phase can begin only after approval and certification of the reconnaissance report, negotiation and signature of the FCSA, and receipt of both Federal and non-Federal funds.

A. Major Milestones

This PMP reflects Chicago District capability. The preliminary milestone schedule assumes that funding for the study is provided for FY 04 and that subsequent years are funded as required to effectively accomplish this study. Major milestones for the feasibility study are shown below in Table , Milestone dates assume a 2004 study start and will be adjusted proportionately if study initiation occurs earlier or later.

B. Task Dependencies and Timeline for Work Activities

Chicago District Project Management will develop a SureTrak schedule for the feasibility study at the initiation of the study. The study schedule will include, at a minimum, critical path items, durations for all tasks and well as important project milestones.

Table 5 - Project Study Schedule

MILESTONE	DATE
ITR Review of Preliminary Draft PMP Completed	January 2003
Preliminary Draft PMP reviewed and approved by sponsor	May 2003
Final PMP approved by sponsor & Executive Committee	May 2004
FCSA Signed	May 2004
Initiate Feasibility Study	May 2004
Initial Executive Committee Meeting	April 2005
NOI published in the Federal Register / Public Notice NOP circulated	May 2005
Information Sessions	May 2005
Joint EIS/EIR Scoping Meeting – Public Workshop	May 2005
Draft Feasibility Report and Draft EIS complete	June 2006
Pre-Meeting package for AFB to HQ/LRD	January 2006
Pre-AFB Conference with Sponsor	January 2006
Alternative Formulation Briefing	February2006
Draft Feasibility Report and Draft EIS review/comment/revision	August 2006
Plan Formulation Conference	August 2006
Print Draft Feasibility Report and Draft EIS	August 2006
Transmit Draft Feasibility Report and Draft EIS to HQ and public	August 2006
Final Feasibility Report and Draft EIS to LRD	September 2006
DE's Notice	September 2006
Final Feasibility Report and Draft EIS submitted to HQ by LRD	October 2006
Initiation of Washington Level Review	November 2006

VI. Baseline Feasibility Study Cost Estimate

This section of the PMP presents the cost estimate for the feasibility study. The feasibility study cost estimate is presented in Table . The table displays total cost for each major task, the Federal contribution, and the non-Federal contribution (including cash and in-kind services). The study costs are based on the best information available, consultations with the non-Federal sponsor, and the assumption that considerable data are available on surveys, mapping, hydraulic and hydrology analysis, and environmental resources.

A. Cost Sharing Requirements

The current plan is to conduct the feasibility study under the auspices of Section 312, which have different study and project cost sharing requirements. Since it has not yet been determined how much of the material would reach the Federal Channel (of the sediment in the upper reaches of Lake George Branch, Indiana Harbor Canal, and in the Grand Calumet River) some assumptions will be needed to determine the appropriate cost sharing for the feasibility study.

Under 312(a) study, dredging, hauling and stabilization costs are funded at 100% Federal cost. The disposal cost share is determined in accordance with WRDA 1986, modified by Section 201 WRDA 96, and Section 224 WRDA 99. Costs include construction, disposal, and lands, easements, rights-of-ways, relocations and disposal areas (LERRDs). The cost share percentage is based on project navigation depth. For the Indiana Harbor Canal, the non-Federal cost share would require 25 percent cash, plus 10 percent over 30 years starting when the disposal facility is available to accept material. The sponsor may receive credit for LERRDs against this 10 percent. Under 312(b) the study costs are shared at 50% Federal and 50% non-Federal; and the dredging, hauling, stabilization, and disposal costs are shared 65% Federal and 35% non-Federal.

Because of differences in cost sharing for Section 312(a) and Section 312(b) authorities, project costs will be allocated to each authority and apportioned as described below. It is noted that work will be conducted under Section 312(a) only if an economic analysis, to be done at the on-set of this study, shows that advanced maintenance dredging is economically justified based on the savings in future maintenance costs. Guidance for implementation of Section 312 will be provided under CECW-P/CECW-O, dated April 25, 2001, Maintenance and Section 312(a) Work.

Section 312(b) Work

Dredging, transportation, and disposal facility costs allocated to this authority shall be cost-shared 35 percent non-Federal and 65 percent Federal. The value of the disposal facility LERRD allocated to this authority is creditable toward the non-Federal share of section 312(b) work.

In addition, costs for any other ecosystem restoration measures proposed for implementation under specific or continuing authority would have to be determined by cost allocation and would be subject to applicable non-Federal cost sharing and OMRR&R requirements. Non-Federal cost sharing and Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) requirements for the various project purposes and authorities will be refined during the Feasibility

Study after project selection. OMRR&R cost, as part of the non-Federal sponsor's responsibility will be computed on a per-site alternative basis.

Feasibility Phase

If costs are allocated to the 312(b) authority, then the cost of the feasibility phase will be shared equally during the study between the Federal government and the non-Federal sponsor. All of the non-Federal sponsor's share can be carried out as in-kind services. The Feasibility Cost Sharing Agreement (FCSA) will indicate that the study cost will be shared 50 percent Federal and 50 percent non-Federal, with all the non-Federal share provided as in-kind services. In addition, the FCSA will state that the cost of work carried out by the non-Federal sponsor prior to execution of the FCSA will be credited towards the non-Federal share of the cost of the study. This deviates from the model FCSA. The feasibility phase can begin after execution of the FCSA and receipt of the Federal funds.

If a combined 312(a) /312(b) study is pursued, a cost allocation breakdown will be developed by the PDT in conjunction with LRD. If costs are allocated to 312(a) authority, then the feasibility phase will be 100 percent federal.

Preconstruction Engineering and Design (PED)

The purpose of the PED phase is to complete all of the detailed technical studies and design needed to begin construction of the project. The PED Agreement will include all Federal and non-Federal costs for PED from the date of the Commander's Notice to award of the first construction contract. PED activities may begin after negotiating and executing the PED Agreement. The non-Federal sponsor will initially provide 25 percent of the PED costs after execution of the PED Agreement. After initiating the construction phase, the non-federal share for PED shall be adjusted to 35% of the cost of PED. It is important that the non-Federal sponsor helps prepare the PED Cost Estimate to insure they have a complete understanding of the cost of the work involved in PED before entering into the PED agreement.

Draft Project Cooperation Agreement (PCA)

The PCA is a legally binding document that is executed between the Corps of Engineers and the non-Federal sponsor. It establishes terms of funding, construction, and operation and maintenance of the project. Development of the PCA includes: discussing the non-Federal sponsor requirements identified in the feasibility phase, providing a copy of the model PCA, modifying the model PCA for the unique aspects of the project, and coordinating with the sponsor. The draft PCA package includes a certificate of authority, lobbying certificate and unsigned disclosure form, the non-Federal sponsor's preliminary plans for financing their share of the project costs, and the Chicago District's assessment of non-Federal sponsor's preliminary financial plan and ability to pay. The coordination of the draft PCA and preliminary financial plans will be completed in conjunction with the draft Feasibility Report. However, actual negotiation of the PCA occurs during PED.

B. Cost Estimate

Estimates of study costs based on the scope of services are contained in Table 6. Anticipated study costs are broken down by Federal and non-Federal labor. The in-kind services for non-Federal tasks are identified where appropriate.

Maintenance of Records

Records of expenditures of the study incurred by the Chicago District will be maintained using the Corps of Engineers Financial Management System (CEFMS). The Chicago District PM will maintain the records of the Federal funds. The non-Federal sponsor's Coordinator will keep the financial records in an appropriate system for crediting purposes. The Chicago District PM and non-Federal sponsor's Coordinator shall prepare periodic reports on the progress of all work items, and at least annually prepare a report tracking funds expended to date for each work item.

Documents pertaining to Architect-Engineering (A/E) contracts undertaken and administered by either the Chicago District or non-Federal sponsor will be maintained by the respective party's PM for review by the PDT. For the Chicago District, the documentation will be the Department of Defense (DD) Form 1155 and Scope of Work and Record of Payment, Eng Form 93. Comparable records for the non-Federal sponsor's A/E work shall be maintained.

Table 6 - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
J	Feasibility Report					
JA	Engineering Appendices	$1,145,400				
JAA	Surveying, Mapping & GIS[4]		$381,000	$331,000		$50,000
JAB	Hydrologic and Hydraulic Studies[1]		$158,400	$158,400		
JAC	Geotechnical Studies[2]		$120,000	$120,000		
JAD	Engineering & Design Analyses		$486,000	$486,000		
JAE	Structural Analysis		$30,000	$30,000		
JB	Socioeconomic Report	$210,000				
JBA	Economic Analyses[1]		$175,000	$175,000		
JBB	Social Studies		$6,000	$6,000		
JBC	Financial Analysis[3]		$20,000	$20,000		
JBD	Institutional Studies		$9,000	$9,000		
JC	Real Estate Report	$80,000	$80,000	$80,000		
JCA	Real Estate Supplement/Plan					
JCB	Gross Appraisal					
JCC	Preliminary RE Acquisition Maps					

[1]Costs cited for Hydrologic and Hydraulic Studies, and Economic Analysis do not include efforts associated with Advance Maintenance Dredging. If the preliminary evaluation indicates that there are sufficient benefits associated with Advance Maintenance Dredging, then study costs for these tasks will be negotiated between the study partners and the estimate for these tasks may be revised upward. The District has lead responsibility to conduct surveys of the value of ecosystem improvements (JBACD), and they will accomplish this work in the most efficient manner in accordance to budget and time constraints.

[2]Ensure there is sufficient funding for a structural analysis to investigate potential impacts of dredging on existing structures, a newly added task to the Feasibility Study (February 21, 2003).

[3]Uncertainty associated with the time and cost for the financial analysis is dependent on the proposed financing and the estimate for activities will be fined closer to completion of the study.

[4]Task JAA Surveying, Mapping & GIS: GIS activities include database preparation and mapping support. Total of 381K includes 250K for AE contract, 72K for GIS Database efforts and 9K for Contracting Office.

Table 6 (cont'd) - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate.

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
JCD	Physical Takings Analysis					
JCE	Opinion of Compensability					
JCF	Rights of Entry					
HCG	HTRW Evaluation					
JCH	All Other RE Analyses					
JD	Environmental Report	$2,105,941				
JDA	Scoping Meetings		$10,000	$5,000		$5,000
JDB	EIS		$377,000			$377,000
JDC	Coordination – Other Agencies		$50,000	$25,000		$25,000
JDD	Environmental Resource Inventory		$10,000	$5,000		$5,000
JDE	Mitigation Analysis		$5,000	$2,500		$2,500
JDF	Endangered Species		$5,000	$2,500		$2,500
JDG	Ecosystem Restoration Alts Design		$50,000	$25,000		$25,000
JDH	Section 404 (b) (1) Analysis		$12,000	$8,000		$4,000
JDI	Statement of Findings		$2,000	$2,000		
JDJ	Other Environmental Studies		$1,584,941	$10,000	$1,574,941	
JE	FWS Coordination Act	$20,000				
JEA	District Coordination		$10,000	$10,000		

Table 6 (cont'd) - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate.

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
JEB	Coordination Act Report		$10,000	$10,000		
JF	HTRW Report	$185,000	$185,000	$145,000		$40,000
JFA	Preliminary Assessment					
JFB	Site Inspection					
JFC	Remedial Investigation/Feasibility					
JFD	All Other HTRW Studies					
JG	Cultural Resources Report					
JGA	Site Survey					
JGB	Data Collection & Analysis					
JGC	Mitigation Plan					
JGD	Memorandum of Agreement					
JGE	One Percent Waiver					
JGF	All Other Cultural Studies					
JH	Cost Estimates	$117,600				
JHA	Study Cost Estimate Updates					
JHB	PE&D Cost Estimate					
JHC	Project Cost Estimate		$117,600	$117,600		
JHD	OMRR&R Cost Estimate					
JHE	Baseline Fully-Funded Cost Est.					
JHF	All Other Cost Estimates					
JHG	Cost Engr Appendix					

Table 6 (cont'd) - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate.

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
JI	Public Involvement Report	$236,000	$236,000	$120,000		$116,000
JIA	Public Meetings					
JIB	Minutes of Public Meetings					
JIC	Public Comments					
JID	Newsletters					
JIE	All Other Public Involvement					
JJ	Plan Formulation & Eval. Report	$125,000	$115,000	$115,000		
JJA	District Coordination Meetings					
JJB	Without Project Conditions					
JJC	Prelim. Screening of Alternatives					
JJD	Alternative Formulation Briefing		$10,000	$5,000		$5,000
JJE	Plan Formulation/Study Mgmt.					
JJF	Plan Formulation Conference					
JJG	LRD Approval of Formulation					

Table 6 (cont'd) - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate.

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
JK	Draft Report & Draft EIS	$156,000				
JKA	PDT and PT Review		$15,000	$10,000		$5,000
JKB	Independent Technical Review		$155,000	$120,000		$35,000
JKC	Feasibility Review Conference		$5,000	$2,500		$2,500
JKD	Public Review Comments		$5,000	$2,500		$2,500
JKE	Project Guidance Memo.		$10,000	$5,000		$5,000
JKF	All Other Draft Report		$61,000	$61,000		
JL	Final Report	$20,000	$20,000	$20,000		
JLA	Division Commander's Notice					
JLB	All Other Final Report					
JM	Washington Level Approval	$19,000	$19,000	$14,000		$5,000
JMA	Policy Review					
JMB	Chief's Report					
JMC	OMB Approval					
JMD	ASA (CW) Approval					
JN	All Other Feasibility Studies					
JO	Program Management	$665,000	$585,000	$292,000	$83,000	$210,000
JOA	Project Management Plan					
JOB	Acquisition Plan					
JOC	A-E Contractors Reports					
JOD	Coordination Reports					

Table 6 (cont'd) - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate.

