

APPENDIX A
DETAILED SCOPE OF WORK

22A - PUBLIC INVOLVEMENT

Due to the intense public, political, and media interest in the restoration of the southwest Florida ecosystem, public involvement is a critical component of the study effort. Three goals for public involvement have been identified:

1. Gather input from the diverse groups outside of the study team to assist in problem definition and identification of opportunities and potential solutions;
2. Develop relationships critical to the success of the study and the implementation of the recommendations of the study; and
3. Promote realistic expectations about the Southwest Florida Feasibility Study (SWFFS). This is complicated by a lack of awareness about the Corps' study process and the requirements for the study to meet Federal planning guidelines, such as, including the public in the process, formulating alternative plans, assessing impacts, and estimating costs.

PUBLIC INVOLVEMENT PLAN

Public Involvement Plan - Develop an overall plan for public involvement to include all elements available to focus on communication efforts. Provide information to and solicit information from the public, and provide feedback to the public on how the information was used. The framework for the public involvement strategy must include:

- Public Input/Information
- Internal Audiences
- Media
- Outreach
- Partnering

These activities will culminate in a feasibility report that successfully reflects public concerns and ideas in problem identification, plan formulation, and recommendations. The design for the public involvement plan should be based on identified issues, agencies, groups, and individuals critical to the success of the study. The recommended activities should address three general purposes of the public involvement program: to gather information, maintain relationships and promote realistic expectations. The design of the strategy will integrate the traditional public affairs activities and audiences into an overall public involvement effort. The plan may undergo a formal peer review by other professionals in the public involvement field, as well as ongoing evaluation by those involved in the process.

In addition, the SFWMD, serving as the non-Federal sponsor, will utilize its existing water supply planning committee structure to further promote public involvement and participation. This process will also include coordination with the Water Utility Advisory Committee and the Environmental Action Committee. These groups will be asked to review and comment on work products. This process will also include formation of a resource team to be comprised of non-governmental interests.

PUBLIC INPUT/INFORMATION

This activity is the traditional heart of the Corps' public involvement process in which information is gathered from and given to the public.

Public Workshops

This activity will consist of five series of workshops to gather information as well as to provide feedback to the public. The workshops should be scheduled such that they occur approximately once a year (after the initial year) to foster interest in the study. For each workshop series there will be two workshops held in different geographical locations in the study area.

Public Workshop #1 - The first series of public workshops will be conducted at the beginning of the feasibility study. The purpose of these workshops will be to present the conclusions of the scoping phase, in which the Corps and SFWMD solicited input to identify important resources, problems, and opportunities as required by the *National Environmental Policy Act*. The second purpose of these workshops will be to present the purpose and scope of the feasibility phase.

Public Workshop #2 - The second series of public workshops will be conducted at the end of the first year of the feasibility study. The workshops will present the initial array of alternatives to be evaluated. These workshops will be conducted as part of the initial screening process to ensure that the alternatives to be evaluated are consistent with agency and local interests and perspectives with regards to wetlands and wildlife conservation, economic development, comprehensive land planning, maintenance of water supplies, and agriculture. The workshops could also include economic development opportunities connected with ecosystem restoration and water supply.

Public Workshop #3 - The third series of public workshops will be conducted to educate the public on technical aspects of the study. The workshops will provide an opportunity for the public to comment on technical issues. These workshops will be held midway during the evaluation of alternatives.

Public Workshop #4 - The fourth series of public workshops will be conducted upon completion of the alternatives analysis and will present a summary of the alternatives evaluation.

Public Workshop #5 - The last series of public workshops will take place in conjunction with release of the draft Feasibility Report and will include a presentation of preliminary study conclusions.

Community Meetings

Community Meetings - Throughout the duration of the study, ample opportunities will be developed for the public to get information outside of formal public workshops. Civic associations, neighborhood associations, universities, and environmental groups located in areas that may be impacted by alternatives will provide avenues for the study team to disseminate information to the public and enhance community awareness and support. Public affairs staff will be assigned the task of preparing presentations for these purposes. Staff assigned to this task will be kept abreast of study progress and issues and make revisions to the presentations as necessary. It is expected that these presentations will be modified annually, however, when study progress or issues dictate. All tools developed for these presentations will be reviewed and revised as necessary.

Much public opinion is shaped by the interested public talking to a local "expert", such as an employee from the Corps, SFWMD, or another agency. This activity of the public involvement plan relies on and supplements the public affairs internal information activities. These employees are valuable sources of information that can serve as community experts to discuss ongoing study progress.

Publications

At opportune times throughout the study, newsletters and other information pieces will be developed to provide feedback to the public.

Written Publications – Written publications will include public notices identifying the purpose and location of the workshops, fact sheets describing study progress, and public information brochures. In addition, regular submissions to the SFWMD's monthly publications will be developed. Once special articles have been written, they can be placed in the newsletters and newspapers of local environmental groups and civic associations, when appropriate. To estimate costs of printing and mailing, it is assumed the general mailing list will not exceed 2,500.

Electronic Publications - Electronic versions of publications will be incorporated into the Internet system through the World Wide Web to facilitate greater public access to informative documents. A Web home page has been developed and is maintained for

information access by the general public on the Comprehensive Everglades Restoration Plan (www.evergladesplan.org) and on the SFWMD Web page (www.sfwmd.gov/org/exo/swflstudy). Information on the SWFFS, including scheduled meetings, has been and will continue to be incorporated.

Internal Audiences

The study team will host SWFFS update briefings for others in the Corps' Jacksonville office and SFWMD offices, as appropriate.

Media

The overall public involvement strategy must include a media plan for the study. The media not only offers a valuable resource for providing information to the public, but also is a resource for providing information to the planning process.

News Releases - News releases will be issued at the beginning of the study and prior to the various workshops to provide an opportunity to hold discussions with interested media representatives and explain the purpose and strategy for addressing the study objectives. It is assumed that the study will receive significant local media coverage.

Media Opportunities - The media will be invited to meet with the study team to discuss various aspects of the study in-depth. Media tours will also be arranged prior to any significant actions as a source of educating the media on the complexities of the system. Ample opportunities will be available to the media to be briefed with an emphasis on concerns and issues they may have relative to their audience. When appropriate to the study process, special in-depth programs with local radio and television stations will be developed to ensure ample media opportunities and accurate coverage of the study. Due to the emphasis on local environmental issues, relationships with public radio and television stations in the southwest Florida market should be developed early in the study. Visits to editorial boards, appearances on major public affairs programming as well as the development of guest editorials will be part of the campaign to reach the public through media outlets. This will provide an opportunity to further develop the public's understanding of the Corps' process.

Outreach

The outreach activity will target specific groups of the public to promote long-term relationships and understanding of the results of the Feasibility Report. This activity involves coordination and preparation of meetings, workshops, and written correspondence with interests outside the Corps and SFWMD.

SFWMD Committee Meetings - Several advisory committees have been established to assist the SFWMD in the preparation of water supply plans and other activities relating to the management of water resources in south Florida. These committees consist of the advisory committees of the Caloosahatchee Water Management Plan (CWMP), the Lower West Coast Water Supply Plan (LWCWSP), and the Lower East Coast Regional Water Supply Plan (LECRWSP). The SFWMD also established a SWFFS resource team whose purpose is to provide information and feedback to the study team regarding the feasibility study. The resource team is comprised of non-governmental interests. These committees, as appropriate, will be asked to review and comment throughout the study to ensure that SFWMD's water supply planning efforts and the feasibility study are consistent and cohesive. This process will provide opportunities for local and regional interests to provide guidance and input into the planning process.

Meetings with Other Groups - Coordination with the aforementioned groups and others will occur on an as-needed basis, or when requested to do so by the group. The purpose of such coordination is to ensure the plans to be evaluated are consistent with local interests and perspectives with regards to wetlands and wildlife conservation, economic development, comprehensive land planning, maintenance of water supplies, and agriculture.

Partnering

Partnering is a process of frank and open discussion on expectations and requirements that will shape the coordination, participation, and decision-making process.

Partnering Workshop - A workshop will be held just prior to initiation of the feasibility study with study team members who have been identified by the Corps, SFWMD, and other state and Federal agencies that have decision-making responsibility for implementing a recommended plan. This workshop will lay the foundation for better working relations at the staff level and include dispute resolution. This team-building workshop will help foster an atmosphere of trust and candor in communications and promote achievement of mutually beneficial goals.

Extended Partnering Meetings - Due to the extensive number of stakeholders involved in this study, some partnering beyond the immediate study team is necessary. Within the Corps, the study team will meet with counterparts in Division and Headquarters periodically and invite participation in various workshops and discussions on issues. The study team also will meet and exchange information with various representatives of the SFWMD including members of the Governing Board; senior staff; and the CWMP, LWCWSP, and LECRWSP Advisory Committees. Senior staff from other Federal and state agencies such as the National Park Service, Environmental Protection Agency, the U.S. Fish and Wildlife Service, the Florida Department of Environmental Protection, and the Florida Fish and Wildlife Conservation Commission will receive on-going briefings on the study's progress.

22B - INSTITUTIONAL STUDIES

The purpose of this activity is to establish the SFWMD's capability to finance their portion of the project costs. This activity will begin after the Corps has completed cost allocations and a funding schedule by fiscal year for Preconstruction Engineering and Design and construction phases of the project. Based on the funding schedule, the sponsor will develop a financing plan that reflects how they intend to meet their financial commitment.

Preliminary Financing Plan - The SFWMD will prepare a preliminary financing plan for the non-Federal share of the project costs and a statement of financial capability in accordance with *ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies*. The statement of financial capability must be a clear description of the sponsor's capability to meet its financial obligations for the project in accordance with the project funding schedule.

Assessment of Capability - The Corps will evaluate the SFWMD's financial capability for project construction and capabilities for post-construction obligations relating to operation and maintenance, major repairs, and replacement for any project features. The Corps will be further required to evaluate the SFWMD's financing plan for construction of the project, which includes government outlays, sponsor cash and credit contributions, and contributions for lands, easements, right-of-ways, relocations, and disposal areas.

22C - SOCIAL STUDIES

This effort will include two general themes. One is the identification of socio-economic profile descriptive data. The other is a social impact analysis for alternatives to be considered.

SOCIO-ECONOMIC PROFILE

Detailed descriptive data tables will be developed as a part of the study. Data will include analyses of factors such as: income distribution; population (age, gender, ethnicity/minorities, employment, income); the significance of such impacts (i.e. relative to the larger region and whether any one group is particularly impacted); fiscal effects on state and/or local governments; and the potential for community disruption, effects on quality of life, and public attitudes. Much of this effort will rely on 2000 U.S. Census data in conjunction with Geographic Information System applications. It may also include interviews/surveys, analysis of public involvement input, and a literature search.

SOCIAL IMPACT ANALYSIS

This will help in identifying and displaying effects of alternatives that are not reflected in the results of economic and environmental analyses. Much of this work will be to assess the social impacts associated with local and regional economic impact analysis.

Obtain Input from Study Elements - Required input from other study elements will be the identification of estimated land acquisition data for alternatives to be evaluated such as boundaries, cost, ownership information, etc. To the extent that social impact studies will include the social aspects of other benefit and/or cost effects, required input will be the national (NED) and regional (RED) estimates of those benefits and costs.

Identify Potential Impacts - The work will be to estimate the social impact dimensions of alternatives to be evaluated, especially for alternatives that involve land acquisition (i.e., displacement of people, businesses, and firms), although the social impacts of other benefit and cost effects may also be addressed.

ENVIRONMENTAL JUSTICE

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires the Federal government to achieve environmental justice by identifying and addressing disproportionately high adverse

effects of its activities on minority and low-income populations. It requires the analysis of information such as the race, national origin, and income level for areas expected to be impacted by environmental actions. It also requires Federal agencies to identify the need to ensure the protection of populations relying on subsistence consumption of fish and wildlife, through analysis of information on such consumption patterns, and communication to the public of associated risks.

This Environmental Justice plan presents six essential elements: Initial Screening and Scoping, Public Participation, Environmental Analysis, Community Analysis, Alternatives and Mitigation, and Reporting.

Initial Screening and Scoping - Initial Screening and Scoping will seek to identify potential issues and estimate the geographic extents of the environmental areas and the minority, low-income, and tribal populations that may be affected. Map products may be created, as appropriate, to display geographic information. The geographical extent of the potentially affected area will be estimated and adjustments to the geographic extents will be made, as required, when knowledge improves. In determining who may be affected, both residents and people who frequent the area are to be considered. It will be determined if the composition of the resident community of the affected area is greater than the minority, low-income, or tribal population percentage in the general population. Impacts to people due to a community's distinct cultural practices or different patterns of living, such as a principal subsistence on fish, vegetation, or wildlife consumption or the use of well water, may be relevant to the analysis.

Public Participation - Public participation is intended to reach low-income, minority, and tribal populations to identify issues of true concern and allow relevant issues to be included in the early analysis portion of the process. This may involve activities beyond the standard advertising and public outreach practices and will seek to overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation. Meetings will be held in adequate facilities at hours appropriate for those attending. Public participation will be active throughout the entire project to educate, encourage input, answer questions, listen to concerns, and tell people how we intend to deal with the concern.

Environmental Analysis - The Environmental Analysis element will require the project personnel to monitor the analysis of the environmental impacts throughout the *National Environmental Policy Act (NEPA)* process. They will ensure that Environmental Justice issues identified through the Initial Screening and Scoping and Public Participation receive appropriate treatment.

Community Analysis - The Community Analysis element will be triggered primarily in the *NEPA* process requiring an Environmental Assessment or Environmental Impact Statement. Through appropriate tools, it will be determined if the proposed project's environmental impacts will have a high and disproportionate effect on minority, low-

income, or Tribal communities. This determination will consider the intensity of effects not only for direct impacts on health and environmental quality but also for indirect, multiple, and cumulative effects. Additionally, it is recognized that the cultural, social, occupational, historical, and economic characteristics of the community may amplify the environmental effects.

Alternatives and Mitigation - The Alternatives and Mitigation element will become active if and when it has been determined that high and disproportionate effects will occur to minority, low-income, and/or Tribal communities. The purpose of this element will be to develop a reasonable array of alternatives including a “no action” alternative to mitigate the project’s high and disproportionate effect. Public participation will be a key factor in this element as effected communities will be involved in the process of identifying and evaluating alternatives to mitigate effects.

Reporting - The Reporting element will comply with all *NEPA* requirements to provide Environmental Justice discussions within each Record of Decision. Reporting will be an iterative process overlapping with the other plan elements.

22D - CULTURAL RESOURCES STUDIES

Cultural resources studies will include an evaluation of the impacts of the alternatives upon historical, architectural, and archeological resources. It is anticipated that various historic resources are present within the study area, including sites listed on the National Register of Historic Places, middens, and possibly burial sites. Extensive coordination with the Florida State Historic Preservation Office (SHPO) has occurred during previous studies within the study area. All studies will be coordinated with the SHPO in accordance with the *National Historic Preservation Act, as amended (PL 89-665)*, and the *Archeological and Historic Preservation Act, as amended (PL93-291)*. Cultural resources studies will begin with an intense literature survey of both resources and previous coordination of these studies with the SHPO. Such sites will be avoided whenever possible. When not possible, a mitigation plan will be developed in consultation with the SHPO and documentation will be submitted for their review. An assessment of the impacts of the proposed project upon cultural resources will be prepared as part of the *National Environmental Policy Act* analysis. Costs attributable to work under this account include the effort required to prepare input for the preliminary draft, draft, and final Feasibility Report, as well as participation in any of the required review conferences and resolution of comments as a result of the conferences.

Initial Assessment - This is an initial archeological assessment, including a cultural resources background literature and records check. During this activity, a records check will be conducted to determine the extent of present knowledge of cultural resources in the project areas. Project areas will be visited to determine field conditions.

Scope of Work - Prepare a scope of work for Phase I archeological reconnaissance. It is assumed for purposes of preparing this cost estimate that the Phase I report will be done by a separate contract.

Phase I Investigation - This work activity allows for a Phase I reconnaissance of those areas, which the assessment identifies as requiring this level of investigation. This effort will be performed by contract.

Archeological Initial Write-up - The results of the initial archeological assessment will be documented in the preliminary draft Feasibility Report.

Archeological Final Write-up - A final write-up specific to the selected alternative(s) will be prepared for inclusion in the draft Feasibility Report.

22E - ENVIRONMENTAL STUDIES (except Fish & Wildlife and HTRW Program)

This account is organized into two sections. Each section describes activities associated with a different aspect (sub-task) of evaluating restoration alternatives. The two subtasks are: preparation of a *National Environmental Policy Act (NEPA)* document (most likely an Environmental Impact Statement) to be integrated with a Feasibility Report; and activities concerning management of exotics, nuisance species, and fire. The level of detail will be sufficient for use in the development of detailed engineering and designs adequate to obtain Congressional authorization for construction.

IMPACT ASSESSMENT

This sub-account includes environmental data collection and evaluation of the environmental character of the study area. Costs of environmental baseline development and impact assessments are included in this sub-account. In general, project alternatives will consist of several components to be evaluated individually and in combination. Studies will be conducted cooperatively with the U.S. Fish and Wildlife Service (USFWS), National Park Service, Florida Fish and Wildlife Conservation Commission (FWC), Florida Division of Forestry (FDOF), U.S. Environmental Protection Agency (EPA), Florida Department of Environmental Protection (DEP), and National Oceanic and Atmospheric Administration.

This sub-account will be completed in accordance with the *National Environmental Policy Act (NEPA) of 1969, as amended (91-190)*, and the Council on Environmental Quality (CEQ) *NEPA* regulations (*40 CFR Parts 1500 - 1508*). The *NEPA* document will follow the format described in *ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies* and *ER 200-2-2, Procedures for Implementing NEPA*.

Formal coordination with the state will occur at several points during the study to ensure consistency with state programs, including the *State Coastal Zone Management Act* and *Chapter 99-223, Laws of Florida, i.e., Watershed Management Act*. It is anticipated that scoping and follow-up letters will accomplish coordination, and subsequent meetings will ensure state participation in the study process, alternative development, and evaluation. Coordination with the state under the *Clean Water Act (CWA)* will be required if material is placed within a wetland or waters of the United States and/or if plan implementation affects any water bodies that have established Total Maximum Daily Loads (TMDLs), *Section 303(d), CWA*. The *CWA* requires two actions, a 404(b)(1) evaluation and state water quality certification.

The following activities are required to conduct an impact assessment as required by the *NEPA*:

Initiate Scoping - Initiate the necessary coordination with Federal, state, and local agencies and the public, including coordination needed for compliance with the *NEPA*.

Scoping Workshops - Meet with project partners regarding the scope of the environmental studies. Provide initial opportunities for the public and interested agencies to recommend environmental studies and issues to be addressed in the study efforts.

Prepare/Modify Scope of Work - Add/delete/modify environmental study efforts following comments from the previous activity.

Biological and Field Investigations - A literature search of environmental resources of the area will be conducted. Field investigations of each project site will include a compilation of the existing inventory of habitats and species occurrence to determine existing conditions. Work will be accomplished in cooperation with the USFWS, FWC, and other appropriate agencies and will be done in conjunction with fieldwork to be performed for the Fish and Wildlife Coordination Act Report (FWCAR).

Review Impact Assessment Models - Review procedures or models for use in environmental impact assessment. An inventory of the study area's attributes and problems will be accomplished and the required attributes of the impact assessment methodology will be determined. An inventory of existing models, as well as models currently under development, will be completed. If appropriate, criteria for a new impact assessment model will be specified.

Select Impact Assessment Method - Meet with local sponsor, USFWS, and FWC to determine the impact assessment method to be used to evaluate specific environmental responses to project alternatives in the FWCAR.

Initial Assessment - Evaluate project sites and impacts according to impact assessment method. All work will be done cooperatively with the USFWS and FWC.

Input for Preliminary Assessment of Alternatives - Conduct analyses to reduce project impacts with USFWS and FWC and provide feedback into project design process.

Biological Assessment and Endangered Species Act Consultation - This work will include a review of information on species listed as threatened or endangered that may occur in the study area. A Biological Assessment (BA) will be prepared to address potential impacts to threatened and endangered species. Based on the information provided in the BA, a determination will be made as to whether the proposed action may affect any listed species. If any listed species may be affected, then consultation with the USFWS will be initiated and a Biological Opinion will be requested of the USFWS. No funds are provided to the USFWS for completion of a Biological Opinion.

Coastal Zone Management Evaluation - Obtain technical information needed and complete a *Coastal Zone Management Act* evaluation, including a determination of consistency in the *NEPA* document.

Sediment and Water Quality Data Collection and Evaluation - The scope of this effort will initially involve the investigation of all pertinent water quality data and databases of the region. This will be for the purpose of establishing baseline monitoring (refer to Section 22M - Monitoring and Post Planning Considerations) to assess future restoration activities, and water quality certification (WQC). The water quality data analysis effort will include: a literature search, review of existing water quality data, identification of point/nonpoint nutrient and contaminant sources, and on-going research studies of transport mechanisms. Data collected would be used to assess the benefits to water quality provided by alternatives.

Water Quality and Field Investigations - A literature search of water quality conditions at each project site will be conducted. Field investigations of each project site will include an inventory of aquatic life-based water quality criteria (water chemistry, water biological characteristics, water sediment analysis, and water toxicity) and human health risk. All work will be accomplished in cooperation with DEP and EPA and in conjunction with local government water quality monitoring programs.

Water Quality Certification Permit Application - The application for WQC will be completed and submitted to the DEP. The application will be submitted as part of the State of Florida Environmental Resource Permit (ERP) Application pursuant to the *Florida Administrative Code 62-302* and *Clean Water Act, Section 401*. In addition, a Management and Storage of Surface Water Permit will also be sought as part of the ERP application. For the purpose of the feasibility study, a conceptual WQC permit will be applied for initially so as to allow for pre-construction project development. Ultimately, an individual WQC permit will be applied for in order to obtain approval for any proposed construction projects.

404(b) Evaluation - Obtain excavation and fill volumes from engineering designs. Complete 404(b) evaluation and include in the *NEPA* document.

Aesthetic and Recreation Resource Analysis - An aesthetic and recreation resource analysis will be completed and will include a discussion of existing conditions, a comparative resources analysis of impacts of study alternatives and the selected plan, and a delineation of any mitigative design measures, if needed.

Prepare for In-Progress Review (IPR) - Prepare for and attend IPRs. Request USFWS and FWC attendance. Develop additional environmental studies to reflect IPR review comments. This will also include conducting additional environmental sampling following the IPR and incorporating into impact assessment analysis.

Input for Final Alternatives - Identify additional beneficial environmental features and include in the final project design.

Preliminary Draft NEPA Documentation - Complete preliminary draft *NEPA* documentation (integrated with preliminary draft Feasibility Report) and forward to Corps higher authority for review prior to the Alternative Formulation Briefing (AFB).

Prepare for Alternative Formulation Briefing - Ensure environmental personnel attendance at the AFB. Request other Federal and state agencies to attend.

Respond to Higher Authority Comments - Incorporate comments from higher authority review of the preliminary draft Feasibility Report and the AFB into the draft *NEPA* document that is integrated with the draft Feasibility Report.

Draft NEPA document - A draft *NEPA* document (integrated with the draft Feasibility Report) will be submitted to the EPA, Region IV.

Comment Period for NEPA documentation - Respond to questions from agencies/public during review, respond to questions/inquiries from higher authority, and attend public meetings.

Respond to Comments - Revise the *NEPA* documentation based on comments received from the public during the comment period.

Final NEPA document - Transmit the final *NEPA* documentation (integrated with final Feasibility Report) to South Atlantic Division.

Record of Decision (ROD) - ROD is prepared and signed by the Assistant Secretary of the Army for Civil Works.

EXOTIC SPECIES

The management of harmful, non-indigenous plant and animal species in southwest Florida is an important concern to Federal, state and local agencies. Ongoing management efforts are conducted and/or funded by the Corps, USFWS, U.S. Department of Agriculture (USDA), Big Cypress National Preserve (BCNP), Everglades National Park (ENP), SFWMD, DEP, Bureau of Indian Affairs and several local governments.

The 1994 Annual Report of the Interagency Working Group included a review of harmful, non-indigenous plants and animals that threaten or impact the south Florida ecosystem. The Annual Report also included recommendations directed at improving the governmental management effort for these species and proposed the formation of an Interagency Exotic Plant Management Group. The group was tasked with devising a plan

that would link common program features and consolidate separate agency efforts to become a comprehensive, coordinated program. The Working Group has assigned the Corps as lead agency.

Coordination Tasks and Meetings for Exotics - Periodic coordination tasks and meetings are anticipated throughout the feasibility study to ensure that study results (especially concerning recommended alternatives and/or management strategies) are consistent with activities and recommendations of this group. Specific tasks to be accomplished will include the following:

1. Identify habitat restoration strategies designed to prevent exotic plant species re-infestations once exotics are removed from an area.
2. Identify a strategy to eliminate or minimize exotics.
3. Draft a global interagency exotic plant management strategy for the southwest Florida ecosystem.

FIRE MANAGEMENT

The management of natural communities in southwest Florida, including their fire regime, is an important concern to Federal, state and local agencies. Ongoing fire management efforts are conducted and/or funded by the Corps, USFWS, USDA, FDOF, BCNP, ENP, SFWMD, DEP, Bureau of Indian Affairs and several local governments.

The South Florida Interagency Fire Management Council is a forum for facilitating interactions among south Florida fire managers. They meet quarterly to discuss current issues and approaches for fire management. They, or another similar group, could provide a valuable format for developing strategies to integrate fire into the recommended plan, since successful restoration of many components of the natural systems will require an appropriate fire regime.

Coordination Tasks and Meetings for Fire Management - Periodic coordination tasks and meetings are anticipated throughout the feasibility study to ensure that study results (especially concerning recommended alternatives and/or management strategies) are consistent with activities and recommendations of this group. Specific tasks to be accomplished will include the following:

1. Identify habitat restoration strategies designed to reestablish and maintain appropriate fire regimes in each community type where natural communities are being managed.
2. Identify strategies for fuel management and appropriate buffers in developed

areas to facilitate application of fire in nearby natural systems.

3. Develop a global interagency fire management strategy for the southwest Florida ecosystem.

22F - FISH AND WILDLIFE STUDIES

This account includes work to be conducted by the U.S. Fish and Wildlife Service (USFWS) as required by the *Fish and Wildlife Coordination Act of 1958, as amended (PL 85-624)*. Work will include cooperative environmental data collection and evaluation of the environmental character of the study area and alternative project sites. The work required includes providing a Planning Aid Letter (PAL) that establishes baseline and future “without project” biological resources. A draft Fish and Wildlife Coordination Act Report (FWCAR) describing future “without project” biological resources and endangered species impacts will be required prior to the Alternative Formulation Briefing (AFB). A final FWCAR will be required for inclusion in the final Feasibility Report. USFWS will also provide a Biological Opinion pursuant to the *Endangered Species Act (ESA)*, if needed.