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
JOE	Study Funds Control Reports					
JOF	Trip Reports					
JOG	Conference Minutes					
JOH	All Other Prog. Mgmt. Activities		$80,000	$40,000		$40,000
K	Project Agreements	$34,000	$34,000	$22,000		$12,000
KA	Draft PED Agreement					
KB	Draft PCA					
KC	Fed./Non-Fed. Allocation. Funds					
	Report Reproduction	$30,000	$30,000	$30,000		
TOTAL ALL ACCOUNTS		$5,178,941	$5,178,941	$2,547,100	$1,657,941	$974,000
GENERAL CONTINGENCY (10%)		$352,100	$352,100	$254,700	$0	$97,400
SITE SELECTION CONTINGENCY		$550,000	$550,000	$200,000		$350,000
TOTAL FEASIBILITY STUDY COST		$6,081,041	$6,081,041	$3,001,700	$1,657,941	$1,421,400
ESTIMATED FEASIBILITY STUDY COSTS		$6.0 million				

VII. Change Management

During the course of the study, modifications to the work items may become necessary. Modifications generally cause changes to the cost and/or the completion schedule of study work items. The party performing the work item will notify the other party through the respective designated study managers as soon as the need for a modification becomes apparent.

Once the parties concur on the recommended alternative, a reevaluation of the requirements for the Feasibility Report will be completed. If necessary, the FCSA and the PMP will be renegotiated at that time.

Notifications will be in writing and will include the work item(s) requiring modification, reason for the modification, and impacts on work item cost and/or schedule. If the modification does not increase the total cost to the work item by more than 15%, does not extend completion schedule by more than 90 days, and does not reassign a work item between the Chicago District and the non-Federal; approval modification will be given by the Chicago District's PM and non-Federal sponsor's Study Coordinator. The Executive Committee must approve any modification that exceeds these limits.

Modifications to the total study cost due to changes in overhead rates and effective salary rates are allowed upon written notification to the Executive Committee. See Appendix F for more details regarding Change Management Plan.

VIII. List of Acronyms and Abbreviations

ARCS	Assessment and Remediation of Contaminated Sediments
CDF	confined disposal facility
CFR	code of Federal Regulations
CSO	combined sewer overflow
CWO	Clean Water Act
EA	Environmental Assessment
EDP	Environmental Dredging Plan
EIS	Environmental Impact Statement
FCSA	Feasibility Cost Sharing Agreement
FQI	Floristic Quality Index
GIS	Geographic Information System
HNTB	Howard Needles Tammen & Bergendoff
HSPF	Hydrological Simulation Program-Fortran
HTRW	Hazardous Toxic and Radioactive Waste
IBI	Index of Biotic Integrity
ICI	Invertebrate Community Index
IDEM	Indiana Department of Environmental Management
IJC	International Joint Commission
IN-DNR	Indiana Department of Natural Resources
ISC	in-situ capping
ISWS	Illinois State Waterway Survey
LDF	local disposal facility
LERRD	Lands Easements Rights-of-Ways Relocation Disposal and Borrow Sites
MCI	Macroinvertebrate Community Index
NGVD	National Geodetic Vertical Datum
NED	National Economic Development Plan
NEPA	National Environmental Policy Act
NER	National Ecosystem Restoration Plan
NHPA	National Historic Preservation Act
NPS	National Park Service
NRCS	Natural Resource Conservation Service
OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
OSE	Other Social Effects
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PDT	Project Delivery Team
PED	Preconstruction Engineering and Design
PES	Project Executive Summary
ppm	parts per million
ppt	parts per trillion
PRB	Project Review Board
PT	Product Team
QA/QC	Quality Assurance/Quality Control
RAP	Remedial Action Plan
RBCA	Risk Based Corrective Action

RCRA	Resource Conservation and Recovery Act
REP	Real Estate Plan
SCALP	Special Contributing Area Loading Program
SCRAP	Sediment Cleanup And Restoration Alternatives Project
SHPO	State Historic Preservation Officers
TCLP	Toxicity Characteristic Leaching Procedure
TMDL	Total Maximum Daily Loading
TSCA	Toxic Substances Control Act
UNET	Unsteady Network flow model
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS-BRD	U.S. Geological Survey - Biological Resources Division
WRDA	Water Resources Development Act

IX. Appendices

Appendix A: Quality Control Plan

Quality control is an appropriate risk-based evaluation of planning, engineering and design products to ensure that they fully meet the prescribed requirements and expectations of sponsors and partners; and comply with laws, regulations, and sound technical practices. The quality process will also monitor and check to verify that the study meets the agreed upon requirements and standards, and is within budget and schedule. In addition, qualified experts that are not directly involved with product development will conduct independent technical reviews. These reviews will ensure that the concepts, assumptions, methods, and analyses are fully coordinated and correct; an appropriate range of feasible alternatives were evaluated; problems, opportunities and constraints are properly identified and defined; analytical methods used are appropriate and yield reliable results; results and recommendations are reasonable, within policy guidelines, and supported; and deviations from policy, guidance and standards are appropriately identified and have been properly documented and approved.

Policies and procedures defining the quality control/independent technical review processes are specified in ER 1110-1-12, Quality Management, June 1993; EC 1165-2-203, Technical and Policy Compliance Review, 15 October 1996; ER 5-1-11, U.S. Army Corps of Engineers Business Process; and CELRC Circular 5-1-1, Chicago District Quality Management Plan, August 2003.

The Chicago District is responsible for ensuring that this study conforms to all current and relevant professional quality practices and standards. Quality control and independent technical reviews will be on-going during study development. This appendix contains the Quality Control Plan that describes the quality process for the Grand Calumet Feasibility Study.

QUALITY CONTROL PLAN/ITR TEAM
APPROVAL FORM

PROJECT: Grand Calumet Feasibility Study

PRODUCT: Feasibility Study and Environmental Impact Statement

I. The section checklist, scope of work, project schedule, and work estimate has been reviewed with the assigned PDT member. It is felt that the outlined task can be accomplished with the resources provided in the QCP. Deviations to the QCP can effect changes to the estimated budget and project schedule.

Chief, Civil Design Section	Date 5 Jan '05
Chief, Cost and Specifications Section	Date 5 Jan 05
Chief, Structural Section	Date 6 Jan 05
Chief, Geotechnical Section	Date 7 JAN 05
Chief, Hydraulic Section	Date 12 Jan 05
Chief, Environmental Section	Date 7 Jan 05

II. The QCP for the Feasibility Study/EIS has been developed in cooperation with the appropriate functional elements. The Design and ITR Teams, scope, schedule, budget, and checklists have been reviewed by the first-line supervisors and are determined to be appropriate for the development of this study. In addition, this product is within the scope, schedule and budget parameters established in the PMP for the project. This QCP is hereby submitted for approval by:

Product Lead / Quality Manager	Project Manager 1/11/05

III. This QCP has been fully coordinated and is considered appropriate for this Feasibility Study and is approved by:

Joseph Schmidt — 1/12/05

Chief, Design Branch — Date

Jeanne Davis — 1/11/05

Chief, Hydraulics Branch — Date

Felicia Kuhlmann — 1/12/05

Chief, Project Management Branch — Date

Grand Calumet Feasibility Study
Quality Control Plan (QCP)

CELRC-TS-HE **5 January 2004**

Project: Grand Calumet Feasibility Study

Product: Feasibility Study including NEPA

Table of Contents

1. Project Description:
The Grand Calumet River/ Indiana Harbor Canal is an Area of Concern (AOC) designated by the Great Lakes Water Quality Agreement. The bottom sediments in the Indiana Harbor Canal and Grand Calumet River are highly contaminated, and have been associated with a number of beneficial use impairments in the River/Harbor and adjacent Lake Michigan, including fish consumption advisories and aquatic habitat degradation. The study area is located in northwest Indiana in the communities of Gary, East Chicago, and Hammond, Indiana. The study will address the non-federal upstream portion of the Indiana Harbor Canal, the non-federal upstream portion of the Lake George Canal, the West Branch of the Grand Calumet River to the Illinois-Indiana state line, the East Branch of the Grand Calumet River (excluding the U.S. Steel dredging project area), and the Lagoons. The Illinois portion of the Grand Calumet River, which extends 2.45 miles to the confluence with the Calumet River, is not included in the study area. Dredging of the contaminated sediments under Section 312 of WRDA 1990 will be evaluated for portions of the Indiana Harbor Canal and the Grand Calumet River. The final product will involve full implementation of a project plan that meets federal, including Corps of Engineers, state and local criteria. The non-Federal sponsor is the Indiana Department of Environmental Management (IDEM) and they will provide their entire cost share as in-kind services.

2. Reference Documents:
This feasibility study is being conducted in accordance with the U.S. Army Corps of Engineers Business Process, ER 5-1-11, 17 August 2001. The following references also apply to this work:

a. ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies, 22 April 2000, U.S. Army Corps of Engineers. Appendix A of ER 1105-2-100 contains references to the applicable statutes, public laws, executive orders, and engineering regulations that guide preparation of Corps feasibility studies.

b. ER1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999.

b. CELRDC 5-1-1, 9 May 2003, Appendix A-7, the Great Lakes and Ohio River Division Quality Management of Planning Products.

c. Planning for Civil Works Programs, Engineer Inspector General Report, July 2000.

d. CELRD-PD Memorandum, 5 April 2001, Planning Roles and Responsibilities.

e. CELRD-CM-P Memorandum, October 2002, Policy Requirements for Independent Technical Review (ITR) Verification, Supporting Decision Documents Submissions.

Additional references that will be utilized to guide the completion of feasibility study investigations are listed in the project management plan (PMP). The Project Management Plan created for the Grand Calumet River Environmental Dredging project should be referred to for information on the ultimate project goals.

3. Product Description:
This Feasibility Study and appropriate National Environmental Policy Act (NEPA) documentation includes an investigation and recommendation of remediation alternatives, including possible dredging

and disposal of the contaminated sediments in the Grand Calumet River and in the non-federal portions of the Indiana Harbor and Lake George Canals, Indiana. This is in accordance with the authority Section 312 of WRDA. Preliminary alternatives identified in the Grand Calumet River/Indiana Harbor Canal Environmental Dredging Expedited Reconnaissance Study (September 1997) included sediment removal options, sediment disposal options, and ecosystem restoration within the river channel and adjacent areas.

Section 312 of WRDA 90 authorized the Secretary of the Army to remove contaminated sediments from the navigable water of United States. There were two distinct authorities in the Section 312. Section 312(a) provided for removal of contaminated sediments outside the boundaries of and adjacent to a Federal navigation project as part of the operation and maintenance of the project. Section 312(b) provided for removal of contaminated sediments for the purpose of environmental enhancement and water quality improvement.

4. Project Development Team (PDT)

Project Manager:	Kirston Buczak	PM
Quality Manager:	Nicole Roach	TS-HE
Product Team:	Dennis Giba	PL-F
	Mike Fisher	PL-F
	Frank Veraldi	PL-E / F
	Keith Ryder	PL-E
	JD Ennis	PL (GIS)
	Don Valk	OC
	Steve Hughes	RE
	Joseph Schmidt	TS-D
	Elaine Taylor	TS-DE
	John Groboski	TS-DC
	John Fornek	TS-DG
	Eric Sampson	TS-DS
	Susanne Davis	TS-H
	David Bucaro	TS-HH
	Nicole Roach	TS-HE
	Jennifer Miller	TS-HE
	Richard Saichek	TS-HE
IDEM Study Coordinator:	Beth Admire	
IDEM:	Nancy King (Legal)	
	Jim Smith (Technical/EIS/Risk)	
	Steve West (Technical/Budget)	
	Alex DaSilva (Technical/RAP Coordinator)	
	Kevin Miller (Technical/GIS)	
	Barry Sneed (Communications)	
Other Agency Coordination:	Dan Sparks	USFWS (Technical)
	Laura Lodisio	USEPA (FS Coordinator)
	Nick Heinzelman	IDNR (Technical)
	Russ Grunden	IDNR (Communications)

ITR team:	Sue Ferguson, Nashville	Plan Formulation (Regional Technical Specialist and ITR leader)
	Patty Coffey, Nashville	Environmental Compliance
	Steve Golyski, Buffalo	Technical (Cost Engineering)
	Tom Kenna, Buffalo	Technical (Environmental Engineering)

It is anticipated that additional ITR members will be identified by the local sponsor at a later date. The following general areas of expertise have been requested to be covered by ITR members representing the local sponsor:

- NW Indiana remediation activities, and dealing with the local industries and communities
- Special Waste and/or RCRA clean-ups
- Dredging or other in-water clean-up/remediation
- Local flora/fauna expertise who can advise on impacts to the local environment
- Risk assessment

5. Scope of Work:

The product team for preparing the Feasibility Study and NEPA documentation consists of the Executive Committee, Chicago District's in-house project delivery team (PDT) and product team (PT), and the non-Federal sponsor's study team. The team will comply with the Quality Control Plan (QCP) approved with the objective that all data and documents prepared are scientifically valid, defensible, and of known and adequate precision and accuracy. The following list details specific responsibilities for the Feasibility Study.