Initiate USFWS Coordination and Scope of Work - A scope of work with funding levels will be prepared. The USFWS will coordinate with the Corps in review of pertinent literature and performance of field studies needed to evaluate the impacts of considered actions on fish and wildlife resources in order to assist the Corps in assessing project impacts on the environment. Coordination will be initiated by attending scoping meeting(s), reviewing the previous PALs, and preparing an updated feasibility stage PAL which will establish baseline and future “without project” biological resources.

Field Studies - Cooperatively assist in field studies to establish habitat conditions. Site visits will be conducted for the purpose of obtaining field information and data on specific attributes for study areas. Field studies will be accomplished cooperatively with the Florida Fish and Wildlife Conservation Commission (FWC), USFWS, the Corps, and other appropriate resource agencies or groups to ensure consistency and communication among the different elements.

Selection of Environmental Models - Cooperatively assist in the selection of models for impact analysis. Models that will be needed will be determined cooperatively by the USFWS, FWC, SFWMD, and the Corps. Fish and wildlife resources (e.g., wading birds or alligators) which need to be evaluated will be identified. Models will be reviewed to determine their capabilities and availabilities to make the required evaluations.

Evaluation of Alternative Plans - Assist in the analysis and evaluation of projected environmental responses. Based on models and other impact assessment methods, an analysis and evaluation of the different project alternatives will be completed. Recommendations for improvements to project alternatives will be made based on these evaluations. Project alternatives will be ranked according to their benefits to fish and wildlife resources. Recommendations on how to minimize or eliminate any detrimental impacts will also be made.

Draft FWCAR - Complete the draft FWCAR for inclusion into the preliminary draft *National Environmental Policy Act (NEPA)* document sent to the Corps' higher authority prior to the AFB. The draft FWCAR will describe future “with project” biological resources and endangered species impacts.

Biological Opinion - Complete the *ESA* Biological Opinion, if needed, prior to the AFB.

Final FWCAR - Modify the draft FWCAR and *ESA* Biological Opinion, if needed, following the AFB. Send the revised versions for inclusion in the draft *NEPA* document and draft Feasibility Report. Revise the draft Feasibility Report following public and agency review, as needed. Provide the final FWCAR and *ESA* Biological Opinion, if needed, for inclusion with the final Feasibility Report.

22G - ECONOMIC STUDIES

Economic studies will focus on benefits and costs in the National Economic Development (NED) and Regional Economic Development (RED) accounts. In this feasibility study, ecosystem restoration project outputs will not be expressed monetarily. Economic studies will be concerned mainly with effects other than these non-monetized environmental outputs. An important issue to be addressed is uncertainty, expected mainly to take the form of sensitivity of economic effects to alternative scenarios.

Required input will be engineering cost estimates, real estate cost estimates, and hydraulics and hydrology (H&H) information for the various alternatives. Documentation may include text, tables, charts, graphs, and maps.

NED Costs of Alternatives

A key role of NED economic evaluation will consist of properly expressing costs of alternatives under consideration. NED costs must be calculated as the difference between costs incurred with the plan and costs which would have been incurred in the “without-project” condition.

Analyze Construction/Implementation and Land Acquisition Costs - While the construction implementation and land acquisition data will be developed in separate individual efforts, they will need to be translated into proper units to assist in the comparison of alternatives. Careful attention will have to be given to the issues of price levels, present worth calculations, and the differences between financial and economic costs.

Analyze Operation, Maintenance, Rehabilitation, Repair, and Replacement (OMRR&R) Costs - Most alternatives are expected to have different OMRR&R costs with a project than in the “without-project” condition. This difference in OMRR&R costs with a project versus the “without-project” condition is part of the economic costs of the project and will be evaluated.

Analyze Monitoring Costs - Some alternatives may require explicitly designed monitoring programs to acquire knowledge of project effectiveness. Such information would then be used to make needed adjustments and changes for follow-on work. The costs of such programs are part of the costs of alternatives and must be accounted for. As with other categories of costs, the NED cost is the difference between the “with-project” and “without-project” conditions.

Other NED Costs and Benefits

This work includes an estimation of both increases in project benefits and losses in project services. Benefit areas that could be impacted include flood damage reduction benefits, economic effects of changes in water supply (agricultural and non-agricultural), commercial fishing, recreation, navigation and other costs and benefits. The benefit areas will be evaluated when applicable based on the procedures outlined in the *Principles and Guidelines (P&G) for Water and Related Land Resources*.

Fishery Studies - The nature of commercial and sport fisheries in the study area will be investigated and documented. A range of the potential economic effects associated with changes brought about by implementation of potential alternatives, and their likelihood, will be estimated to the extent possible. This will involve consultation with Federal and state agencies, analysis of historical data, and market analysis of affected fisheries.

Flood Damage Studies - Flood damage reduction benefits for any alternative will be estimated as the difference in flood damages with the alternative versus damages in the “without-project” condition. They will be based on stage-damage-frequency and duration-damage-frequency relationships. This will be accomplished by combining stage-frequency information, available once H&H data for relevant areas are identified, with stage-damage relationships for those areas. Estimates of structure values (replacement cost less depreciation), location, first floor elevations, and average stage-damage relationships will be estimated. Agricultural land use by crop type, and stage-duration-damage relationships will be estimated. These relationships will provide the basis for estimating the effect of the differences in flood damages between “without-project” conditions and each of the alternatives to be evaluated. Such analysis will be of an iterative nature, with the level of detail to be determined by the nature and extent of H&H effects as they become known, and the level of detail available based on H&H analysis results.

Navigation Studies - If during the course of the feasibility study it is determined that canal bank erosion, structures, maintenance dredging, construction, or runoff patterns are causing sedimentation in any of the navigable waterways that become a focus of the study, the effects on navigation will need to be addressed. A profile of existing navigation traffic (costs, trips and drafts of vessels, seasonality, etc.) through interviews, field investigation, and researching published sources (e.g., *Waterborne Commerce Statistics*,) will be established, which will include projections reflecting the “without-project” condition. The effects on navigability caused by alternatives that affect shoaling in the navigation channels will be translated into economic effects in terms of delay costs, impacts of trips not made, and, if applicable, costs of less than optimum vessel drafts.

Recreation Studies - The alternatives to be evaluated may impact recreational opportunities including fishing, boating, and tourism. Recreation resources within the study area will be identified. This will include an identification of all public Federal, state, county, local, and private sites, both existing and likely to be in place during the period of

analysis, which could be impacted by the alternatives. The quality and quantity of recreation experiences expected to occur at these sites and the extent to which such activity is likely to be impacted by implementation of ecosystem restoration alternatives will be addressed. Ecotourism is a growing industry in southwest Florida and potential impacts to it will need to be investigated. Input from H&H analyses and environmental assessment will be required to address recreation impacts. To the extent possible, existing sources such as the State Comprehensive Outdoor Recreation Plan will be used. Evaluation of demand and value will adhere to Federal water resource policy as set forth in *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, and related policy guidance.

Water Supply Studies - Each alternative will potentially have a different level of effective water availability (quantity, quality, timing) than in the “without-project” condition due both to specific incorporation of water supply goals and due to incidental effects of other actions. The economic effects of these different levels of water availability will be estimated for the agricultural sector and for the municipal and industrial (M&I) sectors. Analysis will involve assessment of the costs of developing alternative supplies, and of marginal productivity (e.g., agricultural crop yield and net income changes, urban water use cutbacks, manufacturing output cutbacks, business losses, landscape and other outdoor uses, etc.). Analysis will include identification of existing water use in the study area, as well as future water use projections.

Projections will be developed for M&I requirements, which will include review of projections in the Lower West Coast Water Supply Plan (LWCWSP), the Caloosahatchee Water Management Plan (CWMP), and local government comprehensive plan forecasts. For agricultural sector requirements, projections will be based on a review of projections by others to include the LWCWSP and the CWMP, as well as sources such as: County Extension Agents, University of Florida Institute of Food and Agricultural Sciences, etc.

Regional Impacts

The RED economic evaluation will consist of assessing the regional impact dimensions of key economic benefit and cost categories. RED effects to be estimated include changes in output (sales), earnings, and employment associated with alternatives under consideration. Important aspects of RED analysis will include identification of the relevant region(s), as well as the timing, duration, and absolute and relative magnitude of the impacts. Potential RED effects to be identified and estimated include the net positive impacts associated with project implementation expenditures, as well as regional impacts associated with other NED costs and benefits, such as different levels and types of urban development and agricultural activity.

Identify Evaluation Methodology - Different evaluation methodologies will be reviewed to determine a best approach to use for the feasibility study. Potential

methodologies/models include the U.S. Department of Commerce Regional Input-Output Modeling System II multipliers, IMPLAN, and REMI.

Select Relevant Region or Regions - The most likely region to be used for the regional impact analysis will be the multi-county region encompassing the study area. Other possibilities will be explored as well.

Evaluation of Regional Impacts - The effect of each alternative on regional output (sales), earnings, and employment will be addressed. Regional impacts will be addressed for the NED major cost and benefit effects.

Timing and Compensating Factors Studies - Regional impact analysis will attempt to include the effects of reemployment, migration, and temporary income maintenance compensation, for displaced workers and lost business productivity. Also included will be the impacts associated with project implementation spending. This is particularly important in the agricultural sector of the regional economy. Timing of these and other effects are important considerations that must be included.

Local Government Impacts Studies - Estimates of local government fiscal stress will be estimated, to the extent possible. This evaluation will address effects on the local tax base that could be caused by some alternatives, versus the change in government services.

22H - REAL ESTATE ANALYSES

The real estate analyses will include a determination of the estates required for the lands to be acquired for the project, an appraisal of the costs of lands and damages, and preparation of a plan for acquisition of these lands. Other tasks include an analysis of physical takings, attorney's opinion of compensability, obtaining rights of entry for various field collection activities, and providing input to the Project Cooperation Agreement (PCA) and post-feasibility phase Project Management Plan (PMP). This activity includes all written memoranda, opinions, database development reports, and other documents provided by real estate personnel as required in support of feasibility phase planning efforts.

Obtain Rights of Entry - According to specifications in the contract, the contractor should obtain access/rights of entry. However if unsuccessful, Real Estate Division should be notified through a request for rights of entry by section, township, and range parameters. Upon notification, permission will be obtained from landowners to temporarily use his/her land for a specified time and purpose. These will be obtained for purposes of environmental investigations, cultural assessments, core sampling, surveys, explorations, etc.

Ownership Information - Upon notification of alternative feature description and location by section, township, and range parameters, the following data for areas under consideration as project features will be obtained:

- Tax maps and public right-of-way maps;
- List of property owners;
- Tax rolls including value, structure, type, etc.;
- Zoning information;
- Last search of records for each parcel;
- Anticipated mineral extraction and determination if such activity is permitted by law;
- Identification of all structures potentially impacted that are occupied and may be removed due to project implementation;
- Identification of all known public utilities located within the proposed project area that may require relocation;
- Identification of sponsor acquisition costs and real estate administrative costs associated with implementation of each alternative; and
- Location maps (city or county) of proposed construction areas including material disposal areas.

Preliminary Real Estate Cost Estimates - Prepare lands, easements, rights-of-ways, relocations, and disposal areas (LERRD) preliminary cost estimates for multiple components for the preliminary assessment of project alternatives during the plan formulation stage of the study. This will require a similar method of estimating costs performed during the reconnaissance phase. The preliminary cost estimates, along with the

aforementioned ownership information, will be compiled in the Geographic Information System (GIS) database as polygon attributes for use in the evaluation analyses.

Real Estate Acquisition Maps - Prepare an initial set of maps and drawings, utilizing the GIS database developed for this task, that delineate the real estate acquisition lines based on technical design drawings developed during the feasibility phase. This activity is dependent upon receipt of the footprint of project features and tax maps followed by a coordination meeting with the study manager to assure all project features are identified including temporary construction areas, road access, borrow/disposal areas, etc. These maps will reflect the minimum real estate required for project purposes.

Physical Takings Analysis - This analysis will result in a written legal opinion as to whether flooding induced by construction, operation, or maintenance of the proposed project will result in a taking of an interest in real property for which just compensation must be paid to the owner. The opinion must describe the analysis, to include hydrologic data incorporating depth, frequency, duration, velocity, and extent of induced flooding based on economic data, as well as relevant state and Federal law, and present a conclusion on the takings issue.

Relocations Analysis - After a determination through engineering design of what facilities must be relocated including roads, railroads, pipelines, utilities, bridges, and cemeteries, a preliminary legal opinion on whether a substitute facility is required will be documented. The opinion makes findings on whether the owner has a compensable interest, whether the owner has a legal duty to continue to maintain and operate the facility/utility, and whether Federal law requires the provision of a substitute facility rather than mere payment of market value for the property acquired. The preliminary legal opinion differs from the final legal opinion only in its acceptance as fact of the owner's statement of its interest in the property, without a search of property records. A baseline cost estimate must be developed for the relocations to include an engineering cost estimate for the performance or construction of the relocation and the value of the land. The Real Estate Supplement (RES) will include a statement as to whether the Federal government, the local sponsor, or owner will be responsible for the relocation and acquisition of new rights-of-way, the costs for relocation, and land to be acquired, allocated to each entity.

Gross Appraisal - This task includes activities necessary to complete a detailed, supported appraisal of the collective real estate requirements and impacts of the recommended plan as required by *ER 405-1-12, Real Estate Handbook - Local Cooperation*. The Gross Appraisal must be of sufficient detail to provide an accurate cost estimate sufficient for Congressional authorization. Review and approval of the Gross Appraisal Report is accomplished concurrently with the draft Feasibility Report. The Gross Appraisal will be submitted concurrently with the draft Feasibility Report and is dependent upon receipt of the final recommended plan including real estate maps with project features, estates to be appraised, tax and ownership information, zoning maps, and land use maps.

Real Estate Supplement (RES) - The RES to the Feasibility Report will outline the

minimum real estate requirements for the proposed project as required by *ER 405-1-12, Real Estate Handbook - Local Cooperation*. It will contain a description of the area; the acreage and proposed estates, including non-standard estates, and justification for the use of non-standard estates; a discussion of any land owned by the Federal government, the local sponsor, or any public entity; a discussion of the local sponsor's ability to acquire LERRD; a discussion of mineral activity, if any, and the attitude of landowners; at least a preliminary assessment of facilities/utilities to be relocated; and any other relevant real estate information appropriate for the project.

This activity also includes development of a detailed cost estimate for the recommended plan that will be input for the Micro-Computer Aided Cost Estimating System (engineering) cost estimate. This baseline cost estimate will be developed from the Gross Appraisal and will include other costs such as *Public Law 91-646* relocations, administrative costs, and contingencies.

Draft PCA and Post-Feasibility Phase PMP Input - This activity includes development of data necessary to support other documents pertinent to the project including, but not limited to, the post-feasibility phase PMP and the draft PCA. For these documents, a detailed schedule of land acquisition will be developed.

22J - HYDROLOGY AND HYDRAULICS STUDIES

This account describes the investigative effort to collect, compile, and analyze the hydrologic and hydraulic data needed to formulate, evaluate, and optimize alternatives determined to be feasible and cost-effective, that will be recommended to Congress for authorization. The tasks will involve collecting existing hydrologic and water quality data; selection and/or development of appropriate hydrologic and water quality models; and modeling of pre-development natural system conditions, existing conditions, future “without project” conditions, and ecosystem restoration and water supply alternatives.

Known types of alternative components that will require hydrologic and hydraulic evaluation and design include:

- Changes to operational schedules;
- Permitting criteria changes;
- Aquifer storage and recovery (ASR) wells;
- Flowways;
- Restoration of natural system hydrologic regimes;
- Water quality improvement features;
- Retention/detention facilities;
- Water supply features; and
- Other components as appropriate.

Computer simulation models will be used to evaluate alternatives for effects on water resources in the study area. Simulation models depict a simplified representation of the existing drainage systems. They can be used as tools to replicate the performance of the real system and to predict response of the modeled system under various conditions. The watershed modeling will consist of a hydrologic and hydraulic analysis of the watersheds within the study area. Hydrologic data will be evaluated to determine the model simulation period to be used in the feasibility study modeling efforts. Existing data and modeling tools will also be evaluated for adequacy.

The evaluation of existing and future “without project” conditions within the study area will be accomplished using hydrologic, hydraulic, and hydrodynamic models. The output from the models for the existing conditions will be compared to output from the model runs representing future “without project” conditions. This comparison will identify the environmental, water quality, flood control, and water supply benefits/impacts associated with implementation of the Comprehensive Everglades Restoration Plan (CERP), which is currently underway, as well as other system modifications already being undertaken by the SFWMD and local governments, within the study area.

The future "without project" condition describes what is expected to happen if none of the alternatives evaluated in this feasibility study are implemented. The "without project"

condition is the same as the "no action" alternative that is required to be considered by the Federal regulations implementing the *National Environmental Policy Act of 1969 (NEPA)*. For the purpose of evaluating effects of alternatives, CERP, as well as other major system modifications being implemented by the SFWMD, city, county, and Federal governments in the study area, is included in the future "without project" condition. The project modifications assumed to be in place in the future "without project" conditions that affect the study area include the existing Lake Okeechobee Water Supply and Environment regulation schedule and additional lake regulation schedule modifications to address discretionary environmental releases.

The future "without project" condition assumed for this study is also expected to include several surface water improvement projects recommended in the South Lee County Watershed Plan and other similar recently concluded studies in the southwest Florida area. The CERP components and critical projects, which will be included in the future "without project" condition, include: the C-43 Basin Storage Reservoir and Aquifer Storage and Recovery, Caloosahatchee River (C-43) Basin Aquifer Storage and Recovery-Pilot Project, Caloosahatchee Backpumping with Stormwater Treatment, Southern Golden Gates Restoration, Southern Corkscrew Regional Ecosystem Watershed Project Addition, Lake Trafford Restoration, Henderson Creek/Belle Meade Restoration, Lakes Park Restoration, Environmental Water Supply Deliveries to the Caloosahatchee Estuary, Big Cypress/L-28 Interceptor Modification Project, L-28 South Levee and Canal Removal, Tamiami Trail Culverts and Plugs, and Seminole Tribe Big Cypress Water Conservation Plan.

Hydrologic and hydraulic models will also be used to evaluate the components identified for the study, and alternate combinations of these components, to optimize alternatives. Individual components, or necessary combinations of components, will be evaluated in increments to segregate the effects of the individual increments and to optimize their cost-effectiveness for meeting identified needs. The effort will leverage tools and previous work that has been done by the SFWMD, Corps, local government, and other agencies within the Southwest Florida Feasibility Study (SWFFS) area.

Output from the hydrologic models for the reference simulation period will be compared with output from the model runs used to evaluate the effects of proposed alternatives. This comparison will identify the flood control, water supply, and water quality impacts associated with each of the proposed alternatives. The hydrodynamic model outputs will also be used as input to the Alternative Evaluation Team who will evaluate the environmental responses to alternatives.

The SFWMD is in the process of determining the Minimum Flow Levels for the Caloosahatchee River and Estuary. The estuary inflow target provides for a salinity range favorable to the development and maintenance of indicator species that represent a healthy estuarine ecosystem, shellfish, and submerged aquatic vegetation. The salinity envelope was developed with the aid of a one-dimensional hydrodynamic computer model, which

predicts salinity throughout the estuary under various inflow conditions from the watershed, and a statistical model based on measured flows from S-79 and salinity at the Fort Myers Marina, for the period from January 1992 to November 1999. The outputs from these models, or other similar and appropriate models developed as part of the SWFFS, will be used as a tool to develop hydrologic restoration targets for the Caloosahatchee Estuary and other identified estuarine systems in the study area. The outputs will also be used to support the environmental evaluation of responses of the Caloosahatchee Estuary to alternatives.

Observation of the estuarine and coastal systems in the SWFFS area show seasonal, excessive discharge of freshwater into the marine environment with potentially serious impacts to marine organisms that have limited mobility, such as marine snails and clams which become severely stressed and may perish. In addition, the introduction of stained water and suspended sediments to these receiving waters diminishes light penetration needed to support photosynthesis of submerged aquatic vegetation. Therefore, two-dimensional or three-dimensional hydrodynamic circulation models of the estuarine and coastal regions within the study area will be developed (or updated where available) to assess the areal extent of project impacts to these waters resulting from proposed alternatives. Where appropriate, empirically based evaluation methodologies will be developed and used in the analysis of environmental response to the proposed alternatives.

The SFWMD recently developed hydrologic and hydrodynamic models to evaluate system response to various stresses within portions of the study area for use in water supply planning efforts. Other models have been developed or are currently being developed by the SFWMD and other agencies that are applicable to different parts of the study area. These models will be reviewed for their applicability in addressing the identified issues and concerns. Where suitable, these models, with necessary modifications, will be used to evaluate alternatives for this feasibility study.

In order to complete a detailed assessment of alternatives, modeling of water quality constituents identified as being of critical importance in the study area, will be required. This feasibility study will support the development of water quality models to facilitate water quality improvements.

All of the above-models will be used in support of an adaptive assessment approach to south Florida ecosystem restoration. Adaptive assessment will combine the iterative use of models, research, and monitoring to support project management in revising, improving, and fine-tuning the incremental restoration projects identified in this feasibility study.

Important objectives of the study include improving the quantity, timing, distribution, and quality of freshwater discharges to the estuary and coastal systems in southwest Florida. Hydrodynamic circulation model(s) will be required to present a detailed picture of actions occurring in the estuary and bays under present conditions and to predict the response of the estuary and bays to proposed watershed management alternatives. In areas with shallow water depth, turbulent flow, or wind-driven currents,

there is a fairly even mixing of fresh and saltwater, and a computer model, which averages the mixing of fresh and saltwater in the vertical direction, will give accurate results. However, in some areas of the bays and estuary, the flow is not turbulent, and the fresh and saltwater do not mix, and there is stratification. The less dense freshwater floats on top of the more dense, saltwater portion. Unmixed freshwater, which has a dark color as a result of dissolved organic material, also has a significant impact on light transmission, which is an extremely important factor affecting the health of seagrasses.

Fine, organic-rich sediments have accumulated in some water bodies in the study area. Organic sediments are carried to the estuary and lakes as suspended load in several canals, rivers, and creeks. The sediments settle out in the estuary and lakes as the result of the interaction between the fresh and estuarine water and/or due to reductions in flow. Impact of operational and structural modifications on sediment deposition within the rivers and coastal waters will be evaluated.

DATA ANALYSES AND ASSESSMENTS

Hydrology Review/Coordination - This task includes a review of the adequacy of all existing basin-specific data needed for hydrologic and hydraulic modeling efforts. This task also includes the necessary coordination between the SFWMD and the Corps during the model effort.

Watershed Assessments - A watershed assessment designed to identify nutrient, sediment, and water quality contributions by land use; prioritize sub-basins by relative contributions; predict nutrient/sediment loading; and recommend basin-specific management options will be completed for other watersheds within the study area. The scope of work will be geared toward gaining information, which will meet the data requirements for development of a watershed model. Key information to be collected for the selected watersheds will include: (1) a complete basin description (including drainage features, hydrogeology, topography, soils, and land use/land cover); (2) sub-basin delineations; (3) an inventory of existing land management activities (including all water management systems and their regulatory status); (4) analysis of existing water quality data to provide an assessment of current conditions and trends; (5) identification and ranking of existing and potential problematic sub-basins; and (6) plans for currently-approved basin alterations. Existing watershed assessments such as the Big Cypress Basin Watershed Management Plan, Estero Bay Watershed Plan, and South Lee County Watershed Plan will be reviewed and appropriate data from the plans will be used. These watershed assessments will provide basin-specific information needed to meet the data requirements of the Hydrologic Simulation Program-Fortran (HSPF), MIKESHE, or other equivalent watershed model and provide information on site suitability for locating detention/retention systems.

Caloosahatchee River Water Quality Monitoring Program – The Florida Department of Environmental Protection (DEP) has completed the first phase of water quality monitoring for the Caloosahatchee River watershed and is beginning the second phase in 2000. The second phase includes monthly and bimonthly water chemistry and biological assessments of major streams and canals that discharge into the river. In addition, in the second phase of this project, velocity flow measurements will be conducted at each of these discharge points to determine pollutant loadings from each of the streams or canals. Results from this year's phase of the project will support future Total Maximum Daily Load (TMDL) determinations, if necessary.

The DEP is in the process of determining TMDLs for impaired water bodies within the study area. *Section 303(d) of the Clean Water Act (CWA)* requires states to submit lists of surface waters that do not meet applicable water quality standards (impaired waters) after implementation of technology-based effluent limitations, and establish TMDLs for these waters on a prioritized schedule. TMDLs establish the maximum amount of a pollutant that a water body can assimilate without causing exceedances of water quality standards. As such, development of TMDLs is an important step toward restoring our waters to their designated uses. In order to achieve the water quality benefits intended by the CWA, it is critical that TMDLs, once developed, be implemented. *Chapter 99-223, Laws of Florida*, sets forth the process by which the 303(d) list is refined through more detailed water quality assessments. It also establishes the means for adopting TMDLs, allocating pollutant loadings among contributing sources, and implementing pollution reduction strategies.

Implementation of TMDLs will occur through a combination of regulatory, non-regulatory, or incentive-based actions that attain the necessary reduction in pollutant loading. The *1999 Florida Watershed Restoration Act* designated the Florida Department of Agriculture and Consumer Services as the lead agency in implementing the portion of the TMDL allocated to agricultural non-point sources, while DEP remains responsible for point sources and nonagricultural non-point sources. Non-regulatory or incentive-based actions may include development and implementation of Best Management Practices (BMPs), pollution prevention activities, cost-sharing, waste minimization, public works, pollutant trading, or land acquisition. Regulatory actions may include issuance or revision of wastewater, stormwater, or environmental resource permits to include permit conditions consistent with TMDLs. These permit conditions may be numeric effluent limitations or, for technology-based programs, requirements to use a combination of structural and non-structural BMPs needed to achieve the necessary pollutant load reduction.

TMDLs are key components of DEP's Watershed Management Program. The five-year cycle provides the structure for focusing resources on specific basins, identifying impaired waters, conducting targeted monitoring that will provide the data needed for model calibration and verification, and developing TMDLs for impaired waters.

Historical Data Analysis - Evaluation of operational alternatives involves two efforts: (1) a review of historical operational modifications; and (2) development of

guidelines for future operations of existing project works and any recommended project modifications within the study area. The evaluation of historical project modifications that affected the study area will include preparation of a chronology of changes as well as the responses that occurred in the system. This analysis will include all structures on the major canal systems within the study area. Even though S-77 discharges are primarily associated with Lake Okeechobee level management, data on the operation of this structure is needed to compute the portion of S-79 discharges attributable to basin run-off.

Rainfall Frequency Analysis - Appropriate methodology will be used to determine the relationships among rainfall, runoff, and frequency for the study area. Design storms will be developed for frequencies from 2-year to 100-year. "Maximum Probable Rainfall" will be investigated along with areal and temporal rainfall distribution. These data will be used to perform design analysis of alternatives.

Develop Water Budgets for Drainage Basins - Water budgets will be developed where not available for the basins within the study area. Water budget information for the drainage basins in the study area will be required to support development of the hydrologic simulation model to be used in evaluation of alternatives. The water budgets will be used to define the relative target inflows/outflows from each basin so that appropriate management strategies can be developed for each basin.

Modeling Tool Roundup - Several recent studies in the southwest Florida area have utilized models to evaluate the response of different management components identified in various plans undertaken within the SWFFS study area. These hydrologic models vary from simple to very complex. A review of those models will be conducted to determine their applicability to the SWFFS. One focus of the review will be on the assumptions, scope, range, and consistency in boundary conditions. The modeling conducted during the Central and Southern Florida Project Comprehensive Review Study and ongoing modeling efforts in the CERP utilize regional modeling tools, which may need to be expanded to the SWFFS study area to permit the evaluation of regional solutions. A regional ASR study is programmed, under a separate agreement with the SFWMD, to address regional impacts of ASR water supply and withdrawal from the upper Floridan Aquifer System (FAS). This study will include development of a regional ground water model of the FAS in three phases. The first phase, which will use existing FAS data and should be available during this feasibility study, will provide information necessary to determine preliminary siting and configuration of potential ASR alternatives for the SWFFS.

Screening Model - In order to maintain the desired hydrologic regimes throughout the system and salinity regimes in the estuarine systems and bays, runoff from the various watersheds and sub-watersheds must be managed. The SFWMD contracted development of an optimization model that has been used to evaluate the best way to achieve the desired water budget for the Caloosahatchee Estuary using operational rules. The model applied approximately 30 years of calculated runoff data. The model was used to evaluate CERP

components for the Caloosahatchee watershed. The optimization model incorporated the effects of storage volume, loss of water from storage due to water supply, seepage, evaporation, gain of water from rainfall on the storage area, and inflows from runoff. Further development and modification of the optimization model, or other screening tools, for the purpose of screening alternatives will be necessary prior to its broader application in the SWFFS.

Develop Hydrologic Models - A numerical model capable of simulating the surface water/ground water management alternatives for the basins in the study area will be developed and used to evaluate impact of alternatives developed to achieve hydrologic targets for upland, freshwater wetland, coastal, and estuarine systems in the study area. With water quality modifications, the model will also predict loads of critical water quality constituents to freshwater wetlands and estuaries. It will also be used to evaluate the potential water supply benefits associated with increased storage necessary to meet the planning objectives identified in the SWFFS. The selected model should be capable of simulating natural and man-made water systems in terms of hydroperiod, water levels, flows, water quantity, and water quality. It should also be capable of simulating site-specific, non-structural options for water retention. The model must be modified to accurately reflect hydrologic conditions within the study area, then calibrated for the drainage basins. Models such as HSPF and MIKESHE have been used for sub-regional modeling by the SFWMD. Other similar models will be considered depending on the characteristics of the sub-basin and the questions posed. Input data requirements typically include: rainfall, evaporation, soil types and characteristics, sub-basin delineation, land use/land cover, topography, farming practices and crop delineation, channel lengths and slopes, upstream/downstream elevations, channel cross-sections, roughness, diversions, point source flows, tributary areas, description of control structures, culverts, bridges, diversion structures, and pumps and similar devices which affect flow and water surface elevation. Once the model is developed, it will be calibrated to field data and used to explore potential management options within each basin. Model output will be used to evaluate the hydrologic effects of the various alternatives for comparison with existing, “without project”, and pre-development natural system conditions.

One of the primary needs of any management activity is to be able to document when objectives have been met. Success for the SWFFS will be evaluated on the basis of meeting agreed-upon targets in terms of specific hydrologic regimes and the development of specific plant and animal populations and/or communities in appropriate portions for the southwest Florida area. The hydrologic targets vary depending on a number of factors, but first and foremost as a function of whether or not the area or portions of the area have the potential for restoration to their pre-development condition. Where it is agreed that restoration to pre-development condition is not a reasonable objective, estimates are made of the hydrologic regime that will result in an alternate desirable condition, and this hydrologic regime becomes the target for that area. Where pre-development hydrologic conditions, or a reasonable approximation of the conditions, are considered attainable and desirable, these become the targets. Construction of a natural

system model (NSM) is crucial to the development of realistic targets. Once targets have been established for an area, we can compare them with output from the current hydrologic conditions model, both before and after it has been modified, to evaluate various alternative restoration scenarios to determine whether we are meeting our restoration objectives. Models of current conditions can be rigorously calibrated and verified using real world data. This is not possible with a model of pre-development conditions because there is a lack of adequate real world data for the period before significant development occurred in the area. However, there are techniques for building a useful NSM and then evaluating whether the estimated hydrologic regime is reasonable. The initial construction of the model will be done by taking the calibrated and verified hydrologic model of current conditions and removing all of the anthropogenic influences, such as canals, levees, and wellfields. There will have to be a significant amount of fine tuning of the NSM to account for changes in evapotranspiration and roughness coefficients associated with land use and cover changes, as well as other inadequacies in our understanding of both the current and original southwest Florida ecosystem. An approach to further refine the model will be to compare the hydrologic output from the NSM with the plant communities that can be seen in 1940s aerial photography. There is a fairly good understanding of the hydrologic regimes associated with major natural southwest Florida plant community types and this comparison will provide a basis for assessing the reasonableness of the model output.

The data collected for the development of the hydrologic models will be available for use in development of water table minimum flows and levels for the lower west coast region. The minimum flows and levels work will be accomplished through a separate study effort.

Field Data Collection - Collection of surface water elevations and the associated flows along critical boundary and internal system locations will be required for calibration of the various models. Other types of data such as salinity, pH, temperature, and turbidity will also be required to calibrate the models. A monitoring program similar to that recommended in the Phase I Estero Bay Watershed Assessment report will be deployed in strategically-selected locations in the SWFFS study area.

Sedimentation Analysis - This task involves an assessment of the impact of structural and operational changes within the river and canal systems on sediment in wetlands, rivers, and estuaries. Canal/river bank erosion and its influence on sedimentation in receiving waters will also be investigated under this task. .

Component/Siting Analysis - Various components that will become part of different alternatives will be investigated individually to assemble data; optimize, if possible, the component configurations as a single alternative under assumed boundary conditions; and develop a range of optimal configurations that satisfy planning objectives (e.g., water supply, water quality, environmental, flood control, etc.) to varying degrees. These

configurations will become different alternatives as well as aid in model development. This activity also includes the development of site suitability criteria for locating storage areas and ASRs in the watersheds. A cursory review of proposed water storage sites will be performed to assess technical feasibility of the sites and determine which sites and components warrant more detailed study.

Model Application - Preliminary Assessment - The various models developed for the SWFFS will be used in the initial screening of the identified alternatives with the intent of achieving the project goals.

ALTERNATIVE ANALYSES

Upon identification of those alternatives that warrant further study, detailed hydrologic and hydraulic design studies will be completed for those components determined to be feasible and cost-effective to provide a firm basis upon which to make a decision about authorization of the recommended alternative.

A detailed review of hydrologic methods will be made along with an analysis of the hydrologic parameters in the study area. The relationship among rainfall, discharge, and stage frequency will be determined. Models will be used to simulate the surface runoff response of each watershed by representing the watershed as an interconnected system of hydrologic and hydraulic components. A component is an entity such as rainfall, a stream channel, a wetland, or a storage reservoir and is mathematically represented in the models as hydrologic components for a certain location. Peak flow frequency will be determined at desired locations. Verification of the model will be accomplished through the use of alternate methods and stage frequency determined by hydraulic analyses of historic events. Hydrologic analyses will be performed on existing, future “without project”, and pre-development natural system conditions in the watershed, as well as for conditions under the various alternatives.

Application of Hydrologic Model - The hydrologic evaluation and hydraulic analysis of the alternatives will be accomplished using a hydrologic model. The hydrologic models and NSM will be used for evaluating the performance of individual components and their combinations. The models will also be used to test various operational strategies. Components or increments will then be combined to form alternatives for system-wide evaluation. Output from the modeling efforts will define the hydrologic, flood control, water supply, environmental, and water quality responses to alternative components, and various combinations of components, for the simulation period. The output from the models will be used to evaluate the level of success of each alternative in meeting the identified study objectives. Output from the hydrologic modeling effort and NSM will also support alternative evaluations.

Hydrodynamic Model Application - The hydrodynamic model developed for the SWFFS study area will be used to evaluate hydrodynamic responses from various alternatives in the estuaries and bays. The greater the distance from the freshwater source, such as the canal discharge structures, the more significant the vertical dimension becomes in the modeling effort. The freshwater and saltwater may not be well mixed and a hydrodynamic model will be necessary to predict the areal distribution of the surface freshwater layer. Because this model may be substantially more complex and difficult to apply, it is anticipated that this model will be used to examine only those alternatives which warrant detailed study. Data and other output information provided by this model effort, as well as empirical relationships or professional knowledge relative to salinities, water quality and biotic responses, will be used to evaluate the environmental response to alternatives. The hydrologic and hydrodynamic models will be loosely coupled in that boundary conditions for the hydrodynamic model will be provided by the hydrologic model for the equivalent scenario simulated.

Sub-regional Model Application - In order to adequately evaluate agricultural, environmental, and urban water supply implications of any alternative, accurate groundwater/surface water models are needed. This is especially true in southwest Florida where groundwater/surface water interactions are significant in water movement and water quality issues. The integrated groundwater/surface water models will be used to analyze water supply and flood control issues, optimization of water storage options and ASRs, and identification of minimum flows and levels for the estuarine and aquifer systems. The Surficial Aquifer System and Intermediate Aquifer Systems in southwest Florida will be modeled using appropriate model code. The same or different models will be used for simulating the FAS primarily for evaluation of ASR components and other components that will impact the deeper aquifers within the study area. The groundwater models that will be used in the analysis of alternatives will be calibrated, tested, and reviewed prior to use. The results of the groundwater/surface water models will be used in determining flood, environmental, and water supply impacts of the various alternatives. The groundwater investigations will be required to identify the impact of surface water storage on potential groundwater recharge, and agricultural, environmental, and urban water supply.

Operational Studies - Determination of future operational guidelines consists of research and development of new regulation schedules and operating criteria necessary for the proposed components of the study. It will also include providing other hydrologic information, such as evapotranspiration values, water stages, and canal capacities, as needed. This information will be utilized in the hydrologic investigations and hydraulic design of alternatives.

Hydraulic Design Final Alternatives - Hydraulic models will be compiled using various floods for which historic hydraulic data is available. Such programs as Mike11, HEC UNET, or similarly documented models have been used to perform hydraulic design for alternatives within the study area. These will be reviewed and a model selected for use

in the SWFFS. Known components that will require hydraulic design for alternatives include but are not limited to canals, levees, spillways, culverts, pump stations, and ASR wells. Flood elevations versus frequency relationships will be developed for flood prone areas. Water surface elevations and flow velocities would be computed at select locations in channels and storage areas under both the “with” and “without project” conditions. The detailed analysis will include flood control channels with adequate protection for surfaces with high velocities or structures to dissipate energy. Output from these models will also be used to evaluate the flood control, water supply, and water quality impacts associated with various designs and operation schemes for components. The model outputs will be used as input to the Alternative Evaluation Team to assess system responses to alternatives.

Flowway Restoration – Maintenance of natural flowways, reestablishment of those that have been lost or degraded, and creation of new flowways will be evaluated to optimize agricultural, environmental, and urban water supply and flood control throughout the study area. In addition, restoration of historic floodplains and natural watercourses will be investigated as a means to better manage the flow and delivery of surface waters to wetlands and coastal systems.

Clean and Snag Operations - Removal of exotic and unnatural concentrations of native vegetation and impediments to flow within river and creek systems will have flood control benefits. The implication of these activities on discharge volumes and timing will be evaluated to quantify the magnitude of the potential impact. Using analytical methods, literature values will be used to simulate before and after effects of clean and snag options. An analysis of the results will be used to determine whether or not clean and snag is a feasible option.

Saltwater Intrusion - Similar to the concerns over freshwater discharges to the estuarine system is saltwater intrusion both in groundwater and surface water bodies adjacent to the shoreline. Determination of saltwater intrusion potential resulting from the proposed alternatives will be investigated. Resource protection from management or prevention of saltwater intrusion will also be investigated.

Sea Level Rise - Given the 50-year planning horizon of the SWFFS, sea level rise could greatly influence the coastal configuration of southwest Florida, including both human and natural features. The best estimates of rates of sea level rise will be used to evaluate its implications for affecting the outcomes of the alternatives.

Best Management Practices - The effectiveness of BMPs will be included in various aspects of the evaluation of the proposed project alternatives. Investigation of proper representation of BMP performance in model development and application will improve the accuracy and applicability of the various water quality models used for alternative evaluation. Similar model parameters specific to the SWFFS study area will also be established for use in modeling efforts.

Poorly Documented Parameters - Domestic self-supplied uses in the study area are poorly documented and difficult to estimate. A methodology to estimate this use component will be developed. Also, water quality impacts of excessive lawn irrigation and septic tanks proximal to surface and groundwater bodies will be investigated.

PLANNING SUPPORT ACTIVITIES

Technical staff associated with the implementation of the hydrology and hydraulics studies will provide support to the development of the main report and appendices for the Feasibility Report as well as participation in management briefings and reviews, study team meetings, resource team meetings, public meetings, and review conferences.

Hydrology and Hydraulics (H&H) Participation in the In-Progress Review (IPR) - Prepare for and attend IPRs. Preparation will include activities necessary to be responsive to anticipated IPR questions/comments. Respond to comments resulting from IPR.

H&H Write-Up for Draft Report - This activity includes preparation of the narrative report which documents all hydrology and hydraulics studies performed for the feasibility study. Results of the hydrologic model evaluations and other hydrologic investigations will be compiled and incorporated into the draft interim Feasibility Report in an H&H appendix. Included in this activity is the effort necessary to compile the data, write the report, and prepare all plates necessary to document model development, output, and evaluation.

H&H Participation in the Alternatives Formulation Briefing (AFB) - Prepare for and attend AFB. Preparation will include activities necessary to be responsive to anticipated AFB questions/comments.

Finalize H&H Write-up - This task includes the effort required to address all comments generated at the AFB. This activity also includes the effort required to finalize the hydrologic model investigation documentation for the final interim Feasibility Report.

Support for Development of Project Management Plan - This activity includes the effort required to provide H&H input to the development of the Project Management Plan for project modifications recommended by this feasibility study. This includes the effort required to develop the time and cost estimates to perform pre-construction engineering design studies recommended in this feasibility study.

22K - GEOTECHNICAL STUDIES

This account includes the analysis of the foundations and materials at project sites for the purpose of selection and design of project features. Preliminary geotechnical exploration will be needed for engineering design associated with proposed reservoirs, aquifer storage and recover wells (ASR), and other plan components determined feasible and cost effective. Additional field exploration required for subsequent engineering and design studies will be identified.

Costs attributable to work under this account include field investigations and the effort required to prepare input for the preliminary draft, draft, and final Feasibility Reports, as well as participation in each of the required review conferences, and resolution of comments resulting from the conferences.

Perform a Detailed Hydrogeologic Literature Search - Gather all bore hole logs, geophysical logs, existing public reports, academic studies, and/or architectural and engineering studies pertinent to the study area. Once obtained, the existing data will be summarized into a digital database. Regional geologic and hydrogeologic cross-sections will be developed from this information, and all geotechnical designs for the qualitative screening of alternatives will be based on this data.

Geotechnical Design/Input for the Initial Screening - For the preliminary array of alternatives, the geotechnical design parameters for such features as canals, levees and structures, will be based on the information obtained above.

Geotechnical Design/Analyses for the Final Array of Alternatives - Slope stability analyses will be performed to determine the required side slopes for all levees and canals included in the final array of alternatives. In addition, the design work will include settlement analyses, finite-element seepage analyses, and an evaluation of the foundation conditions for structures, construction dewatering requirements, slope protection requirements, and potential borrow sources. This information will be provided to the project engineers for use in the design of project features and evaluation of their effectiveness in meeting the planning objectives.

Field Investigations - Geotechnical field exploration will be needed to support the engineering and design studies necessary for the design of the project features. Once the locations and/or general alignments of the project features have been identified, field investigations will be initiated in order to validate the preliminary designs and better define the cost of project features. Field investigations may include core borings, recharge tests, slug tests, and pump tests. Any additional field exploration required for subsequent engineering and design studies will be identified.

Laboratory Analysis - This effort includes the costs for laboratory analysis of data collected in the field investigations. Results from this effort will provide information on field conditions for the engineering analysis, design, and project costs associated with specific features.

Groundwater Modeling Support - Provide hydrogeological/geotechnical data pertinent in defining the aquifer characteristics and groundwater movement in support of the hydrologic modeling. This effort will also include output review and any other support required to complete the modeling. Compile a well log data base and conduct geophysical surveys to produce a regional hydrostratigraphic characterization of southwest Florida. Previous efforts have been at a local project level or county-wide level. Differences in interpretation make it difficult to construct a regional conceptualization of southwest Florida geology. Seismic studies begun during the development of the Caloosahatchee Water Management Plan should be continued/expanded to support development of a regional hydrostratigraph. This will support regional model development efforts as well as the planned ASR and water storage projects. Develop real-time continuous potentiometric surface maps. Develop regional hydraulic properties map (hydraulic conductivity, leakance, canal/aquifer seepage term).

Geotechnical Participation in In-Progress Reviews (IPR) - Prepare for any IPRs and provide timely responses to comments resulting from the IPRs.

Geotechnical Write-up for Preliminary Draft Report - All information will be compiled and put in report format. The report will include the core boring logs (both historic and new), geologic interpretation, results of all analyses, and laboratory test results. All geotechnical plates will be placed on sheets with the proper borders and title blocks.

Finalize Geotechnical Write-up - Finalize the geologic and geotechnical portion of the Feasibility Report write-up. The report will include geologic information, core boring logs, laboratory test results, and design analyses performed. This effort should include the preparation for any review conferences and responses to comments resulting from these conferences.

Provide Input to Project Management Plan (PMP) - Develop the hydrogeologic and geotechnical scope of work, including time and cost estimates, for the PMP.

22L - HTRW ASSESSMENTS

The objective of this activity is to identify, investigate, and assess Hazardous, Toxic, and Radioactive Waste (HTRW) and its potential impacts in the study area. The results of the HTRW assessment conducted during the feasibility study phase should provide rationale for proceeding into the project implementation phase.

Civil works project funds are not to be employed for HTRW-related activities except as provided in *ER 1165-2-132, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects*, or otherwise specifically provided in law. HTRW sites should be avoided whenever practicable during project implementation. This can be accomplished, during the feasibility phase and before any land acquisition begins, by early identification of HTRW sites and potential HTRW impacts.

Plan formulation, selection, and project alternative design may be substantially influenced by the presence of HTRW in the study area. It is therefore imperative that HTRW assessment be conducted early in the feasibility phase in order to facilitate plan formulation and selection. Alternative plans may consider avoidance of HTRW as a possible response. At least one alternative plan should be formulated to avoid HTRW sites to the maximum extent possible, consistent with study objectives. A preliminary cost estimate of required HTRW response actions will be needed for each alternative plan in order to make a reasoned choice among alternative plans.

In general, HTRW assessment involves the following: (1) archive research and site reconnaissance to identify and select HTRW sites in the study area which could potentially impact project implementation, (2) assessment of the nature and extent of HTRW contamination at these select HTRW sites to the degree necessary to determine potential impacts on project implementation, (3) qualitative assessment of potential impacts to human health and the environment in the absence of response action, to the degree necessary to determine potential impacts to project implementation, (4) HTRW response alternatives analysis, (5) HTRW response cost estimate, (6) coordination with sponsor, and (7) preparation of the HTRW appendix to the Feasibility Report. The following paragraphs describe each of these main components:

Archive Research & Site Reconnaissance - Identification of HTRW sites in the study area will require archival research and site reconnaissance. This may involve database searches or interviews with Federal, state, or local regulatory agencies, such as the Environmental Protection Agency (EPA), Florida Department of Environmental Protection (DEP), SFWMD, Corps, County Environmental and Health Departments, etc.; analysis of aerial photographs; field reconnaissance; site inspections; and analysis of building and utility layouts. Examples of potential HTRW sites include facilities which generate HTRW subject to the *Resource Conservation and Recovery Act*; HTRW-contaminated sites listed on EPA's National Priority List (*Comprehensive Environmental*

Response, Compensation and Liability Act sites); Defense Environmental Restoration Program for Formerly used Defense sites contaminated with HTRW or ordnance; EPA Brownfield sites; petroleum contaminated sites subject to DEP's Petroleum Cleanup Program; HTRW Treatment, Storage and Disposal facilities; landfills; fire protection training areas; agricultural areas with potential pesticide/herbicide contamination; mining areas; transformer storage areas; bulk product facilities; marine fueling facilities; wood treatment/preserving facilities; dredge disposal sites; drycleaning facilities subject to DEP's Drycleaning Solvent Cleanup Program; and land or water bodies adjacent to the above-listed sites. This list is not comprehensive.

Once HTRW sites within the study area have been identified, those sites that could potentially impact project implementation must be selected. Some of the factors which should be taken into consideration include: location of the HTRW site within the study area (close in proximity to land associated with project alternatives or critical project areas, or remote location), status of the HTRW site (has the site already been investigated, characterized, remediated, etc), and the degree of risk that the HTRW site may pose to human health and the environment.

Site Characterization - To determine the potential impact that an HTRW site may have on project implementation, an assessment of the nature and extent of contamination may be necessary. This may include review and analysis of available site documentation (environmental impact statements, environmental assessment reports, etc.), study of the site's physical characteristics (topography, geology, hydrology, hydrogeology), sampling (soil, groundwater, sediment, surface water), and identification of source areas. The level of detail should be sufficient to determine the extent of HTRW contaminants in relation to alternative plan features and adjacent lands potentially impacted by these features.

To avoid potentially high costs of characterizing a site through sampling, available site data should be researched and utilized to the degree possible. Depending on the type and status of a given HTRW site, a sampling program may already be planned or underway. Additionally, the decision to sample a site should not be made without first determining the landowner's responsibility and intent to characterize the land, determining if the site can be avoided in the project design, and determining the Federal government's potential interest in acquiring that land.

Risk Analysis - To determine potential impacts to human health and the environment at sites determined to potentially impact project implementation, a qualitative risk analysis may be necessary. Components of risk analysis include determination of contaminant release mechanisms, mobility of contaminants, pathways and exposure routes, toxicity of contaminants, potentially exposed populations, as well as a determination of the non-numerical risk or potential adverse health effects for the identified potential receptors.

HTRW Response Alternatives Analysis - This analysis shall identify and evaluate alternatives to respond to verified HTRW contamination that cannot be avoided in the project design. Activities conducted may include additional sampling and analysis to further characterize a site if needed, identification of potential response alternatives, screening of response alternatives, and cost analysis of response alternatives. Examples of types of response alternatives are: “no further action”, monitoring only, institutional/engineering controls, source removal, containment or immobilization of HTRW, treatment, or obtaining a waiver of environmental standards. During screening and analysis of the proposed response alternatives, a comparative evaluation should be conducted using the following criteria: (1) technical feasibility, (2) public health effects, (3) environmental effects, (4) institutional effects (e.g., effects of Federal, state and local standards), and (5) cost.

The recommended response action for a given HTRW site in the study area will be selected by determining which response alternative best meets each of the five evaluation criteria. The response action shall be selected with full coordination with the appropriate Federal, state, and local regulatory agencies. The evaluation and selection of the response action will be documented as an appendix to the Feasibility Report. The appendix will document how each alternative weighs against the evaluation criteria, and how the selected response action best meets the evaluation criteria.

HTRW Response Cost Estimate - Cost estimates shall be developed for performing remedial design (RD), remedial action (RA), and Operation and Maintenance (O&M) for the response action(s) selected in the HTRW Response Alternatives phase. RD, RA, and O&M cost estimates shall be developed to the same level of detail as other project features, utilizing existing site data to the degree possible. The cost of actual HTRW response will not be considered as a project cost or in determining economic feasibility of the civil works project unless the project is without a local sponsor. The cost of HTRW response, however, may be an important factor for a sponsor making decisions concerning the project, and thus should be estimated during the feasibility phase.

Coordination with the Sponsor - The scoping, execution, and findings of the HTRW assessments conducted during the feasibility phase are to be coordinated with the local sponsor. Should there be a known HTRW problem, the letter of intent for the sponsor to fund the sampling program and/or response action should state: that the local sponsor shall accept responsibility for required sampling and/or response, or that the sponsor has initiated procedures requiring the responsible parties to respond. The project authorization document and the post-feasibility phase Project Management Plan should include language describing how response actions will be coordinated with project construction. Construction should not be undertaken until response actions have been completed on lands impacted by HTRW.

HTRW Appendix - The results of the HTRW assessment will be fully documented in the HTRW appendix to the Feasibility Report. This includes documentation of: (1) HTRW

investigation and characterization, (2) HTRW response alternatives analysis, (3) HTRW response cost estimate, and (4) coordination with sponsor. If HTRW is identified, the Feasibility Report will describe what actions are being taken toward avoidance or response, and what non-Federal interest is responsible for the response, if applicable. Documents for innocent landowner defense will be retained.

22M - MONITORING AND POST PLANNING CONSIDERATIONS

Because of the relative newness of restoration science and uncertainty in ecosystem restoration planning, success can vary due to a variety of technical and site specific factors. Recognizing this uncertainty, it is prudent to allow for contingencies to address restoration problems early in the planning process. To accomplish this, a technique called "adaptive assessment" should be included in plan implementation. At the heart of adaptive assessment is a carefully designed monitoring program that measures effects of restoration, allows for incorporation of new information, and facilitates appropriate adjustments to the plan.

PLAN IMPLEMENTATION

This study assumes that the recommended plan will be designed and implemented to allow maximum flexibility by supporting the iterative use of models, research, and monitoring in conjunction with management to revise, improve, and fine tune restoration and other water resource components. Consensus on restoration and other related goals should be achieved up-front. An incremental process will be followed due to the nature of the study area's ecosystem and its problems, and because of the uncertainties regarding the ecological responses that will occur from implementing components.