Executive Committee: The Executive Committee has the overall study management and is the responsibility of the Chicago District Commander; the Deputy District Engineer for Planning, Programs and Project Management; the Chief of Planning Branch; and designated representatives of the non-Federal sponsor. The Executive Committee will meet as needed throughout the study to review study progress, finances, and findings as developed and reported by the study team. The Project Management Team, which will include members from the Executive Committee, PRB, PDT, PT, IDEM's study team and advisory committees will be established after initiating the study. Specific duties of the Executive Committee include managing the overall study by: (1) maintaining a working knowledge of the feasibility study; (2) assisting in resolving emerging policy issues; (3) ensuring that evolving study results and policies are consistent and coordinated; (4) directing the study management team; (5) rating decisions made by the study management team; and (6) maintaining authority over approving budget variations.

Project Manager: Coordinates with non-Federal sponsor on project level issues. Oversees team to ensure that product is meeting performance objectives in terms of scope, schedule, and budget. Reports progress to Executive Committee and Project Review Board (PRB), and coordinates any necessary change management. Advises Product Lead and product team of changes. Establishes CEFMS Work Item and Labor Charge Codes based on budget needs in QCP. Approves and certifies fund requests as required. Tracks and monitors budget and schedule. Coordinates with IDEM Study Coordinator(s) and other agencies.

Quality Manager: Leads development of QCP and the feasibility study. Coordinates activities of Product Team, IDEM study team members, and advisory committees; ensures product is developed within scope, budget and schedule; documents any deviations to scope, budget and schedule; and ensures all reviews are conducted in a timely manner. Sets up DrChecks for reviews. Coordinates with Project Wise Administrator to ensure that an appropriate file structure is developed and maintained, oversees file administration to ensure compliance by team members, coordinates with Project Wise Administrator for document work state management and file archiving. Arranges and leads study meetings as appropriate. Monitors progress to ensure that the required work is being performed on time and within budget. Identifies issues early with PM and works to resolve. Ensures quality control documentation is properly completed prior to submitting for final approval of work. Technical work will be done in accordance with the Feasibility Study PMP. Documents Lessons Learned, based on PDT input.

PM-PL-F: Leads the feasibility study, formulates plans, evaluates alternatives with data input from other team members. Conducts economic analysis of alternatives and optimization exercises for alternatives. Drafts Feasibility Study report, based on input from team members. Provides QA review of EIS and other IDEM prepared documents to ensure consistency between documents and with Corps policy. Attends team meetings and provides input into project scoping. Performs analysis of local sponsors' financial capability to meet commitments and prepares the District Commander's assessment of financial capability.

PM-PL-E: Assists IDEM in development of EIS. Provides QA review of EIS and other documents to ensure consistency with Feasibility Study and Corps policy. Participates in scoping meetings, NEPA public meetings, project communication and public outreach. Attends team meetings and provides input as needed.

PM-PL (GIS): Provides assistance in the development and use of a geospatial database. Creates an internet GIS site for project team and for public information access. Produces maps and figures for the feasibility study as required. Attends team meetings and provides input as needed.

RE: Attends project team meetings and meetings with sponsor. Identifies tracts, features, access and work areas that correspond to estates. Prepares all Rights of Entry. Prepares Real Estate Appendix. Coordinates environmental issues with technical branches. Credits sponsor with LERRDs.

TS-H: Oversees and provides guidance to environmental and hydraulic engineering disciplines during NEPA process and analysis of alternatives, and during development of engineering appendices. Ensures adherence to quality control procedures described herein and in USACE quality management policy. Coordinates with other District offices as necessary to ensure Hydraulic and Environmental Eng. Branch schedules and budgets are met when input from other offices is required. Represents Hydraulic and Environmental Engineering at senior management meetings. Participates in NEPA process and feasibility study as needed, including reviewing team decisions and products.

TS-HE: Performs HTRW investigation and 404(b)1 evaluation for EIS. Provides technical input into EIS as needed. Participates in public meetings and team meetings. Assists in the development of a GIS database for the project. Conducts sediment sampling as needed for the purpose of filling gaps in the existing project area database.

TS-HH: Performs hydrologic, hydraulic, and sediment transport analyses of baseline and project alternative conditions. Provides technical input into planning and design of project measures. Provides technical input into floodway regulatory permits as needed. Participates in public meetings and team meetings.

TS-D: Oversees and provides guidance to cost, structural, civil design, and geotechnical engineering disciplines during design analysis of alternatives and development of engineering appendices. Ensures adherence to quality control procedures described herein and in USACE quality management policy. Coordinates with Contracting, Construction-Operations, Real Estate, and other District offices, as necessary, to make certain Design Branch schedules are met when input from these offices is required. Represents Design Branch at senior management meetings and participates in feasibility scoping meeting. Reviews feasibility report, focusing on engineering appendices.

TS-DS: Reviews the feasibility study alternatives to ensure that any structural issues are identified and discussed.

TS-DE: Provides cost estimating support for plan formulation. Attends project meetings as needed.

TS-DC: Prepare Engineering & Design Appendix. Assists in the development of a GIS database for the project. Provides CADD drawings and other plans/figures as needed. Assists in estimating quantities for plan formulation.

TS-DG: Prepare Geotechnical Design Appendix (DA) based on existing information compiled through a search of literature and historic records. Analyze stability of river banks and adjacent structures by performing slope stability analyses and develop recommendations if conditions found to be unsatisfactory. Perform preliminary design for not more than three (3) alternative disposal sites including stability analyses, liner/cutoff requirements, and suitability of borrow sources. Participate in project meetings.

IDEM: Local sponsor for project. Provides in-kind services related to EIS development, publicity, GIS database development, and provides general project input.

Other Agencies: Provide input into NEPA process and feasibility study as appropriate, participate in project meetings as appropriate.

ITR Team: Reviews project at all phases to ensure that planning and NEPA guidelines are met, and that products are appropriate from a technical point of view. Attends public and team meetings as appropriate. Attends at least one project site visit during ITR process. It is assumed that the ITR team will visit the Chicago Metropolitan area at least 4 times during the study (at the

time of the major formal reviews, described in section 9), with each visit lasting for two days (one overnight stay). In addition, it is estimated that each team member will spend 176 hours (22 days) in labor on this project over the study period, which includes the time spent at meetings and the time reviewing the product and supporting documentation. The budget and assumptions will be reviewed and revised as necessary during the course of the study.

Budget for each ITR member:

Travel to Chicago, round trip	$200	x 4 trips
Per diem (FY 2005 rate)	$200	x 8 days
Per hour labor (assumed GS-13, including overhead assumed to be 1.50)		
	$150	x 176 hours
Total	$28,800 (per ITR member)	

6. Budget:

The Project Management Plan includes a whole project budget, shown below in Table 7.1. The entire study budget is $6,000,000. The project is cost shared 50%-50%, and the local sponsor (Indiana Department of Environmental Management) is providing $3,000,000 in in-kind services. A detailed budget is being developed for each year of the study. The Fiscal Year 2005 budget is shown in Table 7.2. The estimated budget for the ITR team for the Feasibility Study is $115,200.

Table 6.1 - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
J	Feasibility Report					
JA	Engineering Appendices	$1,145,400				
JAA	Surveying, Mapping & GIS[4]		$381,000	$331,000		$50,000
JAB	Hydrologic and Hydraulic Studies[1]		$158,400	$158,400		
JAC	Geotechnical Studies[2]		$120,000	$120,000		
JAD	Engineering & Design Analyses		$486,000	$486,000		
JAE	Structural Analysis		$30,000	$30,000		
JB	Socioeconomic Report	$210,000				
JBA	Economic Analyses[1]		$175,000	$175,000		
JBB	Social Studies		$6,000	$6,000		
JBC	Financial Analysis[3]		$20,000	$20,000		
JBD	Institutional Studies		$9,000	$9,000		
JC	Real Estate Report	$80,000	$80,000	$80,000		
JCA	Real Estate Supplement/Plan					
JCB	Gross Appraisal					
JCC	Preliminary RE Acquisition Maps					

[1]Costs cited for Hydrologic and Hydraulic Studies, and Economic Analysis do not include efforts associated with Advance Maintenance Dredging. If the preliminary evaluation indicates that there are sufficient benefits associated with Advance Maintenance Dredging, then study costs for these tasks will be negotiated between the study partners and the estimate for these tasks may be revised upward. The District has lead responsibility to conduct surveys of the value of ecosystem improvements (JBACD), and they will accomplish this work in the most efficient manner in accordance to budget and time constraints.
[2]Ensure there is sufficient funding for a structural analysis to investigate potential impacts of dredging on existing structures, a newly added task to the Feasibility Study (February 21, 2003).
[3]Uncertainty associated with the time and the cost for the financial analysis is dependent on the proposed financing and the estimate for activities will be defined closer to completion of the study.
[4]Task JAA Surveying, Mapping & GIS: GIS activities include database preparation and mapping support. Total of 381K includes 250K for AE contract, 72K for GIS Database efforts and 9K for Contracting Office.

Table 6.1 (cont'd) - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate.

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
JCD	Physical Takings Analysis					
JCE	Opinion of Compensability					
JCF	Rights of Entry					
HCG	HTRW Evaluation					
JCH	All Other RE Analyses					
JD	Environmental Report	$2,105,941				
JDA	Scoping Meetings		$10,000	$5,000		$5,000
JDB	EIS		$377,000			$377,000
JDC	Coordination – Other Agencies		$50,000	$25,000		$25,000
JDD	Environmental Resource Inventory		$10,000	$5,000		$5,000
JDE	Mitigation Analysis		$5,000	$2,500		$2,500
JDF	Endangered Species		$5,000	$2,500		$2,500
JDG	Ecosystem Restoration Alts Design		$50,000	$25,000		$25,000
JDH	Section 404 (b) (1) Analysis		$12,000	$8,000		$4,000
JDI	Statement of Findings		$2,000	$2,000		
JDJ	Other Environmental Studies		$1,584,941	$10,000	$1,574,941	
JE	FWS Coordination Act	$20,000				
JEA	District Coordination		$10,000	$10,000		

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JEB	Coordination Act Report		$10,000	$10,000		
JF	HTRW Report	$185,000	$185,000	$145,000		$40,000
JFA	Preliminary Assessment					
JFB	Site Inspection					
JFC	Remedial Investigation/Feasibility					
JFD	All Other HTRW Studies					
JG	Cultural Resources Report					
JGA	Site Survey					
JGB	Data Collection & Analysis					
JGC	Mitigation Plan					
JGD	Memorandum of Agreement					
JGE	One Percent Waiver					
JGF	All Other Cultural Studies					
JH	Cost Estimates	$117,600				
JHA	Study Cost Estimate Updates					
JHB	PE&D Cost Estimate					
JHC	Project Cost Estimate		$117,600	$117,600		
JHD	OMRR&R Cost Estimate					
JHE	Baseline Fully-Funded Cost Est.					
JHF	All Other Cost Estimates					
JHG	Cost Engr Appendix					

Table 6.1 (cont'd) - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate.

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
JI	Public Involvement Report	$236,000		$120,000		$116,000
JIA	Public Meetings					
JIB	Minutes of Public Meetings					
JIC	Public Comments					
JID	Newsletters					
JIE	All Other Public Involvement					
JJ	Plan Formulation & Eval. Report	$125,000	$115,000	$115,000		
JJA	District Coordination Meetings					
JJB	Without Project Conditions					
JJC	Prelim. Screening of Alternatives					
JJD	Alternative Formulation Briefing		$10,000	$5,000		$5,000
JJE	Plan Formulation/Study Mgmt.					
JJF	Plan Formulation Conference					
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JOC	A-E Contractors Reports					
JOD	Coordination Reports					

Table 6.1 (cont'd) - Grand Calumet River/Indiana Harbor Canal Environmental Dredging Feasibility Study Cost Estimate.

CODE	TASK DESCRIPTION	TOTAL TASK COST	TOTAL SUB-PRODUCT COST	FEDERAL COST	NON – FEDERAL	
					PRIOR	IN-KIND
JOE	Study Funds Control Reports					
JOF	Trip Reports					
JOG	Conference Minutes					
JOH	All Other Prog. Mgmt. Activities		$80,000	$40,000		$40,000
K	Project Agreements	$34,000	$34,000	$22,000		$12,000
KA	Draft PED Agreement					
KB	Draft PCA					
KC	Fed./Non-Fed. Allocation. Funds					
	Report Reproduction	$30,000	$30,000	$30,000		
TOTAL ALL ACCOUNTS		$5,178,941	$5,178,941	$2,547,100	$1,657,941	$974,000
GENERAL CONTINGENCY (10%)		$352,100	$352,100	$254,700	$0	$97,400
SITE SELECTION CONTINGENCY		$550,000	$550,000	$200,000		$350,000
TOTAL FEASIBILITY STUDY COST		$6,081,041	$6,081,041	$3,001,700	$1,657,941	$1,421,400
ESTIMATED FEASIBILITY STUDY COSTS		$6.0 million				

Table 6.2 FY 2005 In-house Labor Budget – Grand Calumet River Environmental Dredging

Activity	Cost
PM-PM	$96,000
Quality Manager	$22,000*
PM-PL-F	$107,100 $31,500 (econ)
PM-PL-E	$63,920
PM-PL (GIS)	$33,000
RE	$27,050
TS-H	$10,339
TS-HE	$124,840
TS-HH	$24,590
TS-D	$15,290
TS-DS	$0
TS-DE	$24,420
TS-DC	$122,200
TS-DG	$71,765
CT	$5,000
PM-PGM	$10,000
FY05 CADD Charges	
Total:	**$789,014**

*The QM budget is shown under the TS-HE budget in P2. The total TS-HE budget for FY2005 is $146,840.