Interagency/interdisciplinary coordination meetings and workshops will be required at several points. The key to designing a recommended plan will be:

1. to clearly identify and state the study objectives and desired environmental and hydrologic responses;
2. achieve consensus on how to monitor ecological and hydrological responses to plan components; and
3. develop a strategy on how to interpret and implement plans that can be responsive to monitoring/research findings.

Establish Basis for Monitoring/Research Plan - The ecological and hydrological goals will provide the basis for identifying what parameters will be monitored. The purpose of the monitoring and research program will be to provide the framework for designing the sequence of implementing restoration increments, and provide information on ecosystem and other responses as a basis for designing subsequent increments for achieving restoration. A monitoring plan will be developed that will test restoration hypotheses.

Development of Monitoring Strategy - The development and implementation of a monitoring and research program is essential in designing the sequencing of restoration and

other water related components (increments). This program should provide information on ecosystem responses as a basis for designing and implementing subsequent increments toward achieving all goals. Development of a strategy on how to interpret and adjust to monitoring/research findings will be required and accomplished through workshops.

(1) Establish long-range goals. Clearly defined long-range goals will be established. Consensus on the goals will need to be accomplished early in the process. For example, long-range ecological and hydrological goals could be to restore historic plant and animal population levels and desirable hydrologic conditions, while providing for the other water-related needs of the system.

(2) Establish interim goals for components/phases of plan. For example, an interim ecological goal could be oyster population levels increase by X% over the next Y years (or population levels increase A out of B number of years). An interim hydrologic goal could be improve hydropatterns M% by N years.

(3) Establish monitoring/research plan for components/phases of plan. Numerous actions concerning water quality monitoring and evaluation are on-going within the study area. All monitoring/research activities should be coordinated and analyzed to determine duplicative activities as well as to identify additional required activities. Also, exchange and use of data is critical to the decision-making process of component implementation. Baseline data collection would be initiated prior to construction.

(4) Implement components/phases of plan. The first phase or initial components of the plan would be implemented. Post-plan monitoring activities would begin.

(5) Monitor the results of component/phase implementation.

(6) Determine if goals are being met and there are no adverse effects associated with the component/phase. Results of the monitoring plan would be evaluated to determine if the interim goals are being met.

(7) If goals are being met and there are no adverse effects associated with the component and the next component/phase is dependent on initial implementation, then continue with the next component/phase by establishing interim goals (continue process by returning to (2)).

(7a) If follow-up components/phases are not dependent upon initial implementation, initiate establishment of interim goals for the next component/phase (continue process by returning to (2)).

(8) If goals are not being met or there are adverse effects associated with the component, then determine the problem with meeting the goals. Component

implementation and monitoring results should be verified and evaluated to identify why the goals were not being met. It should be determined whether the problem is "unmanageable" (refer to (9)) or "natural" (refer to (12)).

(9) If failure to meet the goal is "unmanageable" (e.g., cannot be met by altering the design or operation of the current component) or is due to an unanticipated natural phenomenon (e.g., a 4-year drought occurs and results in the failure to meet both the hydrological and ecological goals), then re-evaluate and modify the hypothesis, and continue monitoring. Determine if the goals are met (return to (6)).

(10) If goals are now met, then continue with the next component/phase that depends on initial implementation (return to (2)).

(11) If goals are not being met, then return to (8) and determine why the goals are not being met.

(12) If failure to meet the goal is due to a design or operation problem of the current component, then re-evaluate the goals and, if necessary, modify the component Increment. Again monitor the effects and determine if the goals are now being met.

(13) If goals are now being met, then continue with the next component/phase (return to (2)).

(14) If goals are not being met, then return to (8) and determine why the goals are not being met.

MONITORING PLAN

The role of monitoring will be to measure responses during plan implementation, and to use this information to improve the design of sequential iterations (increments) of the components. The responses to be evaluated will be influenced by the goals but will likely include:

1. Whether the characteristic species and communities in the wetland, upland, estuary, and aquatic habitats are showing improvements in the direction of pre-drainage conditions or improvements towards newly established restoration target conditions;
2. Whether the defining physical and ecological characteristics of either the pre-drainage systems or a newly targeted condition are being recovered; and

3. Whether the other water-related needs of the region, including water supply and flood protection, are being met.

Conceptual models linking major environmental stressors to affected organisms or groups of organisms have been developed for each region of south Florida, including one for the Big Cypress region of southwest Florida and another for the Caloosahatchee River Estuary. The goal of these models is to identify environmental alterations whose adverse effects could be reduced or eliminated by restoration. The resulting changes in the state of these stressors will need to be monitored to evaluate the success of restoration activities associated with the Comprehensive Everglades Restoration Plan and the Southwest Florida Feasibility Study. In addition, the models identify biological indicators of the success of the restoration effort that would also need to be monitored. Several regions of southwest Florida have not been included in previous conceptual models, including smaller estuaries between the Ten Thousand Islands and the Caloosahatchee River Estuary, and freshwater portions of the Caloosahatchee River and its watershed. These may require the development of additional conceptual models.

Routine, systematic analysis of the monitoring data will improve our understanding of the hydrological and ecological relationships in the wetland, upland, estuarine, and aquatic habitats by showing which of the structural and operational components of each plan increment produce predicted, as compared to unpredicted, responses. It will also lead to improvements in the design of each increment by showing which components contribute to recovery of populations and communities of representative species and to the defining characteristics of the ecosystems. A comprehensive, regional monitoring program should be in place prior to the initiation of the plan increments, to establish the complete pre-plan baseline condition, and should continue during and beyond the period of implementation of the plan. Implementation of sequential increments of the plan should occur following analysis of each increment in the monitoring database.

Develop Monitoring Plan - An initial activity in support of developing a monitoring plan will be to evaluate the adequacy of existing monitoring protocols, both for the spatial and temporal features of each, and for the quality of the resulting databases for use in statistical treatments for trend analyses. Protocols for any new monitoring will be developed and added to the comprehensive, regional program. Coordination meetings would be held to identify monitoring objectives, existing data, additional parameters to be monitored, how data will be shared, and required actions based on monitoring findings. This study assumes that joint workshops will be held to ensure that a comprehensive monitoring plan will be developed that will include any existing plans developed. Development of a monitoring plan will include several efforts and accomplishments. Many of these activities will be accomplished simultaneously as a result of meetings. Exchange of data and information will be on-going throughout the process.

Existing Hydrologic Data Evaluation - Requirements of the hydrologic modeling efforts will be evaluated to determine any changes or modifications required for the existing

data collection network. This will provide for identification of baseline hydrologic monitoring needs that support restoration and other activities.

Ecological Data Analysis and Evaluation - Data analysis and evaluation includes efforts needed to support model development and baseline monitoring in support of restoration activities.

Develop Matrix of Actions Based on Monitoring Findings - The results of monitoring activities should be evaluated and assessed. The monitoring databases will be used to evaluate the effects of the structural and operational components of alternatives on the physical and ecological components and characteristics of the study area. If results are as predicted, then monitoring can proceed. However, if results are unexpected and/or unexplained, then the monitoring activities and hypothesis(es) should be re-evaluated and possibly modified. The monitoring program itself must be re-evaluated periodically for completeness and technical merit. The monitoring program should be designed to support the use of the monitoring results to modify or fine-tune the monitoring program as well as to determine implementation of future plan increments.

22N - SURVEYS AND MAPPING (Except for Real Estate Purposes)

The Surveys and Mapping effort will use Geographic Information System (GIS) as an integral tool permitting the spatial analysis of hydrologic models, environmental evaluation, siting analysis, estuary models, watershed assessment, circulation models, and cultural data. GIS allows the management of large data sets, more detailed analysis, and the exploration and evaluation of more alternatives than would be possible by the traditional methods in the same amount of time.

Spatial data will be incorporated from other projects, obtained from other agencies, or purchased as necessary. Additional hardware and software may be purchased to augment that which is already available. A base year will need to be established early in the process.

GIS Data Inventory, Collection, and Land Use - This activity consists of researching and acquiring data in the form of ASCII, analogue, cell-based data, raw digital, scanned data, other mapping systems, traditional survey data, Global Positioning System coordinates, high altitude aerial photography, satellite imagery, and existing digital data for GIS analysis of projects as required during the feasibility study. It can be assumed that, depending on the type of data and the source organization, charges may be incurred for the data. Types of data to be researched include but are not limited to:

- Surveys for canal alignments/cross-sections and topography
- EOSAT scenes for the project area
- Lower West Coast Planning District maps and/or digital data
- Corrected/field-truthed land use maps 2000
- Complete survey of monitoring wells, x,y coordinates, ground elevation, and section ties, at each site, as well as stage data, rainfall, marine site, etc.
- Other surveys of project area, aerials, survey maps, etc.
- Maps of other agency plans for project area
- Data and information on site-specific endangered species
- Updated or additional census tract data
- Available data bases for GAP
- Current well water level data/development of potentiometric surface maps
- Permit data from Corps and SFWMD Regulatory Branches
- Land use data - FLUCS - updated 1994-1995
- Updated topographic data from 5' to 6" contour intervals (Light Detection and Ranging [LIDAR] or other remote-sensing method)
- Orthophotoquads of all of study area produced from CIR photography and available on CD-Rom.
- Map created from Spot 1999/2000 imagery of area covering south Florida from Orlando south to the Keys
- Additional and/or updated vegetation data for project area
- Available data bases from the Nature Conservancy

- Climatological data from the National Oceanic Atmospheric Administration
- Land cover from Landsat imagery with vegetation as well as land cover types
- Occurrences of wildlife localities as in rookeries, eagle's nests, etc.
- Strategic habitat conservation areas, high priority lands for biodiversity protection
- Priority wetlands for listed species ranked on basis of number of species use
- Obtain digital historical imagery (i.e. 1940's 6.66 meter military photos)
- Obtain historical and current aerial photography
- Natural Resources Conservation Service aerial photographs

Topographic Surveys - LIDAR or other remote sensing method should be employed. The topographic data will be used in hydrologic modeling and environmental evaluation geared specifically to the undeveloped areas. A six-inch contour interval is preferred due to the low relief in southwest Florida. The topographic data shall be used to prepare a regional Digital Elevation Model. This includes GIS/CADD finish files and plots. Topographic surveys and aerial photography will be accomplished and, as needed, will be converted to a usable format for integration into the ARC-INFO format for the District and Intergraph system for use by the Engineering Division. Six-inch resolution topographic data is preferred for undeveloped areas in the study area.

Seagrass Mapping - A comprehensive seagrass evaluation program is currently underway in the Caloosahatchee Estuary and San Carlos and Estero Bay as part of the Charlotte Harbor National Estuary Program. Aerial photographs were taken in 1999 and seagrass transects have been monitored monthly over the past two years. The seagrass mapping data will be used to determine spatial extent of the beds and support the evaluation of environmental benefits of proposed alternatives.

Flow Profiles - Flow/profile measurements should be conducted at all water quality sampling sites and used to determine stream-loading characteristics. Analyze flow/stage data available and fill in the gaps with additional monitoring sites.

Hardware and Software Procurement - This activity involves determining the increased needs for GIS efforts in relation to field data collection, software implementation, and map production. It includes researching vendor specifications as well as cost comparisons. This may include, but is not limited to, procurement of the following:

- Software that aids in more efficient, rapid data collection, analysis and product generation.
- Plotting or printing equipment of a faster speed and higher quality for more immediate display of analytical results.

Quality Assurance - This activity involves all aspects of quality review of surveyed, collected, and acquired data and information before any conversion. Quality assurance will include general review for data quality, and detailed review for proper attribution and classification. In

addition, there will be quality control of data bases after construction including, using the software capabilities to check the validity of surveyed, collected, acquired, and existing data; using graphic display to check for data spikes and segment crossovers; and using software checking for label and node errors.

Data Base Conversion and Construction - This activity involves converting the acquired data in its existing form, performing the necessary steps to create a usable format compatible with the software, including any digitalization, reformatting, and scanning of data, if necessary, and constructing final data bases.

GIS Analysis and Map Production - This activity includes analysis of existing or acquired data and hydrologic and/or environmental models and creating maps, tables and charts as graphic displays using either ARC/Info, ArcView, Erdas, or additional software packages to be purchased, as needed, to complete the analysis. Develop Decision Support System that will allow geospatial-referenced access of all data sets. Develop website interface for the database and maps, charts, tables, graphics, and illustrations for report preparation and public awareness and involvement. Develop a website data clearinghouse to allow data access for all team members and the public.

Section Corner Survey - This survey is required to establish state plane coordinates for sections and townships within the study area for real estate mapping purposes. This data should be in Transverse Mercator Projection, Florida East Zone using 1927 Datum. A Global Positioning Station will be used. It is assumed that other data, provided by the state, will also be available. The survey data will be incorporated into the GIS database and used to map property boundaries and ultimately develop real estate acquisition costs for alternatives.

22P - ENGINEERING ANALYSIS AND DESIGN/PROJECT COST ESTIMATES

This account includes all the design and cost estimates needed to support formulation of alternative plans and the plan recommended for authorization.

Preliminary design and cost estimates for screening plan components will be prepared to support plan formulation and optimization of the plan components. The preliminary design and cost analysis will include estimates of construction costs; estimates of average annual operation, maintenance and replacement costs; and engineering, design, supervision, and administration costs. After the preliminary assessment of plan alternatives has been completed, the plans will be screened to select those alternatives that warrant further study. During the time leading up to the selection of a tentative plan, modified and updated cost figures will be supplied as the individual project plans are refined in order to selectively eliminate alternatives. A Micro-Computer Aided Cost Estimating System (M-CACES) cost estimate will be required for the recommended plan and a locally preferred plan, if different from the recommended plan. The evaluation will contain sufficient detail to incorporate the requirements of *ER 1110-2-1302, Civil Works Cost Engineering*. Material from these activities will be included as part of a separate engineering appendix to the Feasibility Report. Costs attributable to work in this account include the effort required to prepare input for the preliminary draft, draft, and final Feasibility Report, as well as participation in any required review conferences and resolution of comments resulting from the conferences.

Engineering Design for Preliminary Assessment of Alternatives - Preliminary civil design for formulation, scoping, and qualitative assessment of alternative plans will include site layout, identification of project features, typical cross sections, profiles, and location of facilities/utilities. Alternate combinations of types of construction and alignments will be screened to ensure optimum plans are identified.

Screening Level Cost Estimates - Cost engineering will assist in the selection of the components of the plans that will be considered during the preliminary assessment of plan alternatives. Cost information already compiled during the reconnaissance phase of study will be used to provide cost data for possible variations of the alternatives considered during the feasibility phase. M-CACES cost estimates will not be required for the preliminary assessment of plan alternatives.

Engineering Design Final Alternatives - After the preliminary assessment of plan alternatives is completed and during the time leading up to the selection of plans for further study, information on additional components, as the individual project plans are refined, will be required input for engineering design and cost estimation refinement. This will be necessary for the final plan alternatives to be accomplished.

Preliminary Cost Estimates for Final Alternatives - After the preliminary assessment of plan alternatives is completed and during the time leading up to the tentative selection of a plan, modified and updated cost figures will be supplied, as the individual project plans are refined, in order to eliminate alternatives. The cost estimates will be based on quantities that will be provided as a result of engineering design efforts for both construction and operation, maintenance, rehabilitation, repair and replacement (OMRR&R) items.

Finalize Design for Recommended Plan - After final alternative screening is complete, design for the recommended plan and a locally preferred plan (if different from the recommended plan) will be prepared. This effort will include developing the drawings, deriving quantities, and identifying operation and maintenance costs.

Civil Design Write-Up for Preliminary Draft Feasibility Report - This activity includes preparation of the narrative report which documents all work leading up to submission of the preliminary draft Feasibility Report and input into the draft Project Management Plan.

Cost Estimating Write-Up - This activity includes the effort to prepare a narrative summary and the associated cost tables, documenting all the work performed leading up to submission of the preliminary draft Feasibility Report.

M-CACES Cost Estimate - This work involves preparing the initial M-CACES cost estimate for the recommended plan and the locally preferred plan, if different from the recommended plan. A detailed M-CACES cost estimate will be prepared for the selected plan(s). The cost estimate will include detailed cost evaluations of the requirements for OMRR&R activities. The cost estimate will be accompanied by a cost estimate summary describing major design features and important assumptions made in putting together the M-CACES cost estimate.

Design and Cost Estimating Participation in the Alternative Formulation Briefing (AFB) - This activity includes preparation of work appropriate for presentation and participation in the AFB.

Finalize M-CACES Cost Estimate - Provide detailed cost figures for refinement and/or changes in the final project design prior to the final report. Included will be a detailed evaluation of the requirements for OMRR&R activities. This will then be incorporated into the final M-CACES cost estimate for the selected plan. Also included is the effort required to modify the report write-up and the appropriate cost tables, if necessary, prior to submission of the final Feasibility Report.

Comment Responses & Finalize Write-Up - This task includes the effort required to address all comments generated at the AFB by revising drawings and the report write-up as

well as documenting the comments and resolutions in the Project Guidance Memorandum.

During the plan formulation process of identifying alternative measures to be evaluated in the preliminary assessment of plans, and in actually performing the screening of alternatives to select plans that warrant further study, the SFWMD will need to work closely with the Corps. SFWMD will review draft designs and provide comments. SFWMD's responsibility in this area will continue throughout the study as more features are formulated and designs are developed. SFWMD will provide input to the Corps regarding operation and maintenance costs for the alternatives. SFWMD will also assist in the process of locating existing utilities in the project area.

22Q - FEASIBILITY PLANNING TECHNICAL MANAGEMENT

The management of the execution of the feasibility study will be accomplished by the Corps, Jacksonville District, in conjunction with the SFWMD. Tasks will include preparation of work orders, specific work requests, funding, and overseeing the timely completion of study tasks and monitoring schedules. This includes: preparation of correspondence required to initiate and conclude study coordination with Federal, state, Tribal, and local agencies; preparation and conduct of briefings, workshops, and informal meetings with Federal, state, Tribal, and local officials, various agencies, and the public; and coordination and dissemination of review comments on the completed products and draft Feasibility Report. Management of the Southwest Florida Feasibility Study (SWFFS) study team is an ongoing responsibility of the study manager, and includes scheduling meetings, identifying major tasks to be completed, and coordinating with team members on the development of study products.

Update Quality Control Plan - The management of the feasibility study will also include an independent technical review. The South Atlantic Division, U.S. Army Corps of Engineers performed this review previously. However, beginning October 1, 1995, Corps procedures for technical review were shifted from the Corps' Division level to the District level. In accordance with the new procedures, the Jacksonville District has prepared a quality control plan (QCP) which describes the procedures to be employed to ensure compliance with all technical and policy requirements and describes the review process. The QCP has been developed as part of a separate document entitled *Quality Control Plan, Central and Southern Florida Project, Feasibility Studies*. This document will be modified and updated for the SWFFS. Tasks and costs for implementing the technical review in accordance with the QCP are included in this account.

Initiation of Feasibility Study - Prepare and issue initial work orders to appropriate offices as indicated in the study schedule. Periodically update work orders and submit additional requests.

In-Progress Review (IPR) - An IPR is an informal or formal meeting conducted at key points during the study to ensure delivery of a quality product which meets the agreed-upon requirements of the local sponsor, is on schedule, and is within budget. The product should also comply with all laws, policies, and technical criteria; establish clear lines of accountability; and include provisions for independent technical review. Appropriate functional and review team members will attend all IPRs after the start of the study.

Independent Technical Review - Subsequent to IPR meetings, each review team member is responsible for performing an independent technical review of the assigned technical component. The review team leader is responsible for consolidating all comments and providing them to the study team for consideration and incorporation. A record addressing the disposition of all comments will be prepared and provided to the review

team. The review team members and the functional chiefs will certify the review document.

Feasibility Scoping Meeting (FSM) - To ensure the feasibility study is focused and tailored to meet specific objectives, an FSM will take place early in the study. The FSM will bring Corps Headquarters, Division and District staffs; the SFWMD; and resource agencies together to focus the feasibility study on key alternatives, to further define the depth of analysis required, and to refine study constraints. An FSM is one type of an IPR.

Technical Review - Before a Corps report is approved it must undergo a policy and technical review and policy compliance review by Corps Headquarters in Washington. Technical review is conducted to ensure the proper selection and application of established criteria, regulations, laws, codes, principles and professional procedures to ensure a quality product. Technical review also confirms the utilization of justified and valid assumptions that are in accordance with policy. This task includes the effort and costs of conducting an in-house technical review at the Jacksonville District in accordance with the QCP.

Submit Preliminary Draft Feasibility Report - This effort involves the submission of the preliminary draft Feasibility Report and draft Micro-Computer Aided Cost Estimating System (M-CACES) cost estimate to Corps' higher authority.

Alternative Formulation Briefing (AFB) - The AFB will be scheduled when the Corps District has identified a selected plan and is prepared to present the formulation and evaluation of alternatives. Corps Headquarters will confirm that the alternative formulation and selection process, the identified preferred plan, and the definition of Federal and non-Federal responsibilities conform to current policy guidance.

Submit Draft Feasibility Report - The Corps will transmit the draft Feasibility Report with integrated *National Environmental Policy Act* documentation and M-CACES cost estimate to the technical review team, Corps' higher authority, and the public.

Submit Final Feasibility Report - The Corps will transmit the final Feasibility Report and associated documents to the technical review team and Corps' higher authority.

Study Management - This activity includes on-going study management responsibilities throughout the feasibility phase of the study. The cost associated with this activity includes the tasks described in the opening paragraph of this account description.

SFWMD will be responsible for having the appropriate personnel attend all required meetings listed as milestones in the Project Management Plan schedule, managing the in-kind work to be provided under other accounts, and providing budgetary and schedule input for completion of the activities. The SFWMD should also participate in the technical review. On-going coordination between SFWMD and the Corps is critical, and SFWMD costs associated with this coordination are included here.

22R - PLAN FORMULATION AND EVALUATION

This account includes the evaluation of different alternatives and the general plan formulation activities performed by the study manager, in conjunction with the study team, that are not appropriately accounted for elsewhere. The responsibility for defining the planning framework for conduct of the feasibility study, including problem identification and identification of planning objectives and constraints, falls within the plan formulation and evaluation account. A plan screening and selection analysis will array the costs and benefits associated with each alternative. The formulation studies will require testing and evaluation of alternatives, both structural and non-structural, for economic, environmental, and engineering effectiveness based on study objectives and constraints. Formulation and evaluation of alternatives will be of sufficient scope to recommend authorization of the plan determined to be the most feasible and cost effective means of meeting the stated study objectives within the identified planning constraints.

Environmental screening models will be used as a framework to develop indices that will predict environmental outputs in support of a comparison of environmental benefits of different proposed alternatives. The environmental models will provide input into the decision support system to be used for determining the benefits and the costs of proposed alternatives. The environmental models will be a tool used for formulating alternatives. Determination and analysis of project impacts on specific fish and wildlife resources (including endangered species) will be conducted separately and presented in the *National Environmental Policy Act (NEPA)* document (refer to 22E - Environmental Studies).

PLAN FORMULATION ALTERNATIVES

Alternatives to be developed and evaluated will be based on the project components that will be developed to meet the planning objectives. The scoping process has identified important elements contained within existing plans to achieve the identified objectives within the study area. However, identification of the best combination of components, additional components, and optimization of component effectiveness has not been initiated. Furthermore, the planning objectives were not fully developed during the scoping phase. The results of the Lower West Coast Water Supply Plan (LWCWSP), Caloosahatchee Water Management Plan (CWMP), and additional studies will be used to help define these problems and develop alternatives that better incorporate solutions to fulfill the refined planning objectives developed during this feasibility study effort.

This feasibility study will investigate, in greater detail, the components proposed in the various plans that have been completed for areas within the study area which address the water resource problems and needs within southwest Florida. Additional alternative

formulation will be required to identify additional alternatives to address the agricultural, environmental, and urban water supply needs.

Plans to address ecosystem restoration will be formulated, and measures for restoring ecological resources will be recommended based on their monetary and non-monetary benefits and costs. Economic benefits of restoration plans that can be expressed monetarily are based on the difference between conditions “with” and “without” the alternative plan being considered, and represent the change in flood damage, water supply for agricultural and urban uses, navigation, fishing, recreation, and other activities. Benefits and costs, both monetary and non-monetary, for the alternatives formulated during the feasibility study will be determined for each alternative. As a matter of policy, ecosystem restoration benefits are not translated into dollar values. Cost-effectiveness, attaining the outputs at the lowest possible cost, will be an important criterion used in evaluations and determination of a recommended plan for this feasibility study. The multidisciplinary study team will develop the alternatives in sufficient detail so that realistic evaluation, appraisal, and comparison of each alternative's net contributions to the planning objectives (benefits less costs) can be identified, quantified, and considered.

The evaluation of alternatives will incorporate a two-part process. An assessment of each alternative will be made to quantify effects based upon a comparison of the “with” and “without plan” conditions, and existing and natural pre-development conditions. An appraisal process will then be utilized to assign significance and value to the effects measured in the assessment phase.

The assessment of alternatives will establish the level of an alternative's benefit or impact in a number of categories of effects in light of the planning objectives. Categories of effects to be evaluated in the assessment will include national economic development, regional economic development, environmental quality, and other social effects. Other social effects are qualitative outputs such as urban and community impacts; life, health and safety factors; displacement; long-term productivity; and energy requirements and energy conservation. These social effects will be evaluated and considered using technical information gathered for comparison of alternatives. Additional categories of effects determined to be institutionally, publicly, or technically recognized as important will be considered and taken into account in the decision-making process.

The criteria to be used in the appraisal process include an alternative's completeness, effectiveness, efficiency, and acceptability. Completeness refers to the extent to which a given alternative provides and accounts for all necessary investments or other actions to ensure realization of the planned effects. Effectiveness refers to the extent to which an alternative alleviates the specified problems and achieves the specified goals. Efficiency is the extent to which an alternative is the most cost-effective means of alleviating the problem and realizing the specified goals. Acceptability is the workability and viability of the alternative with respect to acceptance by state and local entities and the public, and

compatibility with existing laws, regulations, and public policies. Each alternative will be evaluated against these criteria to measure its relative success in meeting the criteria.

During the comparison of alternatives, the differences among the alternatives will be examined, weighed, and traded-off. The basis for the trade-offs and weights for the various alternative effects will be determined through a combination of professional judgement by the interagency, interdisciplinary study team and the views of the study partners, stakeholders, and the public. Public input will be obtained throughout the course of the study through an extensive public involvement process, which includes opportunities for public workshops, community meetings, media opportunities, publications, and other public outreach activities. In addition, the study sponsor will utilize the resource team it has established for the SWFFS to further promote stakeholder involvement and participation.

The evaluation of alternatives will yield information for use in the decision process as well as the iterative alternative formulation process. Alternatives will be evaluated according to their costs, environmental benefits, economic benefits, social effects, effects on significant resources (such as endangered species), ability to meet planning objectives, and other findings. During alternative formulation and evaluation, the results will be analyzed to determine which types of actions provide the most benefits as well as to identify which actions will accomplish compliance with statutory requirements. An alternative effects matrix will be developed to illustrate the relative effects of alternatives in meeting the stated planning objectives. The effects matrix will be useful to planners, members of the public, and decision-makers alike. As discussed above, many activities (including workshops, meetings, etc.) will be involved in identifying items that will be addressed on the effects matrix. This effort will identify the alternative that provides the optimum level of benefits to meet the study objectives and results in identification of the recommended plan.

Problem Identification - Initial study efforts will involve refinement of the problem identification and the planning objectives and constraints. The study team and resource team will be an integral part of this effort. This will ensure that agency and local interests and perspectives with regards to wetlands and wildlife conservation, economic development, comprehensive land planning, maintenance of public and agricultural water supplies, and flood control are identified. A technical analysis will be conducted to investigate the public and scientific concerns and then planning objectives and constraints will be refined. This will include an inventory, forecast, and analysis of conditions within the study area relevant to the identified problems and opportunities. Results from the LWCWSP, CWMP, LECRWSP, South Lee County Watershed Plan, Estero Bay and Watershed Assessment, Big Cypress Basin Watershed Management Plan, Charlotte Harbor National Estuary Comprehensive Conservation and Management Plan, Multi-Species Recovery Plan, Estero Bay State of the Bay, and Environmental Impact Statement on Improving the Regulatory Process in Southwest Florida will be evaluated to identify specific water resource problems in the study area.

Initial Alternative Formulation - This activity includes the effort to develop components or groups of components to solve the problems and opportunities that have been identified. The alternatives identified for the study area during the reconnaissance/scoping phase are conceptual in nature and lack detail and specific form. Initial study efforts will refine these conceptual alternatives, and additional alternatives that may be identified, to meet the study-specific planning objectives. Alternatives will also be formulated to address the agricultural, environmental, and urban water supply needs. Completion of this activity is critical for numerous activities to begin to include hydrologic modeling, engineering design, and real estate appraisals.

Initial Screening - Initial screening efforts in the feasibility study will involve a qualitative assessment of the alternative components and alternate combinations of the components. The preliminary assessment of each alternative will involve the measurement or estimation of the effects of each alternative and will determine the difference among “without plan”, “with plan”, existing, and natural pre-development conditions for each of the categories of effects. Appropriate models will be used for this purpose in conjunction with a decision support system utilizing existing research data and professional judgement. The process will also include assigning economic and social values to the alternative components using technical information gathered for comparison of alternatives. The alternative components will be screened to identify the most viable components for detailed study through qualitative analysis and public workshops. This process will ensure that the alternative components to be evaluated are consistent with agency and local interests and perspectives with regard to wetlands and wildlife conservation, economic development, comprehensive land planning, maintenance of public and agricultural water supplies, and flood control. Through this qualitative analysis, the alternative components will be screened to identify the most viable components for more detailed study.

Select Final Array of Alternatives - Following completion of the initial screening, the first set of alternatives to be considered in the detailed evaluation will be selected. Subsequent iterations will involve alternatives based on additional information that has been learned from earlier alternative evaluations.

Final Screening - Modeling will be required for the detailed design and environmental output evaluation purposes. Hydrologic and hydraulic model development, environmental model development, water quality, and water supply analysis will be required to refine alternative formulation and evaluation. The evaluation of the final set of alternatives will consist of analyzing the effects of the alternatives against various sets of evaluation categories and criteria to determine effectiveness in meeting the planning objectives. The results of the evaluations will be arrayed and compared to identify significant differences among the alternatives.

Risk and Uncertainty Analysis - Risk and uncertainty are inherent in water resources planning and design. Risk and uncertainty arise from measurement errors and from the

innate variability of complex physical, biological, social, and economic situations. This is particularly true for the evolving nature of ecological restoration. Ecological risk analysis likely will not be conducted quantitatively unless an accepted quantitative methodology becomes available during the study. Envelopes of uncertainty can describe meteorologic and hydrologic inputs, which will drive environmental models. Similarly, this range of hydrologic values could be used to evaluate the sensitivity of ecological output. Alternatively, uncertainty analysis using output from the environmental models may be conducted using a "what if" approach. Uncertainty analysis will be based on outputs for the different variables. Outputs from the environmental models will be used to predict the range of potential effects for the different alternatives. The uncertainty of parameters used in hydrological and ecological evaluations of proposed project outputs will be described during the course of the study, and the form of the risk and uncertainty analysis will be based on reliability of the data collected and model sensitivity. Risk and uncertainty factors will be considered as they relate to the evaluation of alternatives. Appropriate techniques will be applied to evaluate risk and uncertainty for this feasibility study.

Selection of the Recommended Plan - One alternative plan will be selected for recommendation from among all those that have been considered. It is likely that the recommended plan will be comprised of features from multiple alternatives that were evaluated. The study team and the resource team will be actively involved in selection of the recommended plan. The plan shall attempt to maximize the sum of net NED and NER benefits and offer the best balance between the two Federal objectives.

Cost Allocation and Apportionment - This task includes the effort required to evaluate the allocation and apportionment of costs based on the purpose of the proposed project features in accordance with established Corps cost-sharing policies. This effort will establish the cost-sharing apportionment for all recommended project features.

EVALUATION METHODOLOGY AND TOOLS

Appropriate environmental, hydrologic, water quality, and ecological models will be used to predict and compare the outputs of alternatives and conditions. A decision support system utilizing model outputs will be developed for predicting changes in the quality of wetland and aquatic habitats specific for the study area. The output will not be used for impact assessment or for analyzing the impacts of projects on threatened and endangered species. Other models will be used to analyze project impacts on specific natural resources within the study area.

Identification of Restoration Goals

Goals for restoration will be identified early in the study process. Coordination with the Comprehensive Everglades Restoration Plan (CERP) Restoration Coordination and

Verification Group and other interested parties will be initiated to identify long-term and intermediate restoration goals, anticipated ecological and hydrological responses to alternatives, and criteria to be used to evaluate the success of alternative plans.

Workshop to Identify Overall Restoration Goals - An important task will be to reach consensus among the agencies, resource organizations, and other interested parties on restoration goals. A workshop will be required to reach a consensus on restoration goals and application of these goals to the SWFFS. This workshop will also be used to initiate the process of defining the detailed hydrological and ecological goals for the study area, which will in turn influence the monitoring plan.

REPORT PREPARATION

Environmental Evaluation Draft Appendix Write-up - This activity includes preparation of the narrative report which documents detailed environmental evaluation tasks performed as part of the feasibility study. Results of the models and evaluations will be compiled and incorporated into the draft Feasibility Report in an appendix. This activity will include the effort necessary to compile the data, write the appendix, and prepare all plates necessary to document development of evaluation tools, outputs, and evaluation results.

Finalize Write-up - This activity includes the effort required to address all comments generated at the Alternative Formulation Briefing. This activity also includes the effort required to finalize the evaluation documentation for incorporation in the final Feasibility Report.

22S - REPORT PREPARATION

The Feasibility Report will consist of the main report with an integrated *National Environmental Policy Act (NEPA)* document and numerous technical appendices. This Feasibility Report will be prepared in compliance with Federal *ER 1105-2-100, Guidance for Conducting Civil Works Planning Studies* and *ER 1110-2-1002, Maps and Drawings*. The Feasibility Report will be a complete decision-making document and, as such, will include a complete presentation of problem identification, alternative formulation and evaluation, and recommended plan formulation. The Feasibility Report shall be based on all studies and investigations conducted and on published reports applicable to the study area.

The main report, which summarizes the study finding(s) and recommendation(s), will be direct, concise, and written in a user-friendly style using sufficient graphics, illustrations, and photographs to convey the information. The Feasibility Report will identify a recommended plan and a process for its implementation. The report will describe the economic, environmental, social, and engineering benefits and costs of the recommended plan and the alternatives evaluated. The report will also describe the purpose, scope, scale, public acceptability, and Federal and non-Federal participation for the recommended plan. The report will document that the state, other non-Federal interests and Federal agencies have been consulted in the development of the recommended plan. For the purpose of estimating costs, the main report is assumed to be 200 pages. The *NEPA* document will be integrated with the main report and will conform to the regulations contained in *ER 200-2-2, Procedures for Implementing NEPA*, dated 4 March 1988.

The technical appendices will document, in detail, technical information developed for the study and the evaluations conducted to support the conclusions of the study. The final version of each appendix will be submitted to the study manager on disk for inclusion in the final document. The estimated size of all appendices combined is 1,000 pages, including foldout maps.

The base maps used to show study features will be the same for all versions of the Feasibility Report, including both the main report and the appendices. All maps and drawings will be in either Computer Aided Drafting & Design format or Geographic Information System format, and will be developed in layers to facilitate color separation for reproduction by off-set press. All graphs, illustrations, and photographs should be developed with a view toward offset printing or photocopy. For example, while a graph with color lines "looks good", in most cases, a variety of line widths and symbols in black and white will accomplish the same purpose at a fraction of the cost. Color will be used sparingly.

The entire Feasibility Report, including the main report and the technical appendices, will be posted on the Corps' and SFWMD's website. In addition, multiple copies will be printed on paper and on compact discs.

Preliminary Draft Feasibility Report - This activity will involve preparing a preliminary draft Feasibility Report and associated documents for appropriate review.

Draft Feasibility Report - This activity involves preparing the draft integrated Feasibility Report, including the *NEPA* document. This report will be released for public comment. Other activities will include preparing responses to Corps higher authority and incorporating the results of the Alternative Formulation Briefing.

Final Feasibility Report - This activity includes the tasks necessary to produce a final integrated Feasibility Report and *NEPA* document. Any changes necessary to respond to comments received during the review period will be incorporated. A draft Chief of Engineers Report for submittal to the Assistant Secretary of the Army for Civil Works will be prepared.

22T - FEASIBILITY PROGRAMS AND PROJECT MANAGEMENT

The Corps' project manager (PM) will monitor study progress during the feasibility phase of the project. This includes attendance at and participation in study team meetings, public meetings, and any review conferences. In addition, a draft post-feasibility phase Project Management Plan (PMP) describing the project activities during Preconstruction Engineering and Design and construction will be prepared by the Corps as part of this work item for submittal with the preliminary draft Feasibility Report. Preparation of documents for compliance with project management regulations includes annual budget data, fly sheets, and testimony. Monthly reporting documents for Project Review Board (PRB) will also be handled by the PM.

The SFWMD's responsibility for this account includes preparation of reporting documents, attendance at meetings (Design Coordination Team, PRB, and sponsor's internal meetings), briefings, etc. required to keep higher levels informed of study progress and findings. This account includes the time and effort required to assist the Corps in preparation of the post-feasibility phase PMP for advanced engineering and design studies.

Prepare Draft Post-Feasibility Phase Project Management Plan (PMP) - During this activity the PM will develop the PMP based on study results available at that time. This task will require close coordination with the study manager, the study team, and the sponsor. In addition, the construction schedule will be coordinated with Construction-Operations Division, the local sponsor, and other appropriate elements. The draft post-feasibility phase PMP will be submitted with the preliminary draft Feasibility Report.

Participation in Alternative Formulation Briefing (AFB) - The PM will present the draft PMP at the AFB.

Revise Draft PMP - Based upon the review comments received at the AFB and those contained in the Project Guidance Memorandum, the draft PMP will be finalized for approval by the Corps PRB. Subsequently, the PM will present the PMP to the Corps PRB for approval.

Project Management - This activity includes on-going project management responsibilities throughout the feasibility phase of the study. These responsibilities will include on-going monitoring of the study scope, schedule, and cost accounting. Integration and coordination between the study activities and activities related to all other Corps and SFWMD actions will be included in this activity. The cost associated with this activity includes the tasks described in the opening paragraph of this scope.

22Y - WASHINGTON LEVEL REVIEW

By regulation, five percent of the study cost or \$50,000, whichever is less, must be set aside to cover SFWMD and Corps, Jacksonville District expenses during Washington level review of the Feasibility Report. If the costs for this work item exceed this limit, then the issue will be elevated to the Design Coordination Team.

SFWMD will be responsible for responding to comments on that portion of the work provided as in-kind service. In addition, representatives of SFWMD, along with representatives of the Corps, will attend one meeting at the project site with Headquarters, U.S. Army Corps of Engineers (HQUSACE) staff involved in the Washington level review process. The Washington level review process begins upon the Division Engineer's issuance of the public notice announcing completion of the Feasibility Report. The activities performed during the Washington level review process are as follows:

Division Engineer's Public Notice - The Division Engineer issues a public notice announcing the completion of the Feasibility Report, based upon the endorsement of the findings and recommendations of the Corps Jacksonville District Engineer, which indicates that the Feasibility Report has been submitted for Washington level review. The notice provides a 30-day period for comments on the Feasibility Report and indicates that comments are to be submitted to HQUSACE and that the report's final *National Environmental Protection Act (NEPA)* document is available to the public. South Atlantic Division, U.S Army Corps of Engineers (SAD) will furnish the public notice to all interested parties.

Report Submittal - SAD will submit copies of the Feasibility Report concurrently to HQUSACE and the Assistant Secretary of the Army for Civil Works (ASA(CW)). The submittal will include a transmittal letter stating the names and congressional district numbers of the interested congressional delegation, the names and mailing addresses of the state point of contact and non-Federal sponsor, and the names and telephone numbers of the Corps Division and District points of contact for the Feasibility Report. SAD will prepare a draft report by the Chief of Engineers, which will concur with the recommendations of the SAD Engineer.

Fact Sheet and Slides Submittal - SAD will submit a project fact sheet to HQUSACE which outlines the problems and opportunities identified in the feasibility study; the alternative plans considered; planning principles used; a description of the recommended plan; map of the project; physical data on project features; views of the state, non-Federal interests, and other Federal agencies; status of the *NEPA* documentation; and financial data on the recommended plan. The Jacksonville District will provide 35mm slides to HQUSACE within 30 days after the Division Engineer's Public Notice has been issued. The fact sheet and slides will be used to support testimony before authorization committees of Congress.

HQUSACE Review - HQUSACE will perform a policy compliance review of the Feasibility Report. The staff will also consider the views expressed by interested parties at public meetings and workshops and in written correspondence received in response to the Division Engineer's public notice. Upon completion of its initial review, the staff will draft an assessment summarizing its findings on the Feasibility Report indicating any additional information needed to address specific concerns. The assessment will be submitted to the ASA(CW) to solicit any additional views and comments on the Feasibility Report. The draft assessment will also include a tentative target date for a staff field visit.

30-Day State and Federal Agency Review - HQUSACE will initiate the 30-day review within a few days after receipt of the Feasibility Report if the document complies with procedural requirements of law and does not indicate significant interagency conflict. SAD will be responsible for filing the *NEPA* document with the Environmental Protection Agency. SAD will also be responsible for the local distribution of the *NEPA* document to parties not included on the HQUSACE mailing list for the normal 30-day review. The 30-day review occurs concurrently with the 30-day state and agency review period.

Washington Level Final Assessment - The final Washington level assessment will be a consolidation of the review comments of all Washington echelons and will identify any aspects which need to be addressed before the Feasibility Report is considered by decision-makers.

Field Visit and Meeting - Upon receipt of the Washington level final assessment, a field visit/meeting will be scheduled. The field visit is intended to provide an opportunity for the Jacksonville District and non-Federal sponsor to furnish information to the HQUSACE review staff to address review comments and resolve potential issues.

Documentation of Report Review - Based upon information obtained during the field visit, the HQUSACE review staff will prepare written documentation of the results of the Feasibility Report review. The documentation will discuss how each comment in the Washington level assessment was resolved; what back-up information is available to support the comment resolution; and indicate any revisions made to the Feasibility Report. The documentation will also indicate any concerns, which have not been completely resolved.

Washington Level Decision-Making Process - HQUSACE review staff will conduct a briefing for the senior representatives of HQUSACE and the ASA(CW). The purpose of the briefing is to present results of the review and to permit opportunity for participants to discuss the Feasibility Report. Facts pertaining to the report will be presented. These include any available comments provided by the state and other Federal agencies during the 30-day review, and identification of those agencies who have not responded and whose comments, if submitted, would need to be considered during later decision-making. Representatives to attend the briefing include the following:

- HQUSACE - major Division staff Chiefs;
- ASA(CW) - Deputy for Policy, Planning, and Legislative Affairs;
- Staff representatives from the Corps, Jacksonville District and SAD;
- Representatives from the non-Federal sponsor, the SFWMD.

Chief of Engineers Report - Prior to transmittal of the report to Congress and signing of the Record of Decision by the ASA(CW), the sponsor, the state, interested Federal agencies, and other parties will be advised of any modifications made to the recommendations and will be afforded an opportunity to comment further. In such circumstances, an additional 30-day review period will be provided for further comment before finalizing the recommendations in the final report of the Chief of Engineers.

APPENDIX B
ORGANIZATIONAL BREAKDOWN STRUCTURE

ORGANIZATIONAL BREAKDOWN STRUCTURE

The Organizational Breakdown Structure (OBS) identifies the organizations within the U.S. Army Corps of Engineers, Jacksonville District responsible for performing work required for project implementation. Office titles and symbols of organizations that will participate in the project are listed below:

PROJECT MANAGEMENT DIVISION

DP Deputy District Engineer for Programs and Project Management
DP-A Principal Assistant DDE(PM)
DP-I Project Management Branch

CONSTRUCTION DIVISION

CO Construction Division
CO-C Construction Branch
CO-CC Contract Administration
CO-CQ Quality Assurance Section
CO-CS Construction Services Section
CO-M Emergency Management
CO-S South Florida Area Office

CONTRACTING DIVISION

CT Chief, Contracting Division
CT-C AE and Construction Branch
CT-S Services Branch

ENGINEERING DIVISION

SAJ-VE Value Engineering Officer

Geotechnical Branch

EN-G Geotechnical Branch
EN-GS Soils Section
EN-GG Geology and Exploration Section

Design Branch

EN-D Design Branch
EN-DC Specifications Section
EN-DL Levees and Waterway Section
EN-DM Mechanical & Electrical Section
EN-DS Structural Section
EN-DP Special Projects Section
EN-DT Survey Section

Cost Engineering Branch

EN-C Cost Engineering Branch

Hydrology and Hydraulics Branch

EN-H Hydrology & Hydraulics Branch
EN-HC Coastal Design Section
EN-HH Hydraulic Data and Design Section
EN-HI Hydrologic Investigation Section
EN-HW Meteorology & Water Management Section

Engineering Technical Services Branch

EN-T Technical Services Branch

PLANNING DIVISION

Environmental Branch

PD-EE Environmental Quality Section
PD-ER Environmental Coordination Section
PD-ES Environmental Studies Section

Socio-Economics Branch

PD-D Socio-Economics Branch

Plan Formulation Branch

PD-PC Coastal
PD-PN Navigation
PD-PF Flood Control

Ecosystem Restoration Branch

PD-R Ecosystem Restoration Branch

REAL ESTATE DIVISION

RE Real Estate Division
RE-A Acquisition Branch
RE-S Appraisal Branch

OFFICE OF COUNSEL

OC Office of Counsel

OTHER ARMY & CORPS OF ENGINEERS OFFICES

SAD South Atlantic Division
HQ Headquarters, US Corps of Engineers
ASA(CW) Assistant Secretary of the Army for Civil Works

APPENDIX C
STUDY COST ESTIMATE BY CODE OF ACCOUNTS

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWMD		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
22A Public Involvement	PD-R													
Public Involvement Plan														
Public Involvement Plan	PD-R	\$7,986	\$12,000	\$19,986	\$12,000	\$7,986	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Public Workshops	PD-R													
Public Workshop #1	PD-R	\$5,000	\$10,000	\$15,000	\$10,000	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Public Workshop #2	PD-R	\$5,000	\$10,000	\$15,000	\$0	\$0	\$10,000	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0
Public Workshop #3	PD-R	\$5,000	\$10,000	\$15,000	\$0	\$0	\$0	\$0	\$10,000	\$5,000	\$0	\$0	\$0	\$0
Public Workshop #4	PD-R	\$5,000	\$10,000	\$15,000	\$0	\$0	\$0	\$0	\$444	\$222	\$9,556	\$4,778	\$0	\$0
Public Workshop #5	PD-R	\$5,000	\$10,000	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$889	\$444	\$9,111	\$4,556
Community Meetings														
Community Meetings	PD-R	\$7,000	\$20,000	\$27,000	\$2,020	\$707	\$5,344	\$1,870	\$5,344	\$1,870	\$5,359	\$1,876	\$1,933	\$676
Publications														
Written Publications	PD-R	\$0	\$25,000	\$25,000	\$2,526	\$0	\$6,680	\$0	\$6,680	\$0	\$6,698	\$0	\$2,416	\$0
Electronic Publications	PD-R	\$0	\$25,000	\$25,000	\$2,526	\$0	\$6,680	\$0	\$6,680	\$0	\$6,698	\$0	\$2,416	\$0
Media														
News Releases	PD-R	\$0	\$6,000	\$6,000	\$738	\$0	\$1,603	\$0	\$1,603	\$0	\$1,608	\$0	\$448	\$0
Media Opportunities	PD-R	\$0	\$5,000	\$5,000	\$505	\$0	\$1,336	\$0	\$1,336	\$0	\$1,340	\$0	\$483	\$0
Outreach														
SFWMD Adv Committee Mtgs	PD-R	\$0	\$5,000	\$5,000	\$505	\$0	\$1,336	\$0	\$1,336	\$0	\$1,340	\$0	\$483	\$0
Meetings with Other Groups	PD-R	\$0	\$5,000	\$5,000	\$505	\$0	\$1,336	\$0	\$1,336	\$0	\$1,340	\$0	\$483	\$0
Partnering														
Partnering Workshop	PD-R	\$0	\$50,000	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Extended Partnering Meetings	PD-R	\$0	\$10,000	\$10,000	\$1,002	\$0	\$2,901	\$0	\$2,901	\$0	\$2,909	\$0	\$286	\$0
Subtotal		\$39,986	\$213,000	\$252,986	\$82,327	\$13,693	\$37,217	\$6,870	\$37,661	\$7,093	\$37,736	\$7,098	\$18,059	\$5,232
22B Institutional Studies	PD-D													
Preliminary Financing Plan	SFWMD	\$7,000	\$0	\$7,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,750	\$0	\$1,250
Assessment of Capability	PD-D	\$0	\$7,000	\$7,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,000	\$0
Subtotal		\$7,000	\$7,000	\$14,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,750	\$7,000	\$1,250
22C Social Studies	PD-D													
Social Impact Analysis														
Obtain Input from Study Elements	PD-D	\$0	\$7,000	\$7,000	\$0	\$0	\$621	\$0	\$6,379	\$0	\$0	\$0	\$0	\$0

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWM		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
Identify Potential Impacts	PD-D	\$0	\$32,000	\$32,000	\$0	\$0	\$0	\$0	\$32,000	\$0	\$0	\$0	\$0	\$0
Environmental Justice														
Initial Screening and Scoping	PD-D	\$0	\$6,000	\$6,000	\$3,479	\$0	\$2,521	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Public Participation	PD-D	\$10,000	\$15,000	\$25,000	\$2,464	\$1,643	\$6,518	\$4,345	\$6,018	\$4,012	\$0	\$0	\$0	\$0
Environmental Analysis	PD-D	\$0	\$20,000	\$20,000	\$0	\$0	\$5,824	\$0	\$8,022	\$0	\$6,154	\$0	\$0	\$0
Community Analysis	PD-D	\$0	\$20,000	\$20,000	\$0	\$0	\$5,824	\$0	\$8,022	\$0	\$6,154	\$0	\$0	\$0
Alternatives and Mitigation	PD-D	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$10,000	\$0	\$0	\$0
Reporting	PD-D	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$5,333	\$0	\$4,667	\$0
Subtotal		\$10,000	\$120,000	\$130,000	\$5,943	\$1,643	\$21,308	\$4,345	\$60,441	\$4,012	\$27,641	\$0	\$4,667	\$0
22D Cult Res Studies	PD-E													
Initial Assessment	PD-E	\$0	\$7,000	\$7,000	\$3,379	\$0	\$3,621	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Scope of Work	PD-E	\$0	\$5,000	\$5,000	\$0	\$0	\$0	\$0	\$5,000	\$0	\$0	\$0	\$0	\$0
Phase 1 Investigation	PD-E	\$0	\$67,500	\$67,500	\$0	\$0	\$0	\$0	\$11,932	\$0	\$55,568	\$0	\$0	\$0
Archaeological Initial Writeup	PD-E	\$0	\$30,000	\$30,000	\$0	\$0	\$0	\$0	\$15,484	\$0	\$14,516	\$0	\$0	\$0
Archaeological Final Writeup	PD-E	\$0	\$20,000	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$20,000	\$0
Subtotal		\$0	\$129,500	\$129,500	\$3,379	\$0	\$3,621	\$0	\$32,416	\$0	\$70,084	\$0	\$20,000	\$0
22E Env Studies	PD-E													
Impact Assessment														
Initiate Scoping	PD-E	\$0	\$6,000	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Scoping Workshops	PD-E	\$0	\$15,000	\$15,000	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Prepare/Modify Scope of Work	PD-E	\$23,191	\$15,000	\$38,191	\$9,353	\$14,460	\$5,647	\$8,731	\$0	\$0	\$0	\$0	\$0	\$0
Biological and Field Investigations	PD-E	\$0	\$30,000	\$30,000	\$0	\$0	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Review Impact Assessment Models	PD-E	\$0	\$6,000	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Select Impact Assessment Method	PD-E	\$0	\$5,000	\$5,000	\$3,710	\$0	\$1,290	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Initial Assessment	PD-E	\$0	\$9,000	\$9,000	\$9,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Input for Prelim. Assesst. of Alternatives	PD-E	\$0	\$6,000	\$6,000	\$3,569	\$0	\$2,431	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Biological Assessment & ESA Consultation	PD-E	\$0	\$45,000	\$45,000	\$0	\$0	\$0	\$0	\$25,714	\$0	\$19,286	\$0	\$0	\$0
Coastal Zone Management Evaluation	PD-E	\$0	\$3,000	\$3,000	\$0	\$0	\$0	\$0	\$1,043	\$0	\$1,957	\$0	\$0	\$0
Sed and Water Qual Data Coll & Evaluation	PD-E	\$0	\$20,000	\$20,000	\$0	\$0	\$0	\$0	\$5,517	\$0	\$14,483	\$0	\$0	\$0
Water Quality and Field Investigations	PD-E	\$0	\$40,000	\$40,000	\$0	\$0	\$0	\$0	\$11,034	\$0	\$28,966	\$0	\$0	\$0