** The CADD budget is not included in the total at this time.

7. Schedule:
The project schedule and major milestones are outlined in the following table. The complete project schedule is a SureTrak file: GCRENV.

Project Schedule/ Major Milestones:

Project Activity	Completion Date
FCSA Signed	May 2004
NOI published in Federal Register, Public Notice NOP circulated	January 2005
Initial Executive Committee Meeting	January 2005
Joint EIS/EIR Scoping meeting, Public Workshop	February 2005
Finalize GIS database	May 2005
Finalize Benefits Analysis Approach	May 2005
Initiate Feasibility Study/Feasibility Scoping Meeting*	May 2005
Draft Feasibility Report and Draft EIS complete	June 2006
Alternative Formulation Briefing* and Engineering Review Conference (as needed)	July 2006
Draft Feasibility Report and Draft EIS review/comment/revision	August 2006
Transmit Draft Feasibility Report and Draft EIS to HQ and public*	August 2006
Feasibility Review Conference*	August 2006
Complete 100% ITR review	October 2006
Final Feasibility Report and Draft EIS to LRD (and submitted to HQ by LRD) (DE's Notice*)	November 2006

* These are required milestones within LRD, and will include the ITR team and LRD.

8. Reviews:
Internal document and milestone reviews shall be conducted by the PDT and technical supervisors on a continuing basis to insure that the project stays on schedule and within budget, and that a quality product in line with Local Sponsor expectations is being produced. The Branch Chiefs responsible for product preparation will document this internal review through certification of PDT checklists. Checklists (included in Appendix B) will be verified at the 100% ITR Review and will be checked off by the PDT and certified by the technical supervisor (Branch Chief). The PDT review is an informal review and comments can be applied directly to copies of the plans and specs and do not necessarily have to be documented in Dr. Checks. The Quality Control checklists included in Appendix B shall be completed by all participants on the PDT

In addition to the team reviews, the following formal reviews will be scheduled:

a. Feasibility Scoping Meeting: a review of the baseline and without project conditions, and a review of project milestones. Also includes a discussion of the benefits analysis approach to be used for the incremental cost analysis of alternatives. Meeting includes the ITR team and HQ/LRD.

b. Alternative Formulation Briefing: a review by the ITR team and HQ/LRD for policy compliance of the proposed plan. This meeting will be held after the development of preliminary alternatives, and the methods for evaluating alternatives will be discussed at the meeting. The alternatives analysis will not be completed prior to this meeting.

c. Engineering Review Conference: if necessary, the lead engineer will request an ERC. The PDT will assess the status of the engineering portion of the study. The assessment will include a review of the ITR comments, if available, and the adequacy of the field investigations and design studies identified in the PMP. Non-Federal sponsor participation will be encouraged. If scheduled, the Engineering Review Conference will be held with or close in time to the Alternative Formulation Briefing.

d. Feasibility Review Conference: to be held after the public review of the draft report; a policy compliance review to identify actions required to complete the final report. Meeting includes ITR team and HQ/LRD.

e. 100% ITR Review: a formal, comprehensive review of the final product by the ITR team. The goal of the ITR is to improve product quality and ensure compliance with policy and standard technical practices. The basis for a review comments should be the verification that an acceptable design and/or alternative are being proposed and that the design complies with standard practice. While the ITR team may need to perform calculations as a check, the ITR process is not intended to be a detailed check of design calculations, spelling, or grammar. This is part of the quality control process and the responsibility of the PDT. The ITR is a formal review and comments will be recorded and followed up on in Dr. Checks. The document included in Appendix C should be used as a guide and checklist for completion of this ITR.

9. Site Visits:
Site visits will be coordinated with the Project Manager and the Local Sponsor. Site access may be restricted in some areas; the local sponsor will coordinate site access. At least one site visit will be planned for the ITR team and product team early in the project, to familiarize the team members with the project area and conditions.

10. Communications:
Team members and reviewers are responsible for reviewing all documents related to the product. Regularly scheduled project meetings will be held during the project life, and can be used as a forum for discussing issues related to product quality. Meeting locations will vary, but meetings will be scheduled for both Chicago and Indianapolis locations, to accommodate all team members. Conference calls will be arranged as needed. A project contact list will be developed. Product Team members are responsible for attending project meetings as appropriate. Team members are responsible for communicating issues, concerns, and problems to the product team and QM as soon as they are recognized, so that appropriate solutions can be developed in a timely fashion.

11. Document and Records:
Project electronic files shall be maintained following the Chicago District Document Management Standard Operating Procedure, November 2004. Files shall be stored using ProjectWise, and documents will be managed based on work states.

General files, including meeting minutes and documents that require input from more than one section or team member, will be stored in the "Administration" folder. Section specific calculations and documents will be stored in individual section folders. No project information will be stored on individual hard-drives or outside of ProjectWise, with the following specific exceptions: GIS data and files will be stored on the Chicago District Geospatial (J:) drive, in accordance with Chicago District GDS policies; files for running Fortran programs or other software that is incompatible with ProjectWise can be stored on a team member's hard drive, and only the final input and output files will be archived in ProjectWise (without the application); only "significant" email (as defined in the district SOP) will be stored in ProjectWise.

Team members are responsible for assigning attributes at the time of file creation in ProjectWise. The product lead/QM will periodically spot check files to insure that district policy is being followed and attributes are being properly assigned. Chronic violations will be reported through the team member's chain of command.

APPENDIX A
Forms

CHICAGO DISTRICT ENGINEER'S STATEMENT OF
INDEPENDENT TECHNICAL REVIEW AND LEGAL REVIEW OF THE GRAND CALUMET FEASIBILITY STUDY.

I. INDEPENDENT TECHNICAL REVIEW (ITR) COMPLETION

We, the ITR Team (ITRT), have completed the review of the subject document as reflected in the Quality Control Plan and the ITR documentation.

_____		_____		_____	
ITRT Member	Date	ITRT Member	Date	ITRT Member	Date
_____		_____		_____	
ITRT Member	Date	ITRT Member	Date	ITRT Member	Date

The ITR is complete. Issues that were unresolved between the ITR Team and Design Team are attached along with the determination of the appropriate Functional Chief. All comments are documented at _____.

_____
Quality Manager Date

II. CHIEFS' AUTHENTICATION

We, as the senior chiefs with responsibility for respective portions of the subject document, authenticate by our signature below that 1) quality control procedures have been followed, 2) the ITR is complete, and 3) there are no outstanding issues. Further, we concur in the recommendation of the document found on page ___, para._____.

_____		_____	
Chief, Design Branch	Date	Chief, Planning Branch	Date
_____		_____	
Chief, Hydraulics Branch	Date	Chief, Real Estate Branch	Date
_____		_____	
Chief, Construction Branch	Date	Chief, Project Management Branch	Date
_____		_____	
Chief, Technical Services Div.	Date	Chief, Programs & Project Management Div.	Date

III. LEGAL REVIEW CERTIFICATION. The subject document, including all associated documents required by the National Environmental Policy Act, has been fully reviewed by Office of Counsel, CELRC, and is found to be legally sufficient.

_____
District Counsel Date

IV. DISTRICT ENGINEER'S CERTIFICATION

I certify that the Independent Technical Review for the subject document is complete and that there are no outstanding issues. I reiterate the recommendation found in the subject document on page____, para_____.

_____
Commander Date
U.S. Army Engineer District, Chicago

Change Management Form

U. S. Army Corps of Engineers, Chicago District

We agree to the change, as described below, the Product Development Team and schedule for the Grand Calumet Feasibility Study for the Quality Control Plan (QCP).

Changes:

Rationale for Change:

Schedule:

Chief, Geotechnical Section	Chief, Structural Section
Chief, Cost Engineering and Specs	Chief, Real Estate Branch
Chief, Civil Design	Chief, E & E Analysis Section
Chief, Hydraulic Eng Section	Chief, Environmental Eng Section
Chief, Plan Formulation Section	

APPENDIX B
Quality Control Guidelines and Checklists

The product under development is a Feasibility Study, including an Environmental Impact Statement. Below are Quality Control (QC) guidelines for this study; specific functional QC checklists are included after the guidelines.

General Project Requirements

The overall goal of this project is to remediate and restore the Grand Calumet River in accordance with the Superfund and Natural Resources Damages Assessment (NRDA) covenant being developed between IDEM, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service and local responsible parties. To meet these goals, the following product requirements are established:

- A Feasibility study must be completed, to evaluate current and without project conditions and to assess reasonable project alternatives. The Feasibility Study must consider the economic, environmental and technical aspects for any reasonable alternatives. The considerations of the local sponsor and the public must also be taken into account.

- The selection criterion for this project (for all reasonable alternatives) will be Environmental Restoration (ER) outputs relative to project cost, and the authority of the U.S. Army Corps of Engineers to execute an alternative with a superior ER output to cost ratio.

- To ensure that the project is in compliance with the National Environmental Protection Act (NEPA) an Environmental Impact Study will be conducted. The project must be in compliance with all environmental regulations, including Sections 402 and 404 of the Clean Water Act (with a waiver for section 401), the Clean Air Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act, and other federal environmental regulations. HTRW and non-HTRW environmental issues that could impact the project must be considered.

The following **QC checklists** are intended to serve as a guide for the Design Team in checking or reviewing design documents for errors and omissions. These checklists cannot substitute for the exercise of sound judgment by the Product Team. The main usefulness of a checklist is to provide a "minimum" check of consistency between disciplines, compatibility of drawings to text and analysis, and conformance with functional requirements and design criteria. The supervisor shall indicate that each item on the checklist has been reviewed or marked "NA" to indicate it is not applicable. The checklist should be signed off for each phase of the product. Checklist items may change if there are changes to product scope or design.

Checklist for Plan Formulation Section

1. **PLAN FORMULATION**

a. Have the assumptions and rationale for the without-project condition been explicitly stated and are they reasonable?

b. Have all reasonable alternatives, including nonstructural and no-action plans, been adequately addressed?

c. Have alternatives which are not implementable by the corps, been fully considered?

d. for water supply, have a range of measures been adequately considered that can, over time, balance water demand for various purposes with water availability?

e. Has the national economic development (NED) plan been identified and properly evaluated?

f. Have a sufficient number of alternatives been analyzed so as to define both the lower and upper portion of the net NED benefit curve?

g. Is there sufficient rationale for any recommended departure from the NED plan?

h. Are the reasons for selection of major elements of the recommended plan sound and adequate?

i. Does the selected plan conform with existing policy? If not, have the reasons for departure been adequately documented?

j. Would staged construction be appropriate?

k. Is the selected plan consistent with applicable comprehensive plans for the area?

l. Have both beneficial and adverse effects been adequately evaluated for the selected plan and alternatives?

m. Has acquisition of necessary land for future project elements been adequately considered?

2. **ANNUAL CHARGES**

a. Does the interest rate and amortization period conform with present practice?

b. Has interest during construction been correctly calculated and included in the economic analysis?

3. **BENEFIT EVALUATION**

a. Have NED benefits been evaluated in accordance with appropriate guidelines and procedures? If not, are acceptable reasons for deviation from standard procedures furnished?

b. Is the benefit estimate mathematically correct?

c. Are the assumptions regarding future alternative conditions clearly stated and justified, and are these assumptions reasonable?

d. Have all known benefits been included in the benefit estimate?

e. Are the economic projections reasonable?

f. Have methodologies and assumptions been explained in sufficient detail?

g. Is the information and data adequate to reasonably support the benefit estimate?

h. Is the without-project condition reasonable and believable, and does it actually reflect how non-Federal interests will act if the resource under study is not developed?

i. Have possibilities of windfall benefits and appropriate special cost sharing been thoroughly investigated?

j. Are average annual benefits on the same time basis as average annual costs?

k. Have possible negative benefits been adequately considered and evaluated?

l. If NED employment benefits are claimed, is the area still eligible?

m. If as a result of investigations between planning and regulatory staffs, it is apparent that an activity to be conducted by a project beneficiary is not in the public interest, have the projected economic benefit(s) associated with that activity been eliminated?

n. If recreation benefits are claimed, does the report include an adequate description of the competing facilities and their existing and expected future use with and without the proposed project? Also, does the report adequately distinguish between and describe the impacts on peak versus average use with and without project conditions?

4. **RISK AND UNCERTAINTY – SENSITIVITY ANALYSIS**

a. Have the plans and their effects been sufficiently examined to determine the uncertainty inherent in the data or in the various assumptions of future economic, demographic, social, attitudinal, environmental, and technological trends?

b. Have the areas of sensitivity been adequately identified and proper analysis performed so that decisions can be made with knowledge of the degree of reliability of available information?

c. Does the report address the risk and uncertainty of the without-project condition assumptions and does it test for sensitivity?

d. Have the advantages and costs of reducing risk and uncertainty been adequately considered in the planning process?