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWM		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
404(b) Evaluation	PD-E	\$0	\$5,000	\$5,000	\$0	\$0	\$0	\$0	\$1,379	\$0	\$3,621	\$0	\$0	\$0
Aesthetic & Recreation Resource Anlys	PD-E	\$0	\$12,000	\$12,000	\$0	\$0	\$0	\$0	\$6,095	\$0	\$5,905	\$0	\$0	\$0
Prepare for In-Progress Review (IPR)	PD-E	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$6,000	\$0	\$0	\$0	\$0	\$0
Input for Final Alternatives	PD-E	\$0	\$5,000	\$5,000	\$0	\$0	\$0	\$0	\$1,379	\$0	\$3,621	\$0	\$0	\$0
Preliminary Draft NEPA Documentation	PD-E	\$0	\$20,000	\$20,000	\$0	\$0	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Prepare for Alts Formulation Briefing	PD-E	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0	\$0	\$0
Respond to Higher Authority Comments	PD-E	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0	\$0	\$0
Draft NEPA Document	PD-E	\$0	\$63,000	\$63,000	\$0	\$0	\$0	\$0	\$63,000	\$0	\$0	\$0	\$0	\$0
Comment Period for NEPA Documentation	PD-E	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Respond to Comments	PD-E	\$21,191	\$12,000	\$33,191	\$0	\$0	\$0	\$0	\$0	\$0	\$12,000	\$21,191	\$0	\$0
Final NEPA Document	PD-E	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0	\$0	\$0
ROD	PD-E	\$0	\$15,000	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$15,000	\$0	\$0	\$0
Exotic Species														
Coordination Tasks & Meetings for Exotics	CO-OA	\$0	\$30,000	\$30,000	\$4,471	\$0	\$11,825	\$0	\$11,825	\$0	\$1,879	\$0	\$0	\$0
Fire Management														
Coordination Tasks & Meetings for Fire Mgt	CO-OA	\$11,000	\$0	\$11,000	\$0	\$1,639	\$0	\$4,336	\$0	\$4,336	\$0	\$689	\$0	\$0
Subtotal		\$55,382	\$386,000	\$441,382	\$57,102	\$16,100	\$71,193	\$13,067	\$132,988	\$4,336	\$124,716	\$21,880	\$0	\$0
22F FWS Studies														
Initiate USFWS Coord & Scope of Work	PD-E	\$0	\$3,000	\$3,000	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Field Studies	PD-E	\$0	\$20,000	\$20,000	\$18,095	\$0	\$1,905	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Selection of Environmental Models	PD-E	\$0	\$9,000	\$9,000	\$9,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Evaluation of Alternative Plans	PD-E	\$0	\$15,000	\$15,000	\$1,159	\$0	\$7,981	\$0	\$5,860	\$0	\$0	\$0	\$0	\$0
Draft FWCAR	PD-E	\$0	\$131,000	\$131,000	\$0	\$0	\$0	\$0	\$66,212	\$0	\$64,788	\$0	\$0	\$0
Biological Opinion	PD-E	\$0	\$5,000	\$5,000	\$0	\$0	\$0	\$0	\$2,527	\$0	\$2,473	\$0	\$0	\$0
Final FWCAR	PD-E	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0	\$0	\$0
Subtotal		\$0	\$189,000	\$189,000	\$31,254	\$0	\$9,886	\$0	\$74,599	\$0	\$73,261	\$0	\$0	\$0
22G Economic Studies														
NED Costs of Alternatives														
Analyze Const/Implem & Land Acq Costs	PD-D	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$10,000	\$0	\$0	\$0	\$0	\$0
Analyze OMRR&R Costs	PD-D	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$10,000	\$0	\$0	\$0	\$0	\$0

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWMD		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
Analyze Monitoring Costs	PD-D	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$10,000	\$0	\$0	\$0	\$0	\$0
Other NED Costs and Benefits														
Flood Damage Studies	PD-D	\$0	\$30,000	\$30,000	\$4,358	\$0	\$25,642	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Water Supply Studies	PD-D	\$0	\$36,000	\$36,000	\$5,229	\$0	\$30,771	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Navigation Studies	PD-D	\$0	\$3,000	\$3,000	\$436	\$0	\$2,564	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Commercial Fishing Studies	PD-D	\$0	\$12,000	\$12,000	\$1,743	\$0	\$10,257	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Recreation Studies	PD-D	\$0	\$3,000	\$3,000	\$436	\$0	\$2,564	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Regional Impacts														
Identify Evaluation Methodology	PD-D	\$0	\$23,000	\$23,000	\$13,000	\$0	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Select Relevant Region or Regions	PD-D	\$0	\$3,000	\$3,000	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Evaluation of Regional Impacts	PD-D	\$0	\$35,000	\$35,000	\$0	\$0	\$35,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal		\$0	\$175,000	\$175,000	\$25,201	\$0	\$119,799	\$0	\$30,000	\$0	\$0	\$0	\$0	\$0
22H RE Analysis	RE-A													
Obtain Rights-of-Entry	RE-A	\$0	\$25,000	\$25,000	\$0	\$0	\$0	\$0	\$25,000	\$0	\$0	\$0	\$0	\$0
Ownership Information	RE-A	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$10,000	\$0	\$0	\$0	\$0	\$0
Preliminary Real Estate Cost Estimates	RE-A	\$0	\$100,000	\$100,000	\$0	\$0	\$0	\$0	\$100,000	\$0	\$0	\$0	\$0	\$0
Real Estate Acquisition Maps	RE-A	\$0	\$20,000	\$20,000	\$0	\$0	\$0	\$0	\$20,000	\$0	\$0	\$0	\$0	\$0
Physical Takings Analysis	RE-A	\$0	\$20,000	\$20,000	\$0	\$0	\$0	\$0	\$217	\$0	\$19,783	\$0	\$0	\$0
Relocations Analysis	RE-A	\$0	\$20,000	\$20,000	\$0	\$0	\$0	\$0	\$217	\$0	\$19,783	\$0	\$0	\$0
Gross Appraisal	RE-A	\$0	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$595	\$0	\$49,405	\$0	\$0	\$0
Real Estate Supplement	RE-A	\$0	\$5,000	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0	\$5,000	\$0	\$0	\$0
Draft PCA & Post-Feas PMP Input	RE-A	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$70	\$0	\$5,930	\$0
Subtotal			\$256,000	\$256,000	\$0	\$0	\$0	\$0	\$156,030	\$0	\$94,040	\$0	\$5,930	\$0
22J Hydrology & Hydraulics Studies	EN-H													
Data Analyses & Assessments														
Hydrology Review/Coordination	EN-H	\$212,905	\$3,000	\$215,905	\$329	\$23,318	\$869	\$61,675	\$869	\$61,675	\$871	\$61,844	\$62	\$4,393
Watershed Assessments	EN-H	\$0	\$30,000	\$30,000	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Caloosahatchee R Water Qual Monitor Pgm	EN-H	\$0	\$3,000	\$3,000	\$2,250	\$0	\$750	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Historical Data Analysis	EN-H	\$0	\$45,000	\$45,000	\$45,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWM		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
Rainfall-Frequency Analysis	EN-H	\$0	\$45,000	\$45,000	\$45,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Dev Water Budgets for Drainage Basins	EN-H	\$0	\$50,000	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Modeling Tool Roundup	EN-H	\$0	\$53,000	\$53,000	\$53,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Optimization Model	EN-H	\$0	\$60,000	\$60,000	\$0	\$0	\$0	\$0	\$47,692	\$0	\$12,308	\$0	\$0	\$0
Develop Hydrologic Models	EN-H	\$0	\$984,000	\$984,000	\$0	\$0	\$984,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Develop Natural Systems Model	EN-H	\$0	\$495,000	\$495,000	\$0	\$0	\$495,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Field Data Collection	EN-H	\$175,000	\$20,000	\$195,000	\$0	\$0	\$20,000	\$175,000	\$0	\$0	\$0	\$0	\$0	\$0
Component/Siting Analysis	EN-H	\$25,000	\$15,000	\$40,000	\$8,833	\$14,722	\$6,167	\$10,278	\$0	\$0	\$0	\$0	\$0	\$0
Hydrodynamic Model Development	EN-H	\$0	\$250,000	\$250,000	\$43,478	\$0	\$206,522	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Model Application-Preliminary Assessment	EN-H	\$0	\$334,000	\$334,000	\$210,738	\$0	\$123,262	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Alternative Analyses														
Application of Regional Hydrologic Model	EN-H	\$355,837	\$50,000	\$405,837	\$0	\$0	\$17,976	\$127,932	\$32,024	\$227,905	\$0	\$0	\$0	\$0
Application of Natural Systems Model	EN-H	\$41,870	\$0	\$41,870	\$0	\$0	\$0	\$15,053	\$0	\$26,817	\$0	\$0	\$0	\$0
Hydrodynamic Model Application	EN-H	\$112,290	\$20,000	\$132,290	\$0	\$0	\$7,190	\$40,371	\$12,810	\$71,919	\$0	\$0	\$0	\$0
Subregional Model Application	EN-H	\$355,836	\$20,000	\$375,836	\$0	\$0	\$7,190	\$127,932	\$12,810	\$227,904	\$0	\$0	\$0	\$0
Operational Studies	EN-H	\$30,000	\$180,000	\$210,000	\$0	\$0	\$64,714	\$10,786	\$115,286	\$19,214	\$0	\$0	\$0	\$0
Hydraulic Design Final Alternatives	EN-H	\$30,000	\$120,000	\$150,000	\$0	\$0	\$43,143	\$10,786	\$76,857	\$19,214	\$0	\$0	\$0	\$0
Flowway Restoration	EN-H	\$30,000	\$180,000	\$210,000	\$0	\$0	\$64,714	\$10,786	\$115,286	\$19,214	\$0	\$0	\$0	\$0
Clean and Snag Operations	EN-H	\$0	\$45,000	\$45,000	\$0	\$0	\$16,179	\$0	\$28,821	\$0	\$0	\$0	\$0	\$0
Sea Level Rise	EN-H	\$30,000	\$6,000	\$36,000	\$0	\$0	\$2,157	\$10,786	\$3,843	\$19,214	\$0	\$0	\$0	\$0
Best Management Practices	EN-H	\$0	\$20,000	\$20,000	\$0	\$0	\$7,190	\$0	\$12,810	\$0	\$0	\$0	\$0	\$0
Planning Support Activities														
H&H Participation in In-Progress Review	EN-H	\$0	\$3,000	\$3,000	\$0	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0
H&H Writeup for Draft Report	EN-H	\$0	\$15,000	\$15,000	\$0	\$0	\$0	\$0	\$0	\$15,000	\$0	\$0	\$0	\$0
H&H Participation in Alt Formulation Briefing	EN-H	\$0	\$3,000	\$3,000	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0
Finalize Hydrology & Hydraulics Writeup	EN-H	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$453	\$0	\$5,547	\$0	\$0
Support for Development of PMP	EN-H	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$70	\$0	\$5,930	\$0	\$0
Subtotal		\$1,398,738	\$3,061,000	\$4,459,738	\$488,628	\$38,040	\$2,067,024	\$601,383	\$462,107	\$693,077	\$31,702	\$61,844	\$11,539	\$4,393
22K Geotech Studies														
Detailed Hydrogeologic Literature Search	EN-G	\$0	\$89,000	\$89,000	\$80,293	\$0	\$8,707	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Geotech Design/Input for Initial Screening	EN-G	\$0	\$20,000	\$20,000	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Geotech Des/Analys for Final Array of Alts	EN-G	\$0	\$50,000	\$50,000	\$0	\$0	\$0	\$18,251	\$0	\$31,749	\$0	\$0	\$0	\$0
Field Investigations	EN-G	\$0	\$400,500	\$400,500	\$400,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Laboratory Analysis	EN-G	\$0	\$30,000	\$30,000	\$5,806	\$0	\$24,194	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Groundwater Modeling Support	EN-G	\$0	\$80,000	\$80,000	\$19,928	\$0	\$52,708	\$0	\$7,365	\$0	\$0	\$0	\$0	\$0
Geotech Partic in In-Progress Reviews	EN-G	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$10,000	\$0	\$0	\$0	\$0	\$0
Geotech Write-Up for Prelim Draft Report	EN-G	\$0	\$30,000	\$30,000	\$0	\$0	\$0	\$0	\$0	\$30,000	\$0	\$0	\$0	\$0

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWMD		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
Finalize Geotechnical Write-up	EN-G	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$755	\$0	\$9,245	\$0
Provide Input to PMP	EN-G	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$117	\$0	\$9,883	\$0
Subtotal		\$0	\$729,500	\$729,500	\$526,528	\$0	\$85,608	\$0	\$35,616	\$0	\$62,621	\$0	\$19,128	\$0
22L HTRW Assessment														
Archive Research & Site Reconnaissance	PD-EE	\$0	\$30,000	\$30,000	\$0	\$0	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Site Characterization	EN-GH	\$0	\$50,000	\$50,000	\$0	\$0	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Risk Analysis	EN-GH	\$0	\$45,000	\$45,000	\$0	\$0	\$41,576	\$0	\$3,424	\$0	\$0	\$0	\$0	\$0
Alternatives Analysis	EN-GH	\$0	\$45,000	\$45,000	\$0	\$0	\$5,380	\$0	\$39,620	\$0	\$0	\$0	\$0	\$0
Cost Estimate	EN-GH	\$0	\$33,500	\$33,500	\$0	\$0	\$0	\$0	\$33,500	\$0	\$0	\$0	\$0	\$0
Coordination with Sponsor	PD-R	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
HTRW Appendix	EN-GH	\$0	\$20,000	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0	\$20,000	\$0	\$0	\$0
Subtotal		\$0	\$223,500	\$223,500	\$0	\$0	\$126,957	\$0	\$76,543	\$0	\$20,000	\$0	\$0	\$0
22M Mon/Post Assessment														
Plan Implementation														
Estab Basis for Monitoring/Research Plan	PD-E	\$20,000	\$6,000	\$26,000	\$0	\$0	\$0	\$0	\$6,000	\$20,000	\$0	\$0	\$0	\$0
Development of Monitoring Strategy	PD-E	\$60,000	\$6,000	\$66,000	\$0	\$0	\$0	\$0	\$6,000	\$60,000	\$0	\$0	\$0	\$0
Monitoring Plan														
Develop Monitoring Plan	PD-E	\$70,012	\$20,000	\$90,012	\$0	\$0	\$0	\$0	\$435	\$1,522	\$19,565	\$68,490	\$0	\$0
Existing Hydrologic Data Evaluation	PD-E	\$29,000	\$15,000	\$44,000	\$0	\$0	\$0	\$0	\$0	\$0	\$15,000	\$29,000	\$0	\$0
Ecologic Data Analysis & Evaluation	PD-E	\$29,000	\$20,000	\$49,000	\$0	\$0	\$0	\$0	\$0	\$0	\$20,000	\$29,000	\$0	\$0
Dev Matrix of Actions from Monitor Findings	PD-E	\$12,000	\$15,000	\$27,000	\$0	\$0	\$0	\$0	\$0	\$0	\$15,000	\$12,000	\$0	\$0
Subtotal		\$220,012	\$82,000	\$302,012	\$0	\$0	\$0	\$0	\$12,435	\$81,522	\$69,565	\$138,490	\$0	\$0
22N Surveys & Mapping														
	EN-DT													

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWM		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
GIS Data Inventory Collection & Land Use	PD-R	\$10,000	\$85,000	\$95,000	\$85,000	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Section Corner Survey	EN-D	\$0	\$165,500	\$165,500	\$125,489	\$0	\$40,011	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Topographic Surveys	EN-D	\$0	\$925,500	\$925,500	\$304,093	\$0	\$621,407	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Seagrass Mapping	PD-E	\$0	\$206,500	\$206,500	\$79,601	\$0	\$126,899	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Flow Profiles	PD-E	\$6,000	\$162,500	\$168,500	\$62,640	\$2,313	\$99,860	\$3,687	\$0	\$0	\$0	\$0	\$0	\$0
Hardware & Software Procurement	PD-R	\$0	\$10,000	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Quality Assurance	PD-R	\$30,798	\$25,000	\$55,798	\$9,107	\$11,219	\$15,893	\$19,579	\$0	\$0	\$0	\$0	\$0	\$0
Data Base Conversion & Construction	PD-R	\$0	\$7,000	\$7,000	\$7,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
GIS Analysis and Map Production	PD-R	\$37,000	\$5,000	\$42,000	\$429	\$3,171	\$1,448	\$10,718	\$1,448	\$10,718	\$1,452	\$10,748	\$222	\$1,644
Subtotal		\$83,798	\$1,592,000	\$1,675,798	\$683,358	\$26,704	\$905,519	\$33,984	\$1,448	\$10,718	\$1,452	\$10,748	\$222	\$1,644
22P Eng Anlys & Design/Cost Est	EN-C													
Eng Design for Prelim Assess of Alterns	EN-D	\$0	\$37,000	\$37,000	\$15,815	\$0	\$21,185	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Screening Level Cost Estimates	EN-C	\$0	\$27,000	\$27,000	\$0	\$0	\$27,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Engineering Design Final Alternatives	EN-D	\$0	\$155,000	\$155,000	\$0	\$0	\$0	\$0	\$155,000	\$0	\$0	\$0	\$0	\$0
Preliminary Cost Estimates for Final Alterns	EN-C	\$0	\$32,000	\$32,000	\$0	\$0	\$0	\$0	\$1,067	\$0	\$30,933	\$0	\$0	\$0
Final Design for Recommended Plan	EN-D	\$0	\$82,728	\$82,728	\$0	\$0	\$0	\$0	\$1,838	\$0	\$80,890	\$0	\$0	\$0
Cvi Des Write-Up for Prelim Draft Feas Rep	EN-D	\$0	\$32,000	\$32,000	\$0	\$0	\$0	\$0	\$0	\$0	\$32,000	\$0	\$0	\$0
Cost Estimating Write-Up	EN-D	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$10,000	\$0	\$0	\$0
M-CACES Cost Estimate	EN-C	\$0	\$30,000	\$30,000	\$0	\$0	\$0	\$0	\$500	\$0	\$29,500	\$0	\$0	\$0
Des & Cost Est Partic in Alt Formln Briefing	EN-D	\$0	\$14,000	\$14,000	\$0	\$0	\$0	\$0	\$0	\$0	\$14,000	\$0	\$0	\$0
Finalize M-CACES Cost Estimate	EN-C	\$0	\$15,000	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$15,000	\$0	\$0	\$0
Comment Responses & Finalize Write-Up	EN-D	\$0	\$14,000	\$14,000	\$0	\$0	\$0	\$0	\$0	\$0	\$14,000	\$0	\$0	\$0
Subtotal		\$0	\$448,728	\$448,728	\$15,815	\$0	\$48,185	\$0	\$158,405	\$0	\$226,323	\$0	\$0	\$0
22Q Planning/Tech Mgt	PD-R													
Update Quality Control Plan	PD-R	\$0	\$7,000	\$7,000	\$7,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Initiation of Feasibility Study	PD-R	\$0	\$12,000	\$12,000	\$12,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
In-Progress Review (IPR)	PD-R	\$0	\$12,000	\$12,000	\$0	\$0	\$0	\$0	\$12,000	\$0	\$0	\$0	\$0	\$0
Independent Technical Review	PD-R	\$0	\$56,000	\$56,000	\$4,240	\$0	\$29,200	\$0	\$22,560	\$0	\$0	\$0	\$0	\$0

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWMD		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
Feasibility Scoping Meeting (FSM)	PD-R	\$0	\$6,000	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Technical Review	PD-R	\$0	\$53,000	\$53,000	\$0	\$0	\$0	\$0	\$0	\$0	\$53,000	\$0	\$0	\$0
Submit Preliminary Draft Feasibility Report	PD-R	\$0	\$3,000	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0
Alternative Formulation Briefing (AFB)	PD-R	\$0	\$25,000	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$25,000	\$0	\$0	\$0
Submit Draft Feasibility Report	PD-R	\$0	\$3,000	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$200	\$0	\$2,800	\$0
Submit Final Feasibility Report	PD-R	\$0	\$3,000	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0
Study Management	PD-R	\$432,272	\$160,000	\$592,272	\$19,851	\$53,632	\$36,228	\$97,878	\$36,228	\$97,878	\$36,328	\$98,146	\$31,365	\$84,738
Subtotal		\$432,272	\$340,000	\$772,272	\$49,091	\$53,632	\$65,428	\$97,878	\$70,788	\$97,878	\$117,528	\$98,146	\$37,165	\$84,738
22R Plan Formulation & Evaluation	PD-R													
Plan Formulation Alternatives														
Problem Identification	PD-R	\$25,500	\$20,000	\$45,500	\$20,000	\$25,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Initial Alternative Formulation	PD-R	\$67,000	\$40,000	\$107,000	\$40,000	\$67,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Initial Screening	PD-R	\$78,800	\$40,000	\$118,800	\$14,422	\$28,411	\$25,578	\$50,389	\$0	\$0	\$0	\$0	\$0	\$0
Select Final Array of Alternatives	PD-R	\$78,800	\$12,000	\$90,800	\$0	\$0	\$0	\$0	\$12,000	\$78,800	\$0	\$0	\$0	\$0
Final Screening	PD-R	\$19,300	\$20,000	\$39,300	\$0	\$0	\$786	\$758	\$19,214	\$18,542	\$0	\$0	\$0	\$0
Risk & Uncertainty Analysis	PD-R	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$4,794	\$0	\$5,206	\$0	\$0	\$0
Selection of the Recommended Plan	PD-R	\$13,000	\$15,000	\$28,000	\$0	\$0	\$0	\$0	\$7,191	\$6,232	\$7,809	\$6,768	\$0	\$0
Cost Allocation/Apportionment	PD-R	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Evaluation Methodology and Tools														
Workshop to I.D. Overall Restoration Goals	PD-R	\$34,000	\$10,000	\$44,000	\$10,000	\$34,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Report Preparation														
Enviro Eval Draft Appendix Write-Up	PD-R	\$11,800	\$0	\$11,800	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,800	\$0	\$0
Finalize Write-Up	PD-R	\$11,800	\$0	\$11,800	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,114	\$0	\$686
Subtotal		\$340,000	\$167,000	\$507,000	\$84,422	\$154,911	\$26,364	\$51,147	\$43,199	\$103,574	\$13,015	\$29,682	\$0	\$686
22S Report Preparation	PD-R													
Preliminary Draft Feasibility Report	PD-R	\$0	\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$50,000	\$0	\$0	\$0
Draft Feasibility Report	PD-R	\$0	\$30,000	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0	\$30,000	\$0	\$0	\$0
Final Feasibility Report	PD-R	\$0	\$30,000	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0	\$1,091	\$0	\$28,909	\$0
Subtotal		\$0	\$110,000	\$110,000	\$0	\$0	\$0	\$0	\$0	\$0	\$81,091	\$0	\$28,909	\$0

Southwest Florida Feasibility Study				Estimated Cost by Expending Agency										
	COE	SFWM		Activity	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Task	Office	In-Kind	COE	Total	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind	COE	In-Kind
22T Feas Pgms & Proj Management														
Prepare Draft Post-Feas Proj Mgmt Plan	DP-R	\$0	\$40,000	\$40,000	\$0	\$0	\$0	\$0	\$0	\$0	\$14,266	\$0	\$25,734	\$0
Partic in Alternative Formulation Briefings	DP-R	\$0	\$6,000	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0	\$0	\$0
Revise Draft PMP	DP-R	\$0	\$10,000	\$10,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10,000	\$0
Project Management	DP-R	\$181,663	\$220,000	\$401,663	\$27,295	\$22,539	\$49,814	\$41,133	\$49,814	\$41,133	\$49,950	\$41,246	\$43,127	\$35,611
Subtotal		\$181,663	\$276,000	\$457,663	\$27,295	\$22,539	\$49,814	\$41,133	\$49,814	\$41,133	\$70,216	\$41,246	\$78,861	\$35,611
Washington Level Review														
Division Engineer's Public Notice	SAD	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Report Submittal	PD-R	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fact Sheet & Slides Submittal	PD-R	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
HQUSACE Review	HQ	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30-Day State & Federal Agency Review	HQ	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Washington Level Final Assessment	HQ	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Field Visit and Meeting	PD-R	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Documentation of Report Review	SAJ	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Washington Level Decision Making Process	HQ	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Chief of Engineers Report	HQ	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Washington Level Review Contingency	PD-R	\$25,000	\$25,000	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$25,000	\$25,000
Subtotal		\$25,000	\$25,000	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$25,000	\$25,000