5. **ECONOMIC ANALYSIS**

a. Has adequate consideration been give to tradeoffs between economic and environmental effects?

b. Do the combined beneficial NED and EQ effects outweigh the combined adverse NED and EQ effects?

c. Are separable features, including mitigation measures, incrementally justified?

d. Does the report state the benefit-cost ratio (BCR) for the recommended plan? assuming existing conditions prevail over the period of analysis?

6. **COST ALLOCATION**

a. Is the cost allocation in conformance with existing policies?

b. Has the necessity for sub allocations been adequately considered?

c. Have all project purposes been included in the allocation?

7. **COST APPORTIONMENT**

a. Is the apportionment of cost to local interests in conformance with present policy and evaluation procedure?

b. Are there special circumstances associated with the project that warrant consideration of increased non-Federal cost sharing?

8. **COORDINATION**

a. Has there been adequate coordination with appropriate State, local, and Federal agencies, and have their views been considered in formulating the recommended plan?

b. Has coordination conformed with law, executive orders, and agreements between agencies; and, if not, has the departure been Satisfactorily explained?

c. Have the proper preservation, conservation, historical, and scientific interests been consulted, and were their views given adequate consideration during plan, formulation?

9. FINANCIAL ANALYSIS

a. Does the report include a preliminary financing plan, statement of financial capability and the district commander's assessment of the sponsor's financial capability?

b. Does the financing plan include a current schedule of estimated Federal and non-Federal expenditures by Federal fiscal year, including Federal expenditures, non-Federal contributions, non-Federal lands, easements, rights-of-ways, relocations, and disposal areas (LERR&D), and, for commercial navigation projects, non-Federal utility relocations?

c. Does the financing plan include a schedule of the sources and uses of non-Federal funds during and after construction by Federal fiscal year? Does the schedule include project outlays and income as well as outlays and income related to project construction and financing?

d. Does the financing plan explain the method of finance for all non-Federal outlays associated with the project?

e. Does the non-Federal sponsor's statement of financial capability provide evidence of the sponsor's authority to utilize information on the non-Federal sponsor's capability to obtain remaining funds, if any?

f. Does the statement of financial capability provide evidence that the sponsor has sufficient funds currently available or has a large revenue base and a good bond rating?

g. If financial capability is not clear and the non-Federal sponsor is relying on its full faith and credit to obtain remaining funds (as in the use of general obligation bonds, appropriations or a repayment agreement), does the statement of financial analysis include a credit analysis which demonstrates that the sponsor is credit worthy for the required amount the purpose?

h. If the non-Federal sponsor is relying on non-guaranteed debt (e.g. a particular revenue source or limited tax, or bonds backed by such a source) to obtain remaining funds, does the statement of financial capability include an analysis that demonstrates that the projected revenues or proceeds are reasonably certain and are sufficient to cover the sponsor's stream of costs through time?

i. If the sponsor is relying on third party contributions, does the statement include comparable data for the third party together with evidence of its legal commitment to the sponsor?

j. If a non-Federal sponsor's financing depends on the contributions of funds

by a third party or parties, and the non-Federal sponsor does not have the capability to meet its financial obligations without said contributions, does the report have separate statement of financial capability and financing plan for the contributions for the third party or parties?

k. Does the reporting officer's assessment of the non-Federal sponsor's financial capability ascertain that it is reasonable to expect that ample funds will be available to satisfy the non-Federal sponsors financial obligation for the project?

10. **POLICY ASPECTS**

a. Does the proposed project conform to policies established by law and USACE directives governing Federal participation?

b. Has the review considered current Administration policies and decisions, as well as directions, actions, and interpretations by OMB and ASA (CW)?

CHECKED BY: _____

SECTION CHIEF: _____

APPROVED BY: DATE:_____

Chief, Planning Branch

Checklist for Plan Formulation (Economics)

ECONOMICS

1. The interest rate, price level and amortization period used to determine annual project costs and any quantified benefits are current and appropriate under Corps guidance.

2. All key parameters are identified and defined. All key sources of information and key data are identified and defined. All key imputed values are so identified.

3. All anticipated project outputs, monetary and non-monetary, positive and negative, have been identified and ncluded in the economic evaluation. If not included imn the evaluaitons, those omitted items are identified and reasons for omissions are given.

4. Interest during construction costs are explicitly and plainly exhibited, and properly integrated into the project economic evaluation reports.

5. Costs have been annualized correctly.

6. IPLAN has been used correctly to determine cost effective environmental plans.

7. Only national economic development benefits are included in the BCR, if benefits are quantified.

8. Areas of the evaluation where economic benefits or costs differ from financial benefits and costs are noted.

9. Areas of the evaluation which are subject to a risk and uncertainty analytical treatment are identified.

PDT Member: Dennis Giba Initials _____

Supervisor's Review: _____

Checklist for Planning Analysis Section

	CEQ References	Covered	Not Adequately Covered	Not Covered	Not Required	Remarks
Cover Sheet (not to exceed 1 page)	1502.11					
List of responsible agencies						
Title of proposed action						
Name, address, telephone of person						
who is point of contact						
Document type (EIS or DEIS)						
One paragraph abstract						
Comments must be received by date						
Executive Summary	1502.11					
Adequately and accurately summarizes						
statement or assessment						
Stresses:						
Major conclusions						
Areas of controversy						
Issues raised by agencies and public						
Issues to be resolved						
Choice among alternatives						
Does not exceed 15 pages						
1.0 Purpose and Need	1502.13					
Briefly specify underlying purpose and						
need to which agency is responding in						
proposing alternatives including proposed						
action						
2.0 Alternatives Including Proposed Action	1502.14					
Based on information and analysis presented						
in sections on affected environment and						
environmental consequences, should present:						
Environmental impacts of proposal and the						
alternatives in comparative form						
Sharply define issues						
Clear basis for choice among options						
Rigorously explore and objectively evaluate all	a					
reasonable alternatives						
For alternatives eliminated from detailed study,						
briefly discuss reasons they were eliminated						
Devote substantial treatment to each alternative	b					
considered in detail including proposed action						
Include reasonable alternatives not within	c					
juristdiction of lead agency						
Include no action alternative	d					
Identify preferred alternative	e					
Include appropriate mitigation measures not	f					
not already included in proposed actions						

3.0 Affected Environment	1502.15					
Shall succinctly describe environment of area(s)						
to be affected or created by alternatives under						
consideration. (Shall be no longer than necessary						
to understand effects of alternatives,)						
Shall concentrate effort and attention on						
important issues						
	CEQ References	Covered	Not Adequately Covered	Not Covered	Not Required	Remarks
4.0 Environmental Consequences	1502.16					
Shall consolidate discussions of these elements						
which are within scope of statement (should not						
duplicate discussions in alternatives including						
proposed action):						
Environmental impact of proposed action	(102(2)C(i))					
Any adverse environmental effects which cannot	(102(2)C(ii))					
be avoided should proposal be implemented						
Relationships between local short-term uses of	(102(2)C(iv))					
man's environment and maintenance and						
enhancement of long-term productivity						
Irreversible and irretrievable commitments of	(102(2)C(v))					
resources which would be involved in proposed						
action should it be implemented						
As much of the alternatives to the proposed	(102(2)C(iii))					
action as is necessary to support comparisons						
Shall include:	1502.16					
Direct effects and their significance	a					
Indirect effects and their significance	b					
Cumulative impacts	1508.7					
Possible conflicts between proposed action and	1502.16(c)					
the objectives of Federal, regional, State, local,						
and tribal land use plans, policies and controls						
for the area concerned						
Environmental effects of alternatives including	d					
proposed action (comparisons under alternatives						
including the proposed action will be based on						
this discussion)						
Energy requirements and conservation potential	e					
of various alternatives and mitigation measures						
Natural or depletable resource requirements and	f					
conservation potential of various						
alternatives and mitigation measures						
Urban quality, historic and cultural resources, and	g					
the design of the built environment, including the						
reuse and conservation potential of various						
alternatives and mitigation measures						
Means to mitigate adverse environmental impacts	h					
(if not fully covered in alternatives including the						
proposed action).						

5.0 List of Preparers	1502.17					
Shall list names, together with their qualifications	1502.18					
(expertise, experience, professional disciplines) of						
persons primarily responsible for preparing						
document or significant background papers						
6.0 Coordination	1502.19					
Shall be sent to any of the listed groups or						
individuals, guaranteeing full and honest						
notification and disclosure						

	CEQ References	Covered	Not Adequately Covered	Not Covered	Not Required	Remarks
Appendices	1502.18(a)					
Consists of materials prepared in connection with						
document						
Consists of materials which substantiates any	b					
analysis fundamental to the document						
Analytic and relevant to decision	c					
Circulated with environmental document or readily	d					
made available upon request						

CHECKED BY: _____

SECTION CHIEF: _____

APPROVED BY: DATE:_____

Chief, Planning Branch

Checklist for Real Estate

REAL ESTATE

I. Coordinate real estate mapping with Civil Design

- ❑ Features and work areas are identified and uses correspond to estates.
- ❑ Tracts are identified and tabulated according to estates by acreage
- ❑ Borrow and spoil sites are identified and included as necessary
- ❑ Access and work areas are appropriate for construction activities
- ❑ Utilities and relocation areas are identified as necessary

II. Coordinate Rights of Entry

- ❑ Purpose, need and scope of investigations are identified
- ❑ Owners are identified
- ❑ Rights of Entry conform to regulations

III. Coordination of Relocations

- ❑ Utility owners are identified
- ❑ Displaces and landowners are identified
- ❑ Opinions of Compensability are completed and costs included/excluded
- ❑ Non-Federal Sponsor concurs in relocation plan

IV. Coordination with Non-Federal Sponsor

- ❑ Non-Federal Sponsor concurs in Schedule of Real Estate Activities
- ❑ Non-Federal Sponsor has provided capability assessment
- ❑ Meeting with Sponsor explaining Real Estate obligations, copy of Guide

V. Real Estate Appendix is complete as a plan

- ❑ Text addresses all topics required in regulations
- ❑ Environmental issues are coordinated with technical elements
- ❑ Text accurately states real estate requirements and issues
- ❑ Budget and cost information is realistic and coordinated with ED-C
- ❑ Project Cooperation Agreement and similar issues are addressed outside Real Estate Appendix
- ❑ All items on attached QCP Checklist are complete
- ❑ Acquisition schedules detail milestones and are realistic/coordinated

- ❑ M-CACES is fully explained and risk analysis ties to contingencies
- ❑ Appropriate level appraisal is incorporated and has been approved
- ❑ Jurisdiction of Non-Federal Sponsor is described

VI. Main Text

- ❑ Provide summary for inclusion in main text.
- ❑ Review main text for consistency

VII. Other Real Estate Activities

- ❑ Project team meetings, meetings with Non-Federal Sponsors
- ❑ Site visits, as warranted by Lead Realty Specialist and by Appraiser
- ❑ Recommendations re Project Cooperation Agreement issues
- ❑ Develop worksheet listing and adjusting assumptions used

VIII. Attachments

- ❑ Attachments

PDT Member: _____ Date: _____

Supervisor's Review: _____ Date: _____

PRODUCT DEVELOPMENT REVIEW CHECKLIST
HYDRAULIC ENGINEERING SECTION
Grand Calumet Feasibility

Analysis/Design Item	Study Phase	Verified
GENERAL HYDROLOGY & HYDRAULICS		
Study objectives	Recon/ Feasibility	
Definition of study area	Recon/ Feasibility	
Plan for Feasibility Phase Study (includes time, cost, schedule)	Recon	
Appraisal of Special Technical Issues Erosion/Sedimentation Unsteady Flow (UNET/HEC-RAS Unsteady Modeling)	Recon/ Feasibility	
Final Assembly of Pertinent Data Land Use/Soil Type Mapping Precipitation Data, Historic Events or Period of Record USGS Gage Data, Historic Events or Period of Record Sediment Data Flood Measurements - Measured Flows, High Water Data	Feasibility	
HYDROLOGIC ANALYSIS		
Hydrologic Analyses Final Delineation of Watershed and Subbasin Boundaries	Feasibility	
Finalize Basic Information for Hydrologic Modeling Rainfall-Runoff Variables Base Flow Recession	Feasibility	
Calibrate Modeling to Gage Discharge/Frequency Relationships	Feasibility	
Future Conditions Hydrologic Modeling	Feasibility	
Develop Maximum Synthetic Event Hydrology (PMF/SPF)	Feasibility	
Document model uncertainties and assumptions	Feasibility	
HYDRAULIC ANALYSIS		
Finalize Hydraulic Models for Existing, Future and Project Conditions	Recon/Feasibility	
Detailed Hydraulic Design of Project Features Main Channel	PED	

Rip Rap Overflow weirs		
HYDRAULIC ANALYSIS (continued)		
Document model uncertainties and assumptions	Feasibility	
SEDIMENTATION/DREDGING PROJECTS		
Sedimentation Analysis (qualitative and/or numerical modeling)	Recon/Feasibility	
Evaluation of Dredging Alternatives	Recon/Feasibility	
MISCELLANEOUS DESIGN FEATURES OF NOTE		
Extend Period of Record Data for Hydrologic Model	Feasibility	

PDT Member: David F. Bucaro x5513 Initials _____

Supervisor's Review: _____

Checklist for Environmental Engineering

1. **Phase 1 Environmental Site Assessments General**: Guidance for these investigations is outlined in ER 1166-2-132, Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects. The detail of the investigation will depend largely on the type of project. For example, for those projects involving in-lake construction only, the degree of investigation will be more limited than for a project involving extensive land disturbance.

   a. Has existing information relating to the project site(s) been reviewed (i.e., topographic maps, aerial photos, previous project reports)?

   b. Has a site visit been conducted to examine for signs of potential contamination?

   c. Have interviews been conducted with people familiar with the site (i.e., property owner, neighbors, local sponsor, and CELRC personnel)?

   d. If necessary, have databases been reviewed to determine if the site or adjacent sites were regulated under RCRA or CERCLA?

   e. If appropriate, has the status of any regulated sites been determined?

   f. If sampling was determined to be necessary, has it been performed?

   g. Have the analytical results been properly reviewed for completeness and accuracy?

   h. Did the investigation include any non-commercial sources of borrow material?

   i. Have the results of the investigation been completely documented in a report and has the Chief of CELRC-TS-HE reviewed the report?

   j. Has the HTRW report and other documentation been forwarded to Planning for inclusion in the EIS/EA?