Southwest Florida Feasibility Study											
Study Cost Estimate by Expending Agency											
\$1000's											
						Fiscal Years					
	Total	FY01	FY01	FY02	FY02	FY03	FY03	FY04	FY04	FY05	FY05
Description	Cost	COE	SFWMD	COE	SFWMD	COE	SFWMD	COE	SFWMD	COE	SFWMD
22A-Public Involvement	\$253	\$82	\$14	\$37	\$7	\$38	\$7	\$38	\$7	\$18	\$5
22B-Institutional Studies	\$14	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6	\$7	\$1
22C-Social Studies	\$130	\$6	\$2	\$21	\$4	\$60	\$4	\$28	\$0	\$5	\$0
22D-Cult Res Studies	\$130	\$3	\$0	\$4	\$0	\$32	\$0	\$70	\$0	\$20	\$0
22E-Env Studies	\$441	\$57	\$16	\$71	\$13	\$133	\$4	\$125	\$22	\$0	\$0
22F-FWS Studies	\$189	\$31	\$0	\$10	\$0	\$75	\$0	\$73	\$0	\$0	\$0
22G-Economic Studies	\$175	\$25	\$0	\$120	\$0	\$30	\$0	\$0	\$0	\$0	\$0
22H-RE Analysis	\$256	\$0	\$0	\$0	\$0	\$156	\$0	\$94	\$0	\$6	\$0
22J-H&H Studies	\$4,460	\$489	\$38	\$2,067	\$601	\$462	\$693	\$32	\$62	\$12	\$4
22K-Geotech Studies	\$730	\$527	\$0	\$86	\$0	\$36	\$0	\$63	\$0	\$19	\$0
22L-HTRW Assessment	\$224	\$0	\$0	\$127	\$0	\$77	\$0	\$20	\$0	\$0	\$0
22M-Mon/Post Assessment	\$302	\$0	\$0	\$0	\$0	\$12	\$82	\$70	\$138	\$0	\$0
22N-Surveys & Mapping	\$1,676	\$683	\$27	\$906	\$34	\$1	\$11	\$1	\$11	\$0	\$2
22P-Design/Cost Estimates	\$449	\$16	\$0	\$48	\$0	\$158	\$0	\$226	\$0	\$0	\$0
22Q-Planning/Tech Mgt	\$772	\$49	\$54	\$65	\$98	\$71	\$98	\$118	\$98	\$37	\$85
22R-Plan Form/Eval	\$507	\$84	\$155	\$26	\$51	\$43	\$104	\$13	\$30	\$0	\$1
22S-Report Preparation	\$110	\$0	\$0	\$0	\$0	\$0	\$0	\$81	\$0	\$29	\$0
22T-Project Management	\$458	\$27	\$23	\$50	\$41	\$50	\$41	\$70	\$41	\$79	\$36
22Y-Washington Level Review	\$50	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$25	\$25
Total	\$11,324	\$2,080	\$327	\$3,638	\$850	\$1,434	\$1,043	\$1,121	\$415	\$256	\$159
OMB Inflation Factors		1	1	1.045	1.045	1.086	1.086	1.125	1.125	1.166	1.166
Fully-Funded Estimate	\$12,000	\$2,080	\$327	\$3,802	\$888	\$1,558	\$1,133	\$1,261	\$467	\$299	\$185
Federal Cash	\$6,000	\$1,204		\$2,345		\$1,345		\$864		\$242	
Sponsor's Cash Contribution	\$3,000	\$877		\$1,457		\$212		\$397		\$57	
Sponsor's In-Kind Services	\$3,000		\$327		\$888		\$1,133		\$467		\$185

APPENDIX D
STUDY SCHEDULE

Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
1	SOUTHWEST FL FEASIBILITY STUDY	1152 days	Thu 3/15/01	Fri 8/12/05											
2	22A Public Involvement	998 days	Mon 4/16/01	Wed 2/9/05											
3	Public Involvement Plan	22 days	Wed 5/16/01	Thu 6/14/01											
4	Public Involvement Plan	22 days	Wed 5/16/01	Thu 6/14/01	193FS+22 days										
5	Public Workshops	889 days	Fri 6/15/01	Wed 11/10/04											
6	Public Workshop #1	33 days	Fri 6/15/01	Tue 7/31/01	4										
7	Public Workshop #2	33 days	Thu 3/21/02	Mon 5/6/02	209FS+55 days										
8	Public Workshop #3	33 days	Fri 2/7/03	Tue 3/25/03	211SS+100 days										
9	Public Workshop #4	33 days	Mon 9/29/03	Wed 11/12/03	211FS+66 days										
10	Public Workshop #5	33 days	Mon 9/27/04	Wed 11/10/04	222										
11	Community Meetings	976 days	Wed 5/16/01	Wed 2/9/05											
12	Community Meetings	976 days	Wed 5/16/01	Wed 2/9/05	193FS+22 days										
13	Publications	976 days	Wed 5/16/01	Wed 2/9/05											
14	Written Publications	976 days	Wed 5/16/01	Wed 2/9/05	193FS+22 days										
15	Electronic Publications	976 days	Wed 5/16/01	Wed 2/9/05	193FS+22 days										
16	Media	998 days	Mon 4/16/01	Wed 2/9/05											
17	News Releases	976 days	Mon 4/16/01	Mon 1/10/05	193										
18	Media Opportunities	976 days	Wed 5/16/01	Wed 2/9/05	193FS+22 days										
19	Outreach	976 days	Wed 5/16/01	Wed 2/9/05											
20	SFWMMD Adv Comm Meetings	976 days	Wed 5/16/01	Wed 2/9/05	193FS+22 days										
21	Meetings with Other Groups	976 days	Wed 5/16/01	Wed 2/9/05	193FS+22 days										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
22	Partnering	930 days	Mon 4/16/01	Fri 11/5/04											
23	Partnering Workshop	30 days	Mon 4/16/01	Fri 5/25/01	193										
24	Extended Partnering Meetings	900 days	Mon 5/28/01	Fri 11/5/04	23										
25	22B Institutional Studies	43 days	Wed 9/8/04	Fri 11/5/04											
26	Preliminary Financing Plan	20 days	Wed 9/8/04	Tue 10/5/04	225SS+20 days										
27	Assessment of Capability	23 days	Wed 10/6/04	Fri 11/5/04	26										
28	22C Social Studies	897 days	Wed 5/16/01	Thu 10/21/04											
29	Social Impact Analysis	200 days	Fri 9/20/02	Thu 6/26/03											
30	Obtain Input from Study Elements	88 days	Fri 9/20/02	Tue 1/21/03	211SS										
31	Identify Potential Impacts	112 days	Wed 1/22/03	Thu 6/26/03	30										
32	Environmental Justice	897 days	Wed 5/16/01	Thu 10/21/04											
33	Initial Screening & Scoping	170 days	Wed 5/16/01	Tue 1/8/02	208SS										
34	Public Participation	600 days	Wed 5/16/01	Tue 9/2/03	208SS										
35	Environmental Analysis	650 days	Wed 1/9/02	Tue 7/6/04	33										
36	Community Analysis	650 days	Wed 1/9/02	Tue 7/6/04	33										
37	Alternatives & Mitigation	44 days	Wed 7/7/04	Mon 9/6/04	35,36										
38	Reporting	33 days	Tue 9/7/04	Thu 10/21/04	37										
39	22D Cultural Resources Studies	1027 days	Mon 4/16/01	Tue 3/22/05											
40	Initial Assessment	250 days	Mon 4/16/01	Fri 3/29/02	193										
41	Scope of Work	42 days	Mon 6/30/03	Tue 8/26/03	210										
42	Phase 1 Investigation	142 days	Wed 8/27/03	Thu 3/11/04	41										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			






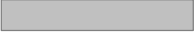



Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
43	Archaeological Initial Writeup	132 days	Fri 6/27/03	Mon 12/29/03	211										
44	Archaeological Final Writeup	39 days	Thu 1/27/05	Tue 3/22/05	222FS+88 days										
45	22E Environmental Studies	794 days	Mon 4/16/01	Thu 4/29/04											
46	Impact Assessment	794 days	Mon 4/16/01	Thu 4/29/04											
47	Initiate Scoping	20 days	Tue 5/8/01	Mon 6/4/01	193FS+16 days										
48	Scoping Workshops	60 days	Tue 6/5/01	Mon 8/27/01	47										
49	Prepare/Modify Scope of Work	61 days	Thu 8/9/01	Thu 11/1/01	208										
50	Biological & Field Investigation	130 days	Fri 11/2/01	Thu 5/2/02	49										
51	Review Impact Assess Models	88 days	Mon 4/16/01	Wed 8/15/01	193										
52	Select Impact Assess Method	44 days	Thu 8/16/01	Tue 10/16/01	51										
53	Initial Assessment	88 days	Tue 4/17/01	Thu 8/16/01	207SS										
54	Input for Prelim Assess of Alts	166 days	Wed 5/16/01	Wed 1/2/02	208SS										
55	Biological Assessment	120 days	Fri 6/27/03	Thu 12/11/03	211										
56	Coastal Zone Management Ev	132 days	Tue 7/29/03	Wed 1/28/04	211FS+22 days										
57	Sed & Water Qual Data Coll &	166 days	Tue 7/29/03	Tue 3/16/04	211FS+22 days										
58	Water Qual & Field Investigati	166 days	Tue 7/29/03	Tue 3/16/04	211FS+22 days										
59	404(b)(1) Evaluation	166 days	Tue 7/29/03	Tue 3/16/04	211FS+22 days										
60	Aesthetic & Recr. Resource Ar	90 days	Tue 7/29/03	Mon 12/1/03	211FS+22 days										
61	Prepare for In-Progress Review	44 days	Tue 5/13/03	Mon 7/14/03	196SF										
62	Input for Final Alternatives	166 days	Tue 7/29/03	Tue 3/16/04	211FS+22 days										
63	Prelim Draft NEPA Document	88 days	Thu 1/3/02	Mon 5/6/02	209										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			






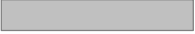



Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
64	Prepare for Alts Formulation B	22 days	Thu 6/12/03	Mon 7/14/03	201SF										
65	Respond to Higher Authority C	22 days	Wed 8/13/03	Thu 9/11/03	201										
66	Draft NEPA Document	66 days	Fri 6/27/03	Fri 9/26/03	211										
67	Comment Period for NEPA Do	44 days	Mon 9/29/03	Thu 11/27/03	66										
68	Respond to Comments	22 days	Fri 11/28/03	Mon 12/29/03	67										
69	Final NEPA Document	44 days	Tue 12/30/03	Fri 2/27/04	68										
70	ROD	22 days	Wed 3/31/04	Thu 4/29/04	69FS+22 days										
71	Exotic Species	662 days	Wed 5/16/01	Thu 11/27/03											
72	Coord Tasks & Meetings for E:	662 days	Wed 5/16/01	Thu 11/27/03	193FS+22 days										
73	Fire Management	662 days	Wed 5/16/01	Thu 11/27/03											
74	Coord Tasks & Meetings for Fi	662 days	Wed 5/16/01	Thu 11/27/03	193FS+22 days										
75	22F Fish and Wildlife Studies	773 days	Wed 5/16/01	Fri 4/30/04											
76	Initiate USFWS Coord & SOW	44 days	Wed 5/16/01	Mon 7/16/01	193FS+22 days										
77	Field Studies	60 days	Tue 7/17/01	Mon 10/8/01	76										
78	Selection of Environmental Models	66 days	Wed 5/16/01	Wed 8/15/01	76SS										
79	Evaluation of Alternative Plans	490 days	Thu 8/9/01	Wed 6/25/03	208										
80	Draft FWCAR	132 days	Mon 6/30/03	Tue 12/30/03	210										
81	Biological Opinion	132 days	Mon 6/30/03	Tue 12/30/03	210										
82	Final FWCAR	88 days	Wed 12/31/03	Fri 4/30/04	80										
83	22G Economic Studies	534 days	Fri 8/10/01	Wed 8/27/03											
84	NED Costs of Alternatives	44 days	Fri 6/27/03	Wed 8/27/03											

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
85	Analyze Const/Implem & Land	44 days	Fri 6/27/03	Wed 8/27/03	211										
86	Analyze OMRR&R Costs	44 days	Fri 6/27/03	Wed 8/27/03	211										
87	Analyze Monitoring Costs	44 days	Fri 6/27/03	Wed 8/27/03	211										
88	Other NED Costs & Benefits	256 days	Fri 8/10/01	Fri 8/2/02											
89	Flood Damage Studies	256 days	Fri 8/10/01	Fri 8/2/02	208FS+1 day										
90	Water Supply Studies	256 days	Fri 8/10/01	Fri 8/2/02	208FS+1 day										
91	Navigation Studies	256 days	Fri 8/10/01	Fri 8/2/02	208FS+1 day										
92	Commercial Fishing	256 days	Fri 8/10/01	Fri 8/2/02	208FS+1 day										
93	Recreation Studies	256 days	Fri 8/10/01	Fri 8/2/02	208FS+1 day										
94	Regional Impacts	224 days	Fri 8/10/01	Wed 6/19/02											
95	Identify Evaluation Methodolog	66 days	Fri 8/10/01	Fri 11/9/01	208FS+1 day										
96	Select Relevant Region or Reg	64 days	Thu 11/15/01	Tue 2/12/02	95FS+3 days										
97	Evaluation of Regional Impact:	88 days	Mon 2/18/02	Wed 6/19/02	96FS+3 days,208										
98	22H Real Estate Analysis	450 days	Mon 6/30/03	Fri 3/18/05											
99	Obtain Rights-of-Entry	64 days	Mon 6/30/03	Thu 9/25/03	210										
100	Ownership Information	30 days	Mon 6/30/03	Fri 8/8/03	210										
101	Preliminary Real Estate Cost Estim	32 days	Mon 6/30/03	Tue 8/12/03	210										
102	Real Estate Acquisition Maps	66 days	Mon 6/30/03	Mon 9/29/03	210										
103	Physical Takings Analysis	66 days	Tue 9/30/03	Tue 12/30/03	100FS+5 days,102										
104	Relocations Analysis	66 days	Tue 9/30/03	Tue 12/30/03	100FS+5 days,102										
105	Gross Appraisal	60 days	Tue 9/30/03	Mon 12/22/03	100FS+5 days,102										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			






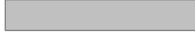



Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
106	Real Estate Supplement	39 days	Mon 1/12/04	Thu 3/4/04	221SS										
107	Draft PCA & Post-Feas PMP Input	123 days	Wed 9/29/04	Fri 3/18/05	222FS+2 days										
108	22J Hydrology and Hydraulics Studie:	1003 days	Wed 5/16/01	Fri 3/18/05		▶									
109	Data Analyses & Assessments	900 days	Wed 5/16/01	Tue 10/26/04		▶									
110	Hydrology Review /Coordinatic	900 days	Wed 5/16/01	Tue 10/26/04	193FS+22 days	▶									
111	Watershed Assessments	8 days	Wed 5/16/01	Fri 5/25/01	110SS	▶									
112	Caloosahatchee R Water Qual	132 days	Wed 5/16/01	Thu 11/15/01	110SS	▶									
113	Historical Data Analysis	86 days	Wed 5/16/01	Wed 9/12/01	110SS	▶									
114	Rainfall-Frequency Analysis	66 days	Wed 5/16/01	Wed 8/15/01	110SS	▶									
115	Develop Water Budgets for Dr:	66 days	Mon 5/28/01	Mon 8/27/01	111	▶									
116	Modeling Tool Roundup	66 days	Wed 5/16/01	Wed 8/15/01	193FS+22 days	▶									
117	Optimization Model	85 days	Mon 6/30/03	Fri 10/24/03	210	▶									
118	Develop Hydrologic Models	132 days	Wed 10/31/01	Thu 5/2/02	172SS+120 days	▶									
119	Develop Natural Systems Mod	132 days	Wed 10/31/01	Thu 5/2/02	172SS+120 days	▶									
120	Field Data Collection	132 days	Wed 10/31/01	Thu 5/2/02	172SS+120 days	▶									
121	Component/Siting Analysis	64 days	Thu 8/9/01	Tue 11/6/01	208	▶									
122	Hydrodynamic Model Developi	132 days	Thu 8/30/01	Fri 3/1/02	110SS+76 days	▶									
123	Model Application-Prelim Asse	60 days	Thu 8/9/01	Wed 10/31/01	208	▶									
124	Alternative Analyses	300 days	Fri 5/3/02	Thu 6/26/03		▶									
125	Application of Regional Hydroli	300 days	Fri 5/3/02	Thu 6/26/03	208,118	▶									
126	Application of Natural Systems	300 days	Fri 5/3/02	Thu 6/26/03	208,118	▶									

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
127	Hydrodynamic Model Applicati	300 days	Fri 5/3/02	Thu 6/26/03	208,118										
128	Subregional Model Application	300 days	Fri 5/3/02	Thu 6/26/03	208,118										
129	Operational Studies	300 days	Fri 5/3/02	Thu 6/26/03	125SS										
130	Hydraulic Design Final Alterna	300 days	Fri 5/3/02	Thu 6/26/03	125SS										
131	Flowway Restoration	300 days	Fri 5/3/02	Thu 6/26/03	125SS										
132	Clean & Snag Operations	300 days	Fri 5/3/02	Thu 6/26/03	125SS										
133	Sea Level Rise	300 days	Fri 5/3/02	Thu 6/26/03	125SS										
134	Best Management Practices	300 days	Fri 5/3/02	Thu 6/26/03	125SS										
135	Planning Support Activities	440 days	Mon 7/14/03	Fri 3/18/05											
136	H&H Particip in In-Progress Re	30 days	Mon 7/14/03	Fri 8/22/03	196SS										
137	H&H Writeup for Draft Report	66 days	Mon 1/12/04	Mon 4/12/04	221SS										
138	H&H Particip in Alt Formulation	22 days	Mon 7/14/03	Tue 8/12/03	201SS										
139	Finalize H&H Writeup	39 days	Mon 9/27/04	Thu 11/18/04	222										
140	Support for Development of PI	123 days	Wed 9/29/04	Fri 3/18/05	222FS+2 days										
141	22K Geotechnical Studies	1023 days	Wed 4/18/01	Fri 3/18/05											
142	Detailed Hydrogeologic Literature S	132 days	Wed 4/18/01	Thu 10/18/01	193FS+2 days										
143	Geotech Design/Input for Initial Scr	45 days	Fri 6/29/01	Thu 8/30/01	207										
144	Geotech Des/Analyses for Final Arr	187 days	Fri 6/27/03	Mon 3/15/04	211										
145	Field Investigations	110 days	Wed 4/18/01	Tue 9/18/01	142SS										
146	Laboratory Analysis	44 days	Wed 9/19/01	Mon 11/19/01	145										
147	Groundwater Modeling Support	396 days	Wed 5/16/01	Wed 11/20/02	116SS										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
148	Geotech Particip in In-Progress Rev	30 days	Mon 7/14/03	Fri 8/22/03	196SS										
149	Geotechnical Writeup for Prellim Dr	66 days	Mon 1/12/04	Mon 4/12/04	221SS										
150	Finalize Geotechnical Writeup	39 days	Mon 9/27/04	Thu 11/18/04	222										
151	Provide Input to PMP	123 days	Wed 9/29/04	Fri 3/18/05	222FS+2 days										
152	22L HTRW Assessment	850 days	Thu 1/3/02	Wed 4/6/05											
153	Archive Research & Site Reconnaiss	66 days	Thu 1/3/02	Thu 4/4/02	209										
154	Site Characterization	66 days	Fri 4/5/02	Fri 7/5/02	153										
155	Risk Analysis	66 days	Mon 7/8/02	Mon 10/7/02	154										
156	Alternatives Analysis	66 days	Fri 9/20/02	Fri 12/20/02	211SS										
157	Cost Estimate	66 days	Fri 6/27/03	Fri 9/26/03	211										
158	Coordination with Sponsor	850 days	Thu 1/3/02	Wed 4/6/05	153SS										
159	HTRW Appendix	66 days	Mon 1/12/04	Mon 4/12/04	221SS										
160	22M Monitoring/Post Assessment	220 days	Fri 6/27/03	Thu 4/29/04											
161	Plan Implementation	66 days	Fri 6/27/03	Fri 9/26/03											
162	Estab Basis for Monitoring/Res	33 days	Fri 6/27/03	Tue 8/12/03	211										
163	Development of Monitoring Str	33 days	Wed 8/13/03	Fri 9/26/03	162										
164	Monitoring Plan	154 days	Mon 9/29/03	Thu 4/29/04											
165	Develop Monitoring Plan	66 days	Mon 9/29/03	Mon 12/29/03	163										
166	Existing Hydrologic Data Eval	66 days	Tue 12/30/03	Tue 3/30/04	165										
167	Ecologic Data Analysis & Eval	66 days	Tue 12/30/03	Tue 3/30/04	165										
168	Dev Matrix of Actions from Mo	22 days	Wed 3/31/04	Thu 4/29/04	167										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
169	22N Surveys and Mapping	944 days	Mon 4/16/01	Thu 11/25/04											
170	GIS Data Collection	44 days	Mon 4/16/01	Thu 6/14/01	193										
171	Section Corner Survey	130 days	Wed 5/16/01	Tue 11/13/01	193FS+22 days										
172	Topographic Surveys	300 days	Wed 5/16/01	Tue 7/9/02	193FS+22 days										
173	Seagrass Mapping	256 days	Wed 5/16/01	Wed 5/8/02	193FS+22 days										
174	Flow Profiles	256 days	Wed 5/16/01	Wed 5/8/02	193FS+22 days										
175	Hardware & Software Procurement	30 days	Wed 5/16/01	Tue 6/26/01	193FS+22 days										
176	Quality Assurance	300 days	Tue 5/1/01	Mon 6/24/02	193FS+11 days										
177	Database Conversion & Constructio	43 days	Wed 6/27/01	Fri 8/24/01	175										
178	GIS Analysis and Map Production	900 days	Fri 6/15/01	Thu 11/25/04	170										
179	22P Eng Analysis & Design/Cost Estim	676 days	Thu 8/9/01	Thu 3/11/04											
180	Eng Design for Prelim Assess of Al	88 days	Thu 8/9/01	Mon 12/10/01	208										
181	Screening Level Cost Estimates	44 days	Tue 12/11/01	Fri 2/8/02	180										
182	Eng Design Final Alts	66 days	Mon 6/30/03	Mon 9/29/03	210										
183	Prelim Cost Estimates for Final Alts	22 days	Tue 9/30/03	Wed 10/29/03	182										
184	Final Design for Recommended Pla	33 days	Tue 9/30/03	Thu 11/13/03	182										
185	Civil Design Writeup for Prelim Dra	44 days	Mon 1/12/04	Thu 3/11/04	221SS										
186	Cost Estimating Writeup	33 days	Mon 1/12/04	Wed 2/25/04	221SS										
187	M-CACES Cost Estimate	44 days	Tue 9/30/03	Fri 11/28/03	184SS										
188	Des & Cost Est Partic in Alt Formul	22 days	Mon 7/14/03	Tue 8/12/03	201SS										
189	Finalize M-CACES Cost Estimate	22 days	Mon 12/1/03	Tue 12/30/03	187										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
190	Comment Responses & Finalize W	22 days	Wed 8/13/03	Thu 9/11/03	188										
191	22Q Planning/Technical Management	1152 days	Thu 3/15/01	Fri 8/12/05		[Gantt bar from 3/15/01 to 8/12/05]									
192	Update Quality Control Plan	66 days	Wed 5/16/01	Wed 8/15/01	193FS+22 days										
193	Initiation of Feasibility Study	22 days	Thu 3/15/01	Fri 4/13/01											
194	In-Progress Review (IPR) #1	10 days	Fri 8/24/01	Thu 9/6/01	208FS+11 days										
195	In-Progress Review (IPR) #2	10 days	Tue 2/19/02	Mon 3/4/02	209FS+33 days										
196	In-Progress Review (IPR) #3	10 days	Mon 7/14/03	Fri 7/25/03	211FS+11 days										
197	Independent Technical Review	500 days	Thu 8/9/01	Wed 7/9/03	180SS										
198	Feasibility Scoping Meeting (FSM)	22 days	Wed 5/16/01	Thu 6/14/01	193FS+22 days										
199	Technical Review	21 days	Tue 4/13/04	Tue 5/11/04	213FS+66 days										
200	Submit Preliminary Draft Feasibility	11 days	Mon 7/12/04	Mon 7/26/04	221										
201	Alternative Formulation Briefing (AF	22 days	Mon 7/14/03	Tue 8/12/03	213SS+10 days										
202	Submit Draft Feasibility Report	11 days	Thu 9/30/04	Thu 10/14/04	222FS+3 days										
203	Submit Final Feasibility Report	11 days	Thu 1/20/05	Thu 2/3/05	223FS+3 days										
204	Study Management	1152 days	Thu 3/15/01	Fri 8/12/05	193SS	[Gantt bar from 3/15/01 to 8/12/05]									
205	22R Plan Formulation & Evaluation	906 days	Tue 4/17/01	Tue 10/5/04		[Gantt bar from 4/17/01 to 10/5/04]									
206	Plan Formulation Alternatives	714 days	Tue 4/17/01	Fri 1/9/04		[Gantt bar from 4/17/01 to 1/9/04]									
207	Problem Identification	53 days	Tue 4/17/01	Thu 6/28/01	193FS+1 day										
208	Initial Alternative Formulation	61 days	Wed 5/16/01	Wed 8/8/01	193FS+22 days										
209	Initial Screening	105 days	Thu 8/9/01	Wed 1/2/02	208										
210	Select Final Array of Alternativ	1 day	Fri 6/27/03	Fri 6/27/03	211										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

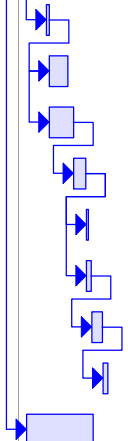
Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
211	Final Screening	200 days	Fri 9/20/02	Thu 6/26/03	27SS+100 days,118										
212	Risk & Uncertainty Analysis	140 days	Mon 6/30/03	Fri 1/9/04	211FS+1 day										
213	Selection of the Recommende	140 days	Mon 6/30/03	Fri 1/9/04	211FS+1 day										
214	Cost Allocation/Apportionment	140 days	Mon 6/30/03	Fri 1/9/04	211FS+1 day										
215	Evaluation Methodology & Tools	12 days	Wed 5/16/01	Thu 5/31/01											
216	Workshop to I.D. Overall Restr	12 days	Wed 5/16/01	Thu 5/31/01	193FS+22 days										
217	Report Preparation	192 days	Mon 1/12/04	Tue 10/5/04											
218	Enviro Eval Draft Appendix Wr	132 days	Mon 1/12/04	Tue 7/13/04	221SS										
219	Finalize Write-Up	62 days	Mon 7/12/04	Tue 10/5/04	222SS										
220	22S Report Preparation	265 days	Mon 1/12/04	Fri 1/14/05											
221	Preliminary Draft Feasibility Report	130 days	Mon 1/12/04	Fri 7/9/04	213										
222	Draft Feasibility Report	55 days	Mon 7/12/04	Fri 9/24/04	221										
223	Final Feasibility Report	80 days	Mon 9/27/04	Fri 1/14/05	222										
224	22T Feas Pgms & Project Managemer	1152 days	Thu 3/15/01	Fri 8/12/05											
225	Prepare Draft Post-Feas PMP	103 days	Wed 8/11/04	Fri 12/31/04	221FS+22 days										
226	Participate in Alternative Formulatic	22 days	Mon 7/14/03	Tue 8/12/03	201SS										
227	Revise Draft PMP	44 days	Mon 1/3/05	Thu 3/3/05	225										
228	Project Management	1152 days	Thu 3/15/01	Fri 8/12/05	193SS										
229	22Y Washington Level Review	147 days	Thu 1/20/05	Fri 8/12/05											
230	Division Engineer's Public Notice	1 day	Thu 3/3/05	Thu 3/3/05	223FS+33 days										
231	Report Submittal	5 days	Fri 3/4/05	Thu 3/10/05	230										

Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Southwest Florida Feasibility Study

ID	Task Name	Duration	Start	Finish	Predecessors	2001		2002		2003		2004		2005	
						H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
232	Fact Sheets & Slides Submittal	5 days	Fri 3/11/05	Thu 3/17/05	231										
233	HQUSACE Review	33 days	Fri 3/18/05	Tue 5/3/05	232										
234	30-Day State & FED Review	44 days	Fri 3/18/05	Wed 5/18/05	233SS										
235	Washington Level Final Assessmer	22 days	Thu 5/19/05	Fri 6/17/05	234										
236	Field Visit and Meeting	5 days	Mon 6/20/05	Fri 6/24/05	235										
237	Documentation of Report Review	10 days	Mon 6/20/05	Fri 7/1/05	235										
238	Washington Level Decision Proces:	20 days	Mon 7/4/05	Fri 7/29/05	237										
239	Chief of Engineers Report	10 days	Mon 8/1/05	Fri 8/12/05	238										
240	Washington Level Review Continge	120 days	Thu 1/20/05	Wed 7/6/05	223FS+3 days										



Project: Southwest Florida Feasibility : Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Implementation Schedule

The following schedule conceptually shows the course of work needed to implement the Southwest Florida Plan through the Pre-construction Engineering and Design and Construction phases at the completion of the Feasibility Study phase. This schedule may require major revisions as the number and nature of features recommended is developed during the Feasibility Study phase. When better developed, the schedule may contain parallel or sequential implementation of features and significant changes to tasks and their duration.