2. **401/404 Permit Sampling and Analysis.**

   a. Has coordination been performed between TS-HE and appropriate team members regarding the scope of the project and the schedule for the permit application?

   b. Is sampling required and has the sampling and analysis plan been coordinated with IEPA/IDEM prior to the sampling?

   c. Has the sampling and analysis been performed IAW with CELRC SOP on sampling?

   d. Has a Data Quality Assessment been performed on the data?

   e. Have the sample results and other potential impacts of the activity been documented in a 404(b)1 evaluation report, and has the report been reviewed by the Chief of CELRC-TS-HE?

f. Has the 404(b)1 report and other documentation been forwarded to Planning for inclusion in the EA/EIS?

g. Has the permit application (and 404(b)1 evaluation report) been submitted to IEPA/IDEM?

h. If follow-up activity is needed (such as a permit application to be submitted later in the project life), have the required activities been documented and given to PM-PM for inclusion in later budgets and schedules?

3. **Other Environmental Concerns**
   a. Are all air standards and air monitoring requirements covered?

   b. Are adequate disposal sites identified?

   c. Is water/wastewater treatment needed, and will treatability studies be needed to obtain information for design?

   d. Are dredged material disposal and dewatering requirements specified, or is a dredged material dewatering and disposal plan included as a contractor submittal?

4. **Quality Management**
   a. Have all project related files (documents, emails, electronic figures) been properly filed using ProjectWise, with attributes assigned as needed, according to the district file management SOP?

   b. Has the QCP been properly developed, followed, revised as needed, and signed by chiefs?

   c. Has all quality paperwork, including ITR forms, checklists, change management forms, been properly completed and signed?

CHECKED BY: _____

SECTION CHIEF: _____

APPROVED BY: DATE:_____

SUSANNE DAVIS, P.E.
Chief, Hydraulics and Environmental Engineering Branch

Checklist for Structural Engineering

1. Has the feasibility study, including the preferred alternative, been reviewed to identify any structural issues that would impact the project, and have the issues been adequately discussed?

2. Have all project related files (documents, emails, electronic figures) been properly filed using ProjectWise, with attributes assigned as needed, according to the district file management SOP?

CHECKED BY: _____

SECTION CHIEF: _____

APPROVED BY: DATE:_____

JOSEPH J. SCHMIDT, P.E.
Chief, Design Branch

CIVIL DESIGN SECTION
QUALITY CONTROL PLAN (QCP) CHECKLIST
FOR DPR/STUDIES

Project Title:_____
Product:_____

1. Check Existing Conditions of the Site:

a. Existing site adequately presented.

b. Existing topography information adequate.

c. Existing bathymetry information adequate.

d. Existing utilities indicated.

2.Check Proposed Features:

a. Site plan is adequately presented.

b. Final topography, bathymetry, utilities adequately shown.

c. Features are technical sound.

d. Features are constructible.

e. Construction access routes shown.

f. Contractor Work and Storage Area indicated.

g. All drawings\plates are correctly coordinated.

3. Quantities Checked

CHECKED BY:

_____ _____
Project Designer Date

APPROVED BY:

_____ _____
Chief, Civil Design Section Date

Checklist for Cost Engineering

- ❑ Quantities are consistent with those provided by other technical elements.
- ❑ Estimates are at the appropriate price level.
- ❑ Estimates are based on the latest available design data.
- ❑ Basis for the estimate is provided or explained; all assumptions, quotes, and other cost factors are documented using MCACES.
- ❑ Estimates are prepared in accordance with the latest Corps cost engineering regulations and technical manuals.
- ❑ Estimates are developed from the Corps unit price book (UPB) or approved construction cost data (e.g. Means) when crew (labor/equipment) and production rate detail is not utilized.
- ❑ Construction contingencies are consistent with the level of design and are estimated for each major line item.
- ❑ Construction contingencies and ED and CM rates conform to the latest Corps guidelines and are shown as separate items.
- ❑ The construction schedule is based on the durations developed in the cost estimate and allows for inclement weather days appropriate for the project location.
- ❑ Estimates are based on the approved scope-of-work and the latest available design data.
- ❑ Estimates are escalated to be the expected midpoint of construction using Engineering News Record, Construction Cost Index (ENR) or the latest Civil Works Construction Cost Index (CWCCIS).
- ❑ Estimates include risk analysis to cover unknown conditions or uncertainty on work schedules.
- ❑ Bidding Schedule organization is in accordance with FAR nomenclature.
- ❑ Bidding Schedule includes all items that constitute the entire product. Unit measures are designed to ease constructibility concerns.
- ❑ Estimates are internally reviewed prior to submittal.

Reviewed by:

_____

Project Cost Engineer

Approved by:

_____

Chief, Cost Engineering & Specs Section

Checklist for Geotechnical Engineering

GEOTECHNICAL SECTION (TS-DG) QCP CHECKLIST FOR:

Grand Calumet Feasibility Study

Task	Alternative Formulation Meeting	Draft Feasibility Report
Review Scope of Work for Product (QCP Current?)	o	o
Review Available Project Reports/Documents	o	
Review Similar Projects for Lessons Learned	o	
Review Soil Survey Reports for Project Area	o	
Review Local/Regional Geology Reports from State Geologic Survey	o	
Review Available Information from Nearby Projects	o	
Acquire Additional Subsurface Data Needed	o	
Enter New Subsurface Data into Borehole Database		o
Develop 3 Alternatives	o	
Evaluate Alternatives to appropriate level for comparison	o	
Perform Slope Stability Analyses on Selected River Bank Sections and provide recommendations	o	
Perform Geotechnical Analyses on Recommended Plan (NOTE: List needed analyses for design such as seepage, stability, settlement, etc.)		o
All Computations Checked		o
Prepare Geotechnical Appendix Outline	o	
Describe Regional and Site Geology		o
Describe Results of Investigations and Testing		o
Describe Geotechnical Analyses performed		o
Level of Detail Sufficient to Support a Reasonable Cost Estimate		o
Include Recommendation for Additional Investigations and/or Analyses needed during next project phase		o
Provide Subsurface Data on Drawings		o
Provide Appropriate Design Details on Drawings		o
Review Overall Report and Drawings for Proper Integration		o
Attend Project Meetings	o	o
Respond to and Incorporate ITR Comments		o

Approval of Geotechnical tasks for the _____% Review Level:

_____ Geotechnical Engineer

_____ William A. Rochford, P.E.
Chief, Geotechnical Section

APPENDIX C
Independent Technical Review (ITR) Objectives and Checklist

An Independent Technical Review (ITR) will be performed on the Feasibility Study and EIS. This checklist will be submitted with the ITR Certification. As appropriate, the items below will be checked off or marked NA.

ITR Objectives: The particular aspects of this product that the ITR team should concentrate on are:

a. Technical conformance with the PREVIOUS REPORTS, ETC. and to the approved agreements subscribed within.

b. Confirm that proper applications of the criteria, regulations, laws, codes, principles, and professional procedures are made.

c. Verify that the assumptions, methods, and level of complexity of the analysis are clearly stated.

d. Verify that the adequacy of the alternatives evaluated, appropriateness of the data used, reasonableness of results, and functionality of the product to the customer is addressed.

e. Verify that the P&S have sufficient detail and information such that it could allow the work to be successfully advertised and contractors to prepare reasonable bids on. Also, that the P&S would allow preparation of an accurate Independent Government Estimate of the work to be performed in order to properly evaluate contractor proposals.

ITR Checklist:

- ❑ Independent Technical Review (ITR) Team members are not members of the product development team.
- ❑ The ITR Team has reviewed product-scoping documents.
- ❑ The ITR Team has conducted periodic checkpoint reviews throughout the development of the product.
- ❑ The ITR Team has performed standards review of the product for compliance with clearly established criteria, regulations, laws, codes, principles, and policies, both Corps and public, in order to ensure a quality product. The ITR Team must be familiar with the above standards and their application to the project.
- ❑ The ITR Team has reviewed appropriateness of assumptions, and all evaluated alternatives.
- ❑ The ITR Team has reviewed that the data used and level of data obtained is appropriate.

- ❑ The ITR Team has reviewed that the level of detail used in the analysis is consistent with the level of the document.

- ❑ The ITR Team has reviewed that the results are reasonable, including whether the product meets the customer's needs.

- ❑ The ITR Team has reviewed the cost-effectiveness of the design.

- ❑ The ITR Team has prepared written technical comments on the product, including recommendations on specific actions to resolve any noted concerns. ITR Team comments have been made using the criteria below:

  (1) A clear statement of the concern.
  (2) The basis for the concern.
  (3) The significance of the concern.
  (4) The specific actions needed to resolve the concern.

- ❑ The ITR team has reviewed that the Quality Control Checklists checked off by Design Team members and certified by their Functional Chief.

- ❑ Coordination and calculation checks have been performed by the Design Team, and not by the ITR Team. However, the ITR Team has performed additional checks when deemed necessary to the execution of their function.

- ❑ The ITR Team has completed work in a timely fashion.

- ❑ The ITR Team is available to answer follow-up questions and continue work with the Design Team on the project if necessary.

Appendix B: Preliminary Site Safety and Health Plan

A Site Safety and Health Plan was prepared by Maxim Technologies for the Grand Calumet River/ Indiana Harbor Ship Canal Sediment Sampling Project in accordance with the U.S. Army Corps of Engineers Safety and Health Requirements Manual (EM 385-1-1, revised 1992), the U.S.Army Corps of Engineers Safety and Occupational Health Requirements for Hazardous Waste Site Remedial Actions (ER-385-1-96), and Occupational Safety and Health Administration (OSHA) requirements (29 CFR 1910 and 1926, specifically 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response), and the U.S. Environmental Protection Agency's (USEPA) hazardous waste requirements (40 CFR 260-270)

Contaminants of Concern

Previous sediment characterization studies have detected a wide array of chemical compounds including conventional pollutants, metals, and organic chemicals such as pesticides and PCBs. Hoke et al (1993) detected sixty-three compounds in sediments collected from the GCR and IHSC. Among these are PAHs and several types of PCBs (Arochlor 1248, p-DDE, toxaphene, p-chlorotoluene, ethylbenzene, and p-dichlorobenzene), which all existed in the 2-20 mg/kg range with the exception of some PAHs that were detected at levels up to 100 mg/kg. Detected metals of toxicological concern were zinc, lead, and chromium, found in concentrations of 5.23, 3.94 and 1.22 gm/kg respectively; and copper, nickel and cadmium, found in concentrations of below 500 mg/kg.

Hazard Identification and Risk Analysis

A preliminary evaluation of each area of study, the overall site characteristics and hazards associated with investigative tasks was performed by the Site Manager, and the Project Health and Safety Officer. This preliminary evaluation identified hazardous conditions. Chemical contamination may be encountered in the area of study during sediment sample collection once the sediment samples have been brought above the surface of the water body.

Chemical hazards include those associated with contact with the sediments of the GCR/IHSC. Material safety data sheets specify toxicity level for each hazardous chemical mentioned above. Tables were prepared by Maxim Laboratories that summarize information found on the MSD sheets and are included in Maxims Site Safety and Health Plan.

Buried or submerged pipelines containing various products and electrical lines may be present beneath the GCR/IHSC.

The primary physical hazards associated with the site are potential to slip/trip/fall on the uneven shoreline areas, or drowning hazards. Others may include thermal stress and cold stress.

Fire hazards may be associated with tall, dry grasses found on site. US Coast Guard regulations also require that boats powered by gasoline engines must be equipped with fire extinguishers.

Biological hazards may include ticks, spiders, rodents, and snakes; and pathogens, which may be present in surface water and sediments of the GCR/IHSC.

Appendix C: Communication Plan

Grand Calumet Feasibility Study

1. **Purpose.**

The purpose of this plan is to set forth guidelines for developing a communications strategy for ensuring and facilitating the timely release of accurate information about this project.

2. **Objective.**

The main objective of this communications plan is to develop the means to provide accurate and factual information to the public, increase public support of the project, promote Corps/partner leadership and build internal pride in the project. A successful communications plan will keep the public informed and encourage public participation in key actions and decision-making. Vigilance in keeping the public involved and informed will promote overall public acceptance of the project and minimize the potential for "surprises" that could generate negative perceptions.

IDEM has created an internal communication plan with a goal that is consistent with that of the GCR IHC Sediment Management project (document attached): To create a communications and outreach plan that provides citizens with timely, accurate and helpful information. The plan identifies 10 main objectives, which are listed below.

a) Establish work teams with defined roles, goals and responsibilities
b) Determine best media mechanisms
c) Establish information channels
d) Establish branding tool
e) Establish Web tools including unique id
f) Plan Kickoff Event/Announce Settlement of case
g) Determine how to best generate information in multiple formats and languages
h) Define the process and timelines in layman terms for citizens
i) Develop community involvement with information dissemination
j) Establish mechanisms for long term communications management

3. Strategy:

a) Identify project milestones that require communication emphasis.
b) Ensure the timely and accurate release of information about this project
c) Engage in proactive, timely, open and effective two-way communication with constituents to help build consensus about the project.
d) Ensure that communications about this project supports the Project Management Plan and project objectives.
e) Use plain English to explain quality of life benefits of the project.
f) Make it easy for media to publicize good news regarding the project.
g) Use online websites to keep the public informed.

h) Promote the values of the project to sponsors, stakeholders, partners, contractors, the public and the project team.

4. Responsibilities[1]:

a) Project Manager (PM): PM will ensure that communication of information about the project is built into the project delivery process, to act as the primary Corps spokesperson for the project, and to ensure that timely and accurate information about the project is disseminated a Public Affairs Officer (PAO) and the Project Delivery Team (PDT.

b) The Product Delivery Team (PDT): PDT members will ensure that the PM and the Public Affairs Office are informed of potential key issues that may impact the delivery of the project, may engender congressional or media attention or create a public controversy. PDT members will also actively support communication efforts by providing timely accurate responses to public and media inquiries about the project, and when asked by PM or PAO, serve as spokesperson on issues for which they are the subject matter expert.

c) Public Affairs Officer (PAO): The PAO will provide public affairs advise, counsel and support to the PM and the PDT. The PAO will also coordinate with the PM and the PDT to develop specific projects to publicize the project to internal and external audiences, including news releases, booklets, brochures, and web-based materials. The PAO will field calls about the project from the media and coordinate the official District response with the PM and appropriate PDT members. The PAO will provide PA support at public functions and meetings, will monitor media reports about the project and ensure the PDT members and the PM are kept apprised of media activity.

d) Local Sponsor (LS): The LS will appoint a representative for Public Affairs. The LS will coordinate the release of information about the project with the Chicago District's PAO, participate in the formulation of communication initiatives at various stages in the project, will serve as central clearinghouse for communications products, will develop key strategic messages about the project and develop communication products as work-in-kind. IDEM is in the process of hiring a public information officer (PIO) to be the main Point of Contact for the project and to take the lead for public outreach.

e) Communication Subcommittee (CS): A CS may be developed that includes members from IDEM, USACE and possibly other agencies and/or community groups. The CS will serve as a forum for keeping other stakeholders apprised of project related communications efforts.

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[1] IDEM communications plan contains a list of team leaders who were appointed to each named objective. IDEM's public information officer (PIO) serves as the primary media contact for the project.

5. Communication Implementation Plan:

Initial:

a) Identify initial aspects of the project to communicate to the internal audiences within 60 days of preparing the draft communication plan.

    i. Ecosystem restoration benefits, property value increases, human health and environment, potential restored beneficial uses

b) Develop an internal communication plan for sharing information between various project committees, subcommittees and teams.

    i. Monthly internal meetings will be held to ensure good and consistent communication among agencies.
    ii. Develop data exchange website for internal use by team.

c) Develop initial products to communicate project goals to the public within 90 days of preparing the draft communication plan.

    i. IDEM plans to identify best media mechanisms by early December 2004.

d) Identify project milestones that require communication emphasis and develop an annual schedule of information releases tied to key project milestones.

    i. Milestones that may require emphasis include initial website posting and all subsequent postings, disposal site selection alternatives development, conceptual level design alternatives development, EIS activities, PED, feasibility report completion

e) Develop an Internet page for the project that can be posted to within 30 days of preparing the draft communication plan.

    i. Website under development. IDEM will meet with program area staff and stakeholders to determine website needs by October 30, 2004. URL address has been established.
    ii. Investigate data exchange website for public use.

f) Conduct a literature review of information already published about the project.

    i. Technical publications should be thoroughly covered in HTRW investigation, by
    ii. Media publications, articles can be gathered by PAO (December 2004)

g) Develop a preliminary audience profile.
    1. IDEM plan refers demographic research
    2. Estimated completion date of November 19, 2004.

h) Identify key issues of public or media interest, both known and potential.
    1. Some key issues include disposal site selection, potential air emissions during dredging, and re-contamination by groundwater.

i) Prepare a preliminary media contact list.
    1. IDEM will develop a media contact list for all outlets in the region including contact names, job responsibilities, email, phone, and physical address.
    2. Within 30 days of preparing the draft communication plan.

Annual:

a) Review prior year communication strategy. Develop lessons learned and determine successes.
b) Develop proactive and interactive communication plan for the upcoming 12-18 months.

As needed:

a) Adapt communication strategy to deal with new issues, audiences and perceptions about the project.
b) Assess new channels of communication and their potential for adoption for messages about this project[2].
c) Periodically review communications plan and assess effectiveness, revise plan if needed.
d) Deal with unforeseen issues as they arise.

[2] IDEM will establish set of information channels by 12/03/04

Project Communication Plan Checklist

Grand Calumet Feasibility Study

1. Project Description
   a. Strengths:
      1. Project will provide a clean river and facilitate restoration of adjacent ecosystem.
      2. Study area covers non-federal reaches of the Grand Calumet River and Indiana Harbor Ship Canal.
      3. Environmental restoration and protection, water quality, recreation and related purposes.
   b. Weaknesses:
      1. There is potential for local opposition, projection based on current public opinion of Indiana Harbor CDF project.
      2. Groundwater surrounding the channel is contaminated and may cause recontamination after dredging is complete.
      3. Disposal site selection may be challenging
   c. Opportunities:
      1. Demonstrates Corps commitment to environmental issues.
   d. Threats
      1. Potential local opposition to dredging and disposal site selection alternatives

2. Stakeholders
   a. Local sponsors:
      - Indiana Department of Environmental Management (IDEM)
   b. Community Activists:
      - Homebuilders Associations
      - Chamber of Commerce
      - League of Women Voters
      - Municipalities
   c. Environmental Groups:
      - GRIFF
      - CARE
   d. Other Federal Agencies: U.S Environmental Protection Agency, U.S. Fish and Wildlife Service
   e. State Agencies: Indiana Department of Natural Resources
   f. Local Agencies:
   g. Elected Officials: County, State and Federal officials in affected areas (see attached list).
   h. Media (draft list):
      <u>Print:</u>
      - Post Tribune
      - The Times
      - Other Indiana newspapers

Radio

-
-

Television

-
-

i. Opinion leaders:
   - Fishing Industry
   - Recreation Industry
   - Environmental Groups
j. General Public:
   - Public located within a 10 mile radius of the Grand Calumet River and Indiana Harbor Ship Canal
   - Schools
   - Business Community
k. Impacted Public:
   - Homeowners
   - River users
   -
l. Internal Corps and non-federal sponsors.
m. Congressional Interests:
   - IN-1 (Visclosky)
n. Others: Academic Community

3. Literature Review
   a. Press Coverage Summary:
   b. Reporter Report Card (positive, negative, neutral, biased, other): N/A
   c. Public Inquiries: None
   d. Congressional Inquiries: None
   e. Other Inquiries: None

4. Project Milestones (dates to be filled in):
   a. First public contact:
   b. EA/EIS release:
   c. Formal Corps Public Meetings required? Yes
   d. FCSA Signed:
   e. Study Approved:

5. Public Involvement
   a. How much already?
   b. Of what nature?
   c. Anticipated? When FCSA is signed and project goals/milestones are released.
   d. Potential Pitfalls, when, where and with whom?

6. PR Tools
   a. What is already in place?

1) Project Fact Sheet? Yes
2) Project on Web site? No
3) Digital Visual Library? No
4) Public Notices? No
5) Media releases? None
6) Media events? None
7) Local Library? No
8) Project Q&A's? No
9) Other

b. Recommended message
   1) Awareness?
      a) primary target audience- Impacted public
      b) secondary audiences- General public
   2) Support?
      a) primary target audience- Congressional and local elected officials
      b) secondary audiences- Business and Environmental Community
   3) Key Messages:
      a) We will keep you informed. (Media, Public and Academics)
      b) We are highly trained, capable public servants. (Public)
      c) Safety is our paramount concern. (Navigation Industry)
      d) We will protect people, their property and the environment. (Environmentalists)
      e) We will coordinate with all interested parties. (environmental, fishing and navigation community)
      f) We want your participation in the process. (Public, Navigation, environmental, fishermen)
      g) We will work closely with your own experts and decision makers. (municipalities, environmental and business communities)
      h) We will take the media through the study site and keep you up-to-date.
      i) We will hold public forums to listen to you and share information.

c. Recommended tools for this project:
   1) Project Fact Sheet
   2) Project on Web site with e-mail response link IDEM
   3) Media event at FCSA (or at least a release with photo)
   4) Encourage academic involvement via postcards to environmental science departments when research info is available on website.
   5) News releases to general media IDEM
   6) News releases or articles to environmental and professional organizations IDEM
   7) New releases to fishing/outdoor media IDEM
   8) News releases to environmental media IDEM
   9) Use of multi-agency speaker's bureau with recreation, environmental and business communities IDEM

10) Develop a shared web-based resource where all project sponsors can report their speaking engagements and view the presentations of other groups IDEM
11) Teacher resource kit for schools
12) Exhibits at local events IDEM
13) Community Newsletter or other periodic mailing USACE
14) Develop basic set of Powerpoint slides that each speaker can incorporate into their presentation to ensure consistency of project information given to the public
15) Pursue local cable opportunities to showcase the study goals and status IDEM
16) Public information sessions held at least annually, potentially at rotating sites throughout Northwest Indiana IDEM
17) Local Workshops, at meaningful stages in the study development (USACE/IDEM)

d. Estimated costs for communications products: $236,000 (PMP dated March 2003, approved May 2003)

Impact

Medium	Awareness (Public)	Awareness (Targeted)	Awareness (Internal)	Support (Public)	Support (Targeted)	Feedback Generator	Legal Requirement
Web Page	X					X	
Press Release	X						
Project Fact Sheet	X						
Newsletter		X			X	X	
Legal Notice	X					X	X
Internal Use Articles		X	X		X		
Media Event	X			X			
Public Meeting	X	X				X	X
Speaker's Bureau		X			X	X	
Open House				X	X	X	
Brochure	X	X					
Tour				X	X	X	
PowerPoint Presentation		X			X		
Poster		X					
Display or Exhibit		X					
Trade Journal Article		X			X		

Grand Calumet Communications / Outreach Plan
For IDEM & USACE

Goal: Create a communications and outreach plan that provides citizens with timely, accurate and helpful information via delivery mechanisms tailored to meet the needs of the diverse population in the area.

Objectives: A. Establish work teams with defined roles, goals and responsibilities
B. Determine best media mechanisms
C. Establish information channels
D. Establish branding tool
E. Establish Web tools including unique id
F. Determine how to best generate information in multiple formats and languages
G. Define the process and timelines in layman terms for citizens
H. Develop community involvement with information dissemination
I. Establish mechanisms for long term communications management

Staff Requirements:
IDEM's Media and Communications Services (MACS) will designate one communications team member in Indianapolis to serve as the contact point and team leader for this project. A member of the Northwest Regional office will serve as a local team leader from the Merrillville office. These two individuals will work together with additional MACS and program staff to guide this project.

The MACS team leader will be responsible for over site of all the objectives and for guiding additional team members working on materials and events for this project.

Objectives Matrix:

Objective Title	Team Leader	Start Date	Target Date
A. Establish work teams with defined roles, goals and responsibilities	Mark Amick	08/01/04	12/31/04
B. Determine best media mechanisms	Barry Sneed	11/29/04	05/13/05
C. Establish information channels	Barry Sneed	11/29/04	05/20/05
D. Establish branding tool	Mark Amick	08/01/04	04/11/05
E. Establish Web tools including unique id	Mark Amick	08/01/04	04/04/05
F. Determine how to best generate information in multiple formats and languages	Mark Amick	08/01/04	05/29/05
G. Define the process and timelines in layman terms for citizens	Mark Amick	08/01/04	05/06//05
H. Develop community involvement with information dissemination	Barry Sneed	11/29/04	04/29/05
I Establish mechanisms for long term communications management	Barry Sneed	11/29/04	04/29/05

Details for Reaching Objectives:

A. Establish work teams with defined roles, goals and responsibilities

1. IDEM will create a Public Information Officer (PIO) position using current Office of Public Policy and Planning (OPPP or P3) vacancy to serve as the primary media contact for the project. Funding for the position's salary will be covered by OPPP with coding done to track expenses.

By: December 1, 2004

Status: 100%. Complete. Barry Sneed began at IDEM on November 29, 2004. Amy Hartsock, from IDEM, will be overseeing and Russ Grunden, from IDNR, will be helping out with printed materials. Lynne Whelan, from USACE, will advise as needed.

2. Establish work area and gather necessary tools for assigned PIO.

By: December 31, 2004

Status: 100%. Computer and space needs have been identified. The appropriate requests for supplies, work space configuration and computer tools have been made.

B. Determine best media mechanisms

1. Establish a media plan for management and communications to enable the agency to efficiently and effectively respond to inquiries concerning project. Identify communication message themes and strategies.

By: May 13, 2005

Status: 10%.

2. Identify IDEM and USACE staff most appropriate to respond to specific topics or questions. Develop contact matrix.

By: May 20, 2005

Status: 25%.

3. Establish a project digital photo archive that provides users access to photos and search tools.

By: May 24, 2005

Status: 75%. The photo archive for this project will be housed at IDEM as part of the agency's digital photo archive. The software and computer for the archive are in place. IDEM is in the process of scanning photos, giving them I.D.'s and completing the archive.

4. Research population demographics and media outlets in local area.

By: March 1, 2005

Status: 100% done.

C. Establish information channels

1. Build electronic news listserv e-mail address book to incorporate media outlets, legislators, environmental groups and key public influencers for delivery of IDEM and ACE press releases.

   By: May 20, 2005

   Status: 50%.

2. Designate staff to serve as media and public contacts for the project. Staff will develop and maintain mechanism to track media contacts and report to MACS for media log entry.

   By: April 4, 2005

   Status: 100%. Amy Hartsock will be lead from IDEM and Barry Sneed will assist. Russ Grunden will work with Amy

3. Develop presentations and information packets for staff conducting outreach.

   By: April 15, 2005

   Status: 100% done.

4. Develop a print and electronic media contact list for all outlets in the region including contact names, job responsibilities, email, phone, and physical address.

   By: May 20, 2005

   Status: 50%.

5. Create newsletter and fact sheet standard formats.

   By: May 13, 2005

   Status: 90% done.

D. Establish branding tool

1. Create recognizable logo for project and develop all print-usage formats.

   By: December 15, 2004

   Status: 100%. Logo has been completed.

2. Establish project color sequence based on Pantone Matching System (PMS) colors to ensure visual product recognition.

   By: February 28, 2005

   Status: 100% Minor changes needed to coincide with branding.

3. Develop mechanism to make all branding elements available to media.

   By: May 6, 2004

   Status: 50%

E. Establish Web tools including unique id

1. Create a unique URL address for all project materials.

By: August 20, 2004

Status: 100%. Unique address established (www.grandcalumet.IN.gov)

2. Meet with program area staff and potential stakeholders to determine needs for Web site.

By: May 13, 2005

Status: 50%. We are awaiting approval of documents to put on the website. When IDEM receives them, they can go up rather quickly.

3. Establish agency Web site to handle all project materials while keeping customers' ease of use and navigability in mind. Site design should include description of project, timelines, materials for news announcements, e-newsletters, presentation packages, calendar of upcoming meetings/milestone target dates, news release index, data area and art.

By: May 6, 2005/Ongoing

Status: 50%. The Web site has been created, but navigation tools and more materials need to be added.

4. Establish Web site development tools and feedback mechanisms that allow customers to provide input.

By: May 6, 2004

Status: 80%. Web site and e-mail address have been established. This portion will be set up when other information is ready to go up on website.

5. Add materials to publication catalog/archive to allow for topic searches of materials.

By: April 25, 2005/Ongoing

Status: 0%.

F. Determine how to best generate information in multiple formats and languages

1. Develop bi-monthly news articles to be sent to local newspapers, e-mailed to contact list and posted on the Web site.

By: May 29, 2005

Status: 0%. Just assigned to Russ Grunden

2. Determine predominate languages used in the area.

By: March 31, 2005

Status: 100%.

G. Define the process and timelines in layman terms for citizens

1. Develop brochures to target specific audiences (i.e. anglers, neighbors).

By: April 15, 2005/ ON HOLD

Status: 0%.

2. Develop interactive time line for Web site that allows citizens to track progress of work including photos from all stages.

   By: May 6, 2005

   Status: 0%.

3. Explore idea of getting local site for Grand Cal Web cam to raise awareness.

   By: April 29, 2005/ Pending

   Status: 30%. Request for materials, cost, and outside services has been made.

H. Develop community involvement with information dissemination

1. Develop a schedule for public outreach meetings in NW IN to update the public/hear suggestions.

   By: April 15, 2005

   Status: 100%.

2. Be available when requested to speak to NW IN service clubs about the project.

   By: Ongoing

   Status: 10%.

3. Host a minimum of four Grand Cal meetings to update community about the project.

   By: December 31, 2005

   Status: 25%.

4. Develop mechanism to ensure proper minutes/notes are kept of meetings.

   By: April 29, 2005

   Status: 50%. Court recorder has been contacted and request for quotation has been made.

5. Develop information packets for community groups that can be provided to all interested groups in the region.

   By: April 24, 2005

   Status: 50%

I. Establish mechanisms for long term communications management

1. Meet on a regular basis with P3 (OPPP) Assistant Commissioner, NWRO director, program staff and appropriate leadership teams to update and discuss future action.

   By: Ongoing

   Status: 0%.

2. Develop communications to track interest in the project including: media contact and stories; public contacts, including correspondence; and, meeting minutes/notes. Database will allow agency to search and catalogue questions and responses.

   By: April 29, 2005

   Status: 0%.

Appendix D: Risk Management Plan

Risk Analysis: The primary risk is that tasks and research identified will be performed late to schedule and the Executive Committee will make a later decision on quality management systems. There will be minimal impact to division and districts, and the local sponsor since each will continue to maintain their existing quality management system. The potential risks that could be associated with accomplishing the project are scope, quality, budget, and schedule. Budget is the most constraining risk, so scope and schedule will need to be modified as necessary without impacting quality. Each risk will be evaluated and analyzed should it occur. The appropriate probability rating and severity rating (should the risk event occur) will be determined. Judgment on how to eliminate or reduce risks to lessen the overall project impacts is inherent in the risk assessment process. The risk probabilities and severities will be described, and the degree of impact on the project's baseline scope, quality, budget and schedule. Decisions to accept risks must be made at a level equal to the degree of risk. Project and Program Managers and Commanders, and the Executive Committee must weigh the risks against the benefits of performing an activity. Action(s) required for reducing or eliminating risks will be determined and documented should they occur. The Attached Risk Analysis Sheet will be used for evaluation and resolution of a risk should it occur.

Risk Mitigation: Team members will give notification via email or phone call to team that they will require help to meet deadlines. Team members with available time and possessing needed skill will assist to maintain or regain schedule. The Executive Committee will be kept informed.

An example of a Risk Analysis Sheet is provided below:

<table>
<tr><td>ID:</td><td colspan="2">Date Identified:</td></tr>
<tr><td>WBS Item:</td><td colspan="2" rowspan="5">Risk Statement:

[This is a simple statement of what the risk is. Examples:
A new technology is being used for some aspect of the project, what is the risk associated with the technology failing or not working as expected?
On a horizontal construction project such as steam or sewer lines, there's a risk of running into unidentified underground utilities. What are the implications?
A barracks renovation is timed for completion to support a currently deployed battalion. There's no place else to house the troops on-post if the schedule slips. What are the implications?
On a lock project, there's a risk of the cofferdam being overtopped. What are the risk(s) and implications?]</td></tr>
<tr><td>Severity:</td></tr>
<tr><td>Probability:</td></tr>
<tr><td>Originator:
[Who identified it?]</td></tr>
<tr><td>Owner:
[Who is responsible for managing the risk?]</td></tr>
<tr><td colspan="3">Context:
[What's the background for this? How did we get to this point?]</td></tr>
<tr><td colspan="3">Trigger:
[What will trigger this risk?]</td></tr>
<tr><td colspan="3">Risk Response: Accept? Avoid? Mitigate?
ACCEPT
[If we accept the risk, do we need a contingency plan or some other response? If we accept, is the customer ready to get additional funds or delay schedule or other response, if that's appropriate?
AVOID
[If we can avoid the risk, describe how we avoided it. Did we eliminate the threat or cause? Choose alternatives?]
MITIGATE
[If we mitigated, what did we do? Reduce the probability of occurrence of the event? Did we change the approach such as off-loading the risk through insurance or other means? Did we set up an additional amount of management reserve to cover identified eventualities?]</td></tr>
<tr><td colspan="3">Risk Control:
[Will workarounds be required? Corrective actions in mid-stream? Implementation of a contingency plan?]</td></tr>
<tr><td colspan="3">Status:
[Specify the date of last review of this risk and what the PDT did at that point.]</td></tr>
<tr><td colspan="3">Lesson(s) Learned:
[If there is a lesson applicable to other projects, document here and feed back through the Observations/Suggestion process of the PMBP Manual.]</td></tr>
<tr><td>Approved by:
[Approving Official signs off and dates in this block.]</td><td>Closing Date:</td><td>Closing Rationale:</td></tr>
</table>

Note: Controls may be as simple as referencing an SOP or conducting a job-site briefing.

Appendix E: Change Management Plan

Scope

The purpose of this reference document is to define the format, content and methodology for the Change Management Plan. It is used to define and manage the project's baseline performance measurement thresholds for scope, cost, schedule, risk and quality. The project's performance measurement thresholds will be used in Change Management to determine if actual project performance has exceeded the project's baseline performance measurement thresholds. The level of detail of the Change Management Plan is based on the complexity of the project. The Change Management Plan is a supporting plan that facilitates the implementation of the Project Management Plan (PMP), along with Quality Management, Communications, Safety and Occupational Health, Risk Management and Value Management. Plans are developed concurrently in the iterative Program/Project Planning Phase.
The Change Management Plan also addresses the use of Change Request Form, Distribution, Project Delivery Team (PDT), and Ownership.

Change Management Plan Content

Document how changes will be managed for the project
Project Baseline Performance Metrics and thresholds for Scope, Schedule, Cost, Quality, Safety, and Risk
Use of applicable statutory and regulatory change will be supplemented by project-specific change management criteria.
Use of Change Request Forms
Use of Project Versions

Change Management Plan Methodology

As processes are completed for project scope and customer expectations, activities and schedule, and resource estimates, record baseline performance measurement thresholds for scope, quality, risk, schedule, and cost. Other performance measurement thresholds should be considered based on the complexity and specific needs of the project.
During change management, the PM gathers sufficient information to analyze the proposal and potential solutions, considering the impact of changes for all of the project's baseline performance measures in order to insure that all changes are coordinated across the entire project.
The analysis is distributed to the appropriate decision maker(s), if other than the PM.
The Project Manager will communicate to project stakeholders the decision for all project changes according to the communications plan.

Project Baseline Performance Metrics Table

Baseline performance metrics and thresholds are defined in the Project Management Plan (PMP), approved in the PMP process, and are updated as required during the project's life cycle.

Scope	Defined by WBS that is developed in Project Scope and Customer Requirements Definition Process
Schedule	Defined by scheduled start and finish dates in the project's critical path that is developed in Activity/Schedule Development Process.
Cost	Defined by resource plan that reflects total project cost of all WBS items. The resource plan is developed in the Resource Estimate Development Process.
Quality	Defined by quality objectives that are developed in the Customer Scope and Requirements Definition, and Project Delivery Acquisition Strategy Processes.
Risk	Risks are defined in Customer Scope and Requirements Definition, Team Establishment, Activity/Schedule Development, Resource Estimate Development, and Project Delivery Acquisition Strategy processes, as well as Safety and Occupational Health Plan and Risk Management Plan.

Project Version Control

The following table describes P3e project versions that are used to manage the project. P3e Project Version Table:

Baseline	To establish the project's baseline performance measurement thresholds in order to evaluate and measure actual project performance on a periodic bases.	After the PMP is approved.
Rebaseline	Creating another project baseline in order to measure project performance.	Creating another baseline should only be considered when a change to any of the project's performance measurements is of such a magnitude that rebaselining is required to provide relevant data to measure project performance.
Current	Current versions are created and used to document periodic changes to the project.	"What If" based on current version.
Budget	Budget versions serve programming purposes.	Used when budget or other programming needs occur.
Other	Name and description to be determined by PDT or organizational needs.	Used as required to address project-specific needs

Change Request Form

Change Requests can be presented in the form of verbal or informal requests, however, as a best practice proposed changes should be formally recorded in order to facilitate the understanding of the intent of the proposed change. The Change Request Form provides a means of documenting the impact of proposed changes and provides the rationale for approving changes that exceed the project's baseline performance thresholds. Change Request Forms should be posted to the project in P3e.

Project: **Date:**

Requested by: **Request No.:**

Change Description:
Justification:
Narrative Description of Impact:
Scope Impact: Cost Impact: Quality Impact:
Schedule Impact:
Risk Impact:

Team:

☐ Approved ☐ Disapproved
Basis of Action:
PM Signature:
Date:

Appendix F: Study Limit Map


Cook
Will
Kankakee
Lake
Newton
Porter
Jasper
La Porte
Starke
Pulaski
Location Map
N
W
E
S