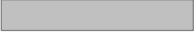



Southwest Florida Plan Implementation

ID	Task Name	Dur	Start	Finish	Pred	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
1	SOUTHWEST FLORIDA PLAN IMPLEMENTATION	2674 d	Thu 3/3/05	Thu 9/17/15												
2	Division Commander's Notice	1 d	Thu 3/3/05	Thu 3/3/05												
3	PED Phase	805 d	Thu 3/3/05	Thu 5/15/08												
4	Funds Control	90 d	Thu 3/3/05	Mon 7/11/05												
5	Study Funds Control (Initiate LRR)	0 d	Thu 3/3/05	Thu 3/3/05	2											
6	Sponsor Contributions	0 d	Mon 7/11/05	Mon 7/11/05	8,16,5											
7	Project Management Plan (PMP)	40 d	Fri 3/4/05	Thu 4/28/05												
8	Final Project Management Plan (PMP)	40 d	Fri 3/4/05	Thu 4/28/05	5											
9	PED Cost Sharing Agreement	90 d	Fri 3/4/05	Mon 7/11/05												
10	Initial Draft PED Package	15 d	Fri 3/4/05	Thu 3/24/05	5											
11	Final PED Package (Submitted)	15 d	Fri 3/25/05	Thu 4/14/05	10											
12	Executed PED Agreement	60 d	Fri 4/15/05	Mon 7/11/05												
13	HQUSACE Approved PED Agreement	20 d	Fri 4/15/05	Thu 5/12/05	11											
14	ASA(CW) Approved PED Agreement	20 d	Fri 5/13/05	Fri 6/10/05	13											
15	Sponsor Signed PED Agreement	20 d	Fri 5/13/05	Fri 6/10/05	13											
16	Executed PED Agreement (Initiate PED)	20 d	Mon 6/13/05	Mon 7/11/05	14,7,15											
17	Limited Reevaluation Report (LRR) [or GRR]	530 d	Fri 3/4/05	Thu 4/12/07												
18	Engineering Analysis	40 d	Tue 7/12/05	Tue 9/6/05	6											
19	Value Engineering Analysis	40 d	Tue 7/12/05	Tue 9/6/05	6											
20	Environmental Studies	250 d	Fri 3/4/05	Thu 3/2/06												
21	Environmental Analysis	40 d	Tue 7/12/05	Tue 9/6/05	6											

Project: Southwest Florida Plan Implementation Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

Southwest Florida Plan Implementation

ID	Task Name	Dur	Start	Finish	Pred	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
22	401 State Water Quality Certification	250 d	Fri 3/4/05	Thu 3/2/06	5											
23	Real Estate Analysis	40 d	Tue 7/12/05	Tue 9/6/05	6											
24	Cost Estimates	40 d	Mon 6/26/06	Mon 8/21/06	23,26											
25	Socioeconomic Analysis	60 d	Fri 3/3/06	Thu 5/25/06	18,19,20											
26	Plan Formulation	20 d	Fri 5/26/06	Fri 6/23/06	25											
27	Draft Report	100 d	Tue 8/22/06	Wed 1/17/07												
28	Draft LRR [or Draft GRR] and NEPA Document	40 d	Tue 8/22/06	Wed 10/18/06	24											
29	Technical Review (ITR)	20 d	Thu 10/19/06	Thu 11/16/06	28											
30	Policy Compliance Review	20 d	Fri 11/17/06	Fri 12/15/06	29											
31	Project Guidance Memorandum (PGM)	20 d	Mon 12/18/06	Wed 1/17/07	30											
32	Final Report	60 d	Thu 1/18/07	Thu 4/12/07												
33	Final LRR [or Final GRR] and NEPA Document	20 d	Thu 1/18/07	Wed 2/14/07	31											
34	Division Commanders Notice	20 d	Thu 2/15/07	Thu 3/15/07	33											
35	Washington Level Approved Report	20 d	Fri 3/16/07	Thu 4/12/07	34											
36	Design Documentation Report (DDR)	675 d	Tue 7/12/05	Thu 3/20/08												
37	Engineering Analysis	250 d	Tue 7/12/05	Mon 7/10/06												
38	Surveys and Mapping, Except for Real Estate	125 d	Tue 7/12/05	Tue 1/10/06	6											
39	Geotechnical Studies	125 d	Tue 7/12/05	Tue 1/10/06	6											
40	Hydrology and Hydraulic Studies	125 d	Tue 7/12/05	Tue 1/10/06	6											
41	Value Engineering Analysis	125 d	Tue 7/12/05	Tue 1/10/06	6											
42	Model Studies	125 d	Wed 1/11/06	Mon 7/10/06	40											

Project: Southwest Florida Plan Implementation Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
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	Milestone		Rolled Up Milestone			

Southwest Florida Plan Implementation

ID	Task Name	Dur	Start	Finish	Pred	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
43	Engineering and Design Analysis	125 d	Wed 1/11/06	Mon 7/10/06	39,38											
44	Real Estate Analysis	125 d	Tue 7/11/06	Tue 1/9/07	42,43											
45	Environmental Appendix	675 d	Tue 7/12/05	Thu 3/20/08												
46	Environmental Studies	250 d	Tue 7/12/05	Mon 7/10/06	6											
47	Cultural Resource Studies	250 d	Tue 7/12/05	Mon 7/10/06	6											
48	401 State Water Quality Certification DDR	250 d	Fri 3/23/07	Thu 3/20/08	51											
49	Cost Estimates	40 d	Wed 1/10/07	Thu 3/8/07	1,46,47,39,41											
50	Final Report	50 d	Fri 3/9/07	Thu 5/17/07												
51	In-House Review	10 d	Fri 3/9/07	Thu 3/22/07	49											
52	Public Review	20 d	Fri 3/23/07	Thu 4/19/07	51											
53	Review Conference (ITR)	20 d	Fri 4/20/07	Thu 5/17/07	52											
54	Plans and Specifications (P&S)	250 d	Fri 5/18/07	Thu 5/15/08												
55	Field Investigations	125 d	Fri 5/18/07	Thu 11/15/07												
56	Surveys	125 d	Fri 5/18/07	Thu 11/15/07	35,53											
57	Geotechnical Studies	125 d	Fri 5/18/07	Thu 11/15/07	53,35											
58	Plans and Specifications	125 d	Fri 11/16/07	Thu 5/15/08												
59	Plans and Specs	105 d	Fri 11/16/07	Thu 4/17/08	57											
60	In-house & ITR Review	20 d	Fri 4/18/08	Thu 5/15/08	59											
61	Construction Phase	1868 d	Thu 5/15/08	Thu 9/17/15												
62	Funds Control	140 d	Thu 5/15/08	Fri 12/5/08												
63	Federal Funds (New Construction Start)	0 d	Thu 5/15/08	Thu 5/15/08	60											

Project: Southwest Florida Plan Implementation Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			






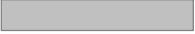





Southwest Florida Plan Implementation

ID	Task Name	Dur	Start	Finish	Pred	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
64	Sponsor Contributions	0 d	Fri 12/5/08	Fri 12/5/08	72											
65	Project Cooperation Agreement (PCA)	140 d	Fri 5/16/08	Fri 12/5/08												
66	Initial Draft PCA Package	40 d	Fri 5/16/08	Mon 7/14/08	63											
67	Final PCA (Submitted)	20 d	Tue 7/15/08	Mon 8/11/08	66,22,48											
68	Executed PCA	80 d	Tue 8/12/08	Fri 12/5/08												
69	MSC Approved PCA	20 d	Tue 8/12/08	Tue 9/9/08	67											
70	HQUSACE Approved PCA	20 d	Wed 9/10/08	Tue 10/7/08	69											
71	ASA(CW) Approved PCA	20 d	Wed 10/8/08	Wed 11/5/08	70											
72	Executed PCA (DA & Sponsor)	20 d	Thu 11/6/08	Fri 12/5/08	71											
73	Escrow Agreement	100 d	Tue 7/15/08	Fri 12/5/08												
74	HQUSACE Approved Escrow Agreement	60 d	Tue 7/15/08	Tue 10/7/08	66											
75	Executed Escrow Agreement	40 d	Wed 10/8/08	Fri 12/5/08	74											
76	Design Documentation Report (DDR)	465 d	Mon 12/8/08	Wed 10/13/10												
77	Engineering Analysis	250 d	Mon 12/8/08	Fri 12/4/09												
78	Surveys and Mapping, Except for Real Estate	125 d	Mon 12/8/08	Fri 6/5/09	72											
79	Geotechnical Studies	125 d	Mon 12/8/08	Fri 6/5/09	72											
80	Hydrology and Hydraulic Studies	125 d	Mon 12/8/08	Fri 6/5/09	72											
81	Model Studies	125 d	Mon 6/8/09	Fri 12/4/09	78,80											
82	Engineering and Design Analysis	125 d	Mon 6/8/09	Fri 12/4/09	78,80,79											
83	Real Estate Analysis	125 d	Mon 12/7/09	Fri 6/4/10	82											
84	Environmental Appendix	250 d	Mon 12/8/08	Fri 12/4/09												

Project: Southwest Florida Plan Implementation Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
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Southwest Florida Plan Implementation

ID	Task Name	Dur	Start	Finish	Pred	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
85	Environmental Studies	250 d	Mon 12/8/08	Fri 12/4/09	72											
86	Cultural Resource Studies	250 d	Mon 12/8/08	Fri 12/4/09	72											
87	Cost Estimates	40 d	Mon 6/7/10	Mon 8/2/10	3,81,82,86,85											
88	Final Report	50 d	Tue 8/3/10	Wed 10/13/10												
89	In-House Review	10 d	Tue 8/3/10	Mon 8/16/10	87											
90	Public Review Comments (Sponsor)	20 d	Tue 8/17/10	Tue 9/14/10	89											
91	Review Conference (ITR)	20 d	Wed 9/15/10	Wed 10/13/10	90											
92	Construction Contract	1183 d	Thu 10/14/10	Thu 5/28/15												
93	Plans and Specifications (P&S)	532 d	Thu 10/14/10	Tue 11/27/12												
94	Field Investigations	40 d	Thu 10/14/10	Fri 12/10/10												
95	Surveys	40 d	Thu 10/14/10	Fri 12/10/10	91,63,88											
96	Geotechnical Studies	40 d	Thu 10/14/10	Fri 12/10/10	91,88,63											
97	Plans and Specifications	90 d	Mon 12/13/10	Thu 4/21/11												
98	Plans and Specs	80 d	Mon 12/13/10	Thu 4/7/11	96											
99	In-house & ITR Review	10 d	Fri 4/8/11	Thu 4/21/11	98											
100	P&S BCO Certification	10 d	Tue 11/13/12	Tue 11/27/12	30 d,109,99											
101	Real Estate Analyses	1163 d	Thu 10/14/10	Thu 4/30/15												
102	Real Estate Acquisition	552 d	Thu 10/14/10	Wed 12/26/12												
103	RE Federal Acquisition	552 d	Thu 10/14/10	Wed 12/26/12	91,88,75,72											
104	RE Sponsor Acquisition	552 d	Thu 10/14/10	Wed 12/26/12	72,88,91,75											
105	Real Estate Appraisal	552 d	Thu 10/14/10	Wed 12/26/12	72,88,91											

Project: Southwest Florida Plan Implementation Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
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Southwest Florida Plan Implementation

ID	Task Name	Dur	Start	Finish	Pred	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11
106	Real Estate Payment	552 d	Thu 10/14/10	Wed 12/26/12	91,72,88											
107	Real Estate LERRD Crediting	20 d	Fri 4/3/15	Thu 4/30/15	106,127											
108	Environmental Studies	126 d	Thu 10/14/10	Fri 4/15/11												
109	Coordination with Other Agencies	125 d	Thu 10/14/10	Thu 4/14/11	63,91,88											
110	NPDES Permit	1 d	Fri 4/15/11	Fri 4/15/11	109											
111	Cultural Resource Studies (Mitigation Plan)	250 d	Thu 10/14/10	Wed 10/12/11	63,91,88											
112	Contract Cost Estimates	40 d	Wed 11/28/12	Wed 1/23/13	100											
113	Contract Award	71 d	Thu 12/27/12	Thu 4/4/13												
114	Advertise/RFP Contract	30 d	Thu 12/27/12	Wed 2/6/13	,103,105,106											
115	Bid Opening	1 d	Thu 2/7/13	Thu 2/7/13	114,112											
116	Award Contract	20 d	Fri 2/8/13	Thu 3/7/13	115											
117	Notice to Proceed	20 d	Fri 3/8/13	Thu 4/4/13	116											
118	Engineering and Design During Construction	500 d	Fri 4/5/13	Thu 3/5/15	117											
119	Supervision & Administration (S&A)	500 d	Fri 4/5/13	Thu 3/5/15												
120	Area Office S&A	500 d	Fri 4/5/13	Thu 3/5/15	117											
121	District Office S&A	500 d	Fri 4/5/13	Thu 3/5/15	117											
122	Technical Management S&A	500 d	Fri 4/5/13	Thu 3/5/15	117											
123	Construction	560 d	Fri 4/5/13	Thu 5/28/15												
124	Construction Contract Physically Complete	500 d	Fri 4/5/13	Thu 3/5/15	121FF,122FF											
125	Construction Contract Fiscally Complete	60 d	Fri 3/6/15	Thu 5/28/15	124											
126	Closeout and Local Sponsor Assumption Of OMRR&R (PC	140 d	Fri 3/6/15	Thu 9/17/15												

Project: Southwest Florida Plan Implementation Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
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	Milestone		Rolled Up Milestone			

Southwest Florida Plan Implementation

ID	Task Name	Dur	Start	Finish	Pred	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	
127	Project Physically Complete	20 d	Fri 3/6/15	Thu 4/2/15	124												
128	Final Inspection	20 d	Fri 3/6/15	Thu 4/2/15	124												
129	Project Fiscally Complete	60 d	Fri 5/1/15	Thu 7/23/15													
130	USACE Audit	20 d	Fri 5/1/15	Thu 5/28/15	107,128												
131	Sponsor Audit	20 d	Fri 5/29/15	Thu 6/25/15	130												
132	Final Accounting Report	20 d	Fri 6/26/15	Thu 7/23/15	131												
133	Final Closeout & Local Sponsor OMRR&R Assump	140 d	Fri 3/6/15	Thu 9/17/15													
134	OMRR&R Manual	60 d	Fri 3/6/15	Thu 5/28/15	124												
135	Final Acctg Payment to Balance Cost Sharing	20 d	Fri 7/24/15	Thu 8/20/15	134,132												
136	Notice Of Completion & Local OMRR&R Assumption	20 d	Fri 8/21/15	Thu 9/17/15	135												

Project: Southwest Florida Plan Implementation Date: Fri 1/5/01	Task		Summary		Rolled Up Progress	
	Split		Rolled Up Task		External Tasks	
	Progress		Rolled Up Split		Project Summary	
	Milestone		Rolled Up Milestone			

APPENDIX E
TECHNICAL REQUIREMENTS AND REFERENCES

TECHNICAL REQUIREMENTS AND REFERENCES

The work to be performed consists of a feasibility-level effort, in accordance with the schedules and budgets included herein, to further the development of the Comprehensive Everglades Restoration Plan. The study will also develop an implementation process that incorporates an adaptive management approach to project implementation to include an incremental justification process based on monitoring, evaluation, and modeling. This work includes preparation of *NEPA* documentation, environmental output evaluation, incremental cost analysis, cost-effectiveness analysis, the necessary survey and geotechnical investigations, a hydraulic analysis, hydrologic investigations, design calculations and drawings, Geographic Information System database development, preparation of a detailed construction cost estimate, real estate investigations, socio-economic impact analysis, environmental justice study, study and project management, and coordination with local, state and Federal agencies as well as other interest groups and the public. The scope of studies, in terms of content and level of detail, for the feasibility phase study effort is as defined and required by the following Federal documents:

- | | |
|-----------------------------------|---|
| ER 1105-2-100
dtd 22 Apr 2000 | "Guidance for Conducting Civil Works Planning Studies"
Department of the Army regulation on Policy and Guidance for the conduct of civil works planning studies. |
| ER 5-1-11
dtd 27 Feb 1998 | "Program and Project Management"
Department of the Army regulation for the overall management of civil works projects. |
| ER 200-2-2
dtd 4 Mar 1988 | "Procedures for Implementing NEPA"
Department of the Army regulation on 33 CFR 230 Environmental Quality. |
| ER 1165-2-501
dtd 30 Sept 1999 | "Civil Works Ecosystem Restoration Policy"
Department of the Army policy guidance for ecosystem restoration. This EC modifies PGL 24 by eliminating the "project linkage" and "modern historic condition" requirements. All other provisions of PGL 24 remain in effect. |
| PGL No. 24
dtd 7 Mar 1991 | "Restoration of Fish and Wildlife Habitat Resources"
Department of the Army Policy Guidance Letter (PGL) on accomplishing fish and wildlife habitat restoration. |

IWR Report 94-PS-2 dtd Oct 1994	"Cost Effectiveness Analysis for Environmental Planning: Nine Easy Steps" Report developed by the Institute of Water Resources to assist field practitioners conduct cost effectiveness and incremental cost analysis in planning for environmental restoration and mitigation.
ER 405-1-12 dtd 15 May 2000	"Real Estate Handbook - Local Cooperation" - Chapter 12 Department of the Army regulation establishing guidelines for real estate activities for local cooperation agreements.
ER 1110-2-1150 dtd 31 Aug 1999	"Engineering and Design for Civil Works Projects" Department of the Army regulation describes engineering responsibilities during the planning, design, construction, and operations phases of civil works projects.
ER 1165-2-132 dtd 26 Jun 1992	"Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects" Department of the Army regulation provides guidance for consideration of issues and problems associated HTRW which may be located within project boundaries or may effect civil works projects.
ER 1110-1-1300 dtd 26 Mar 1993	"Cost Engineering Policy and General Requirements" Engineering Regulation providing cost engineering policy, guidance, and procedures for all projects assigned to the U.S. Army Corps of Engineers.
EC 1110-2-1302 dtd 31 Mar 1994	"Civil Works Cost Engineering" Engineer Regulation providing policy, guidance, and procedures for cost engineering responsibilities for all Civil Works projects assigned to the U.S. Army Corps of Engineers.
Executive Order 12898	"Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"
U.S. Water Resources Council Publication dtd 10 March 1983	"Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies."

APPENDIX F
INVENTORY OF PUBLIC CONCERNS

INVENTORY OF PUBLIC CONCERNS

The Southwest Florida Study was recommended in the Central and Southern Florida Project Comprehensive Review Study (Restudy) as a process that will identify additional water resources problems and opportunities beyond the scope of the Restudy's Comprehensive Plan. Between December 1999 and June 2000, representatives from the U.S. Army Corps of Engineers and the South Florida Water Management District conducted a round of meetings with various groups and individuals to gather technical input and documentation identifying the water resources problems, needs, and opportunities of Southwest Florida. The meetings successfully resulted in the compilation of numerous issues, as outline below.

Below is a list of participants with whom we met:

Agriculture Interest
Big Cypress National Preserve
City of Cape Coral
City of Fort Myers
City of Naples, Marco Island and Collier Utilities Interest
City of Sanibel
Collier County Commissioners
Collier County Government
Economic Development Interest
Eco-tourism Interest
Environmental Interest
Environmental Protection Agency
Estero Area Council for Bay Management
Florida Department of Agriculture and Consumer Service
Florida Department of Environmental Protection
Florida Division of Forestry
Florida Fish & Wildlife Conservation Commission
Glades County Commissioner
Glades County Government
Hendry County Administrator
Hendry County Commissioner
Lee County Commissioners
Lee County Council of Civil Associations
Lee County Government
Lehigh Corporation
Miccosukee Tribe of Indians
National Marine Fisheries Service
National Park Service
Natural Resources Conservation Service
Project Coordination Team (PCT) 5
Seminole Tribe of Florida
U.S. Fish & Wildlife Service
U.S. Geologic Survey

Each issue obtained from the aforementioned meetings was grouped into several general categories, as outlined below:

Environmental

- Make growth work for the environment.
- A plan in harmony with wildlife should be considered. Preserve wildlife habitat; look at wildlife corridors, and address habitat loss and fragmentation.
- Incorporate a multi-species approach; do not focus on one particular species.
- Address the health of oyster bars in the middle of Tarpon Bay.
- The Florida panther has been a problem for permitting. Do the science to determine the impacts.
- Reduce drought impacts on habitat.
- Reservoirs should have differing contours to promote habitat benefits, such as freshwater fish refugia.
- Do not convert environmental areas into water storage areas.
- Establish basin rules for the west coast that address wildlife and habitat impacts.
- Obtain status and trends for birds and other wildlife.
- Top priorities for one agency are loss of native habitats, major Federal trust species protection on private lands, and more joint projects.
- Look at the functional assessment of wetlands; the use of Wetland Rapid Assessment Procedure is resulting in less mitigation for more impacts. Also look at the use of mitigation banks.
- Environmentally sensitive lands are being lost to urban development. Because there is a net loss of wetlands in this area, the Corps should acquire lands for conservation and preservation.
- Maintain the connections of wetlands and headwaters of Estero Bay.
- Reestablishing the Caloosahatchee oxbows will decrease the timing of flow to the estuary and provide benefits to the natural system.
- Camp Keais Strand is being choked off by willow – reestablish the connection.
- Conservation in Camp Keais Strand as water storage and wildlife conservation.
- Need to create buffers along the Caloosahatchee River.
- Study what is not known about natural areas.
- Should include uplands when considering wetlands.
- The team should be environmentally reasonable with the study approach.
- Issues surrounding specific endangered species (i.e. manatees litigation) should not be directly addressed in the Southwest Florida Study. Use as a planning effort and not to permit specific issues.
- Concerns about what will happen with the silting in the Caloosahatchee River once the Florida Power and Light Barge quits running.
- Cleaning and snagging of tributary to bay that is being done by WMD is causing more harm than good. Was originally being done as a result of flooding.
- Environmental pressures due to the changes in lake releases are going to be a driver in the basin.
- The environmental value of estuaries is being overlooked.
- Wading bird populations have declined.
- Wood stork nesting data shows a 90% decline in Corkscrew Swamp from the late 1950's to the present.
- Red tide blooms are increasing.
- Freshwater discharges may be killing sea grasses; this eliminates a viable food source for the manatees in and around the Orange River.
- The issues at Sanibel and Captiva include red tide, manatee die-off, oyster bed impacts, and seagrass impacts.

- Airport construction is affecting wetland destruction due to a requirement to remove wading birds, per FAA regulations.
- When consumptive use permits are issued, do they consider impacts on nearby wetlands?
- Concern that the land purchases in the Belle Meade area for environmental purposes were used to stop growth.
- Government is of the mindset that you can't touch wetlands and that's wrong.
- Some are afraid the primary purpose of the Southwest Florida Study will be environmental restoration.
- We spend too much energy on "lost causes" such as preservation of the
- manatee.
- Corps seems intent on doing another plumbing solution rather than utilizing a natural systems approach.
- There is too little governmental interest in the natural value resources of SWFL.
- Maintain natural systems using controlled/prescribed burning.
- "We need to co-exist with nature in all forms."

Water quality

- Concern over salinity intrusion in the coastal areas.
- There are a lot of problems associated with freshwater inflow into the estuary, including the freshwater acting as a pollutant. A specific example is freshwater releases from Lake Okeechobee and the Caloosahatchee basin to the Caloosahatchee River.
- Many areas are susceptible to freshwater inflows including the Gulf of Mexico, Matlacha Pass, San Carlos Bay, and Bonita Springs and freshwater releases from Gator Slough to Charlotte Harbor.
- When there are large releases from Lake Okeechobee, the bay area goes from saltwater (25 ppb) to freshwater (5 ppb).
- Need a management plan that does releases more gradually rather than just during emergency situations.
- Not seeing any recovery because releases are recurring annually.
- Lake Okeechobee regulation schedule has been established but is being ignored by WMD when emergencies occur.
- Retrofitting agriculture for water quality is important.
- Various water quality issues in the Caloosahatchee River are a serious concern, including the lack of light attenuation, establishment of a water quality baseline, and assessment of the existing water quality data.
- Water quality issues were specified for the Florida Bay, the Florida Keys, Lake Apopka, and along canals.
- There is a general lack of water quality data for this area.
- Water quality data collection and use are issues, including data inconsistencies and no standards for collection.
- Some support the idea of capturing water until it's clean but feel as though flooding county residences to enhance water quality is not the correct approach.
- Disturbed by the idea that water supply, as opposed to water quality, might be the focus of the study.
- Concern over septic tanks contaminating drinking water wells in neighborhood located along northeast Lee County line just south of State Road 80.
- Consider water quality non-point responsibility and impacts on permitting.

- Pursue water quality restoration
- Look into identifying regional STAs.
- Identify standards that will be used to address water quality problems and the water quality goal.
- Water quality monitoring, monitoring of the water table level, and monitoring of aquifer contamination needs to be studied.
- When looking at water quality, look at water quality everywhere including stormwater runoff, but don't focus solely on that coming off agricultural lands.
- Freshwater plume from the river goes all the way down south of Ft. Myers Beach and back up along the west side of Sanibel Island.
- Consider turbidity problems and sediment/erosion control.
- Be careful not to spend money on perceived issues such as water quality that requires many years of base data.

Flooding

- Protect existing homeowners and well-functioning natural systems from flooding.
- Address draining land for flood control.
- Consider the lack of storage and the increase of run-off issues.
- Address sheet flow storage potential and protection.
- Lands in North Belle Meade and Fakahatchee areas need to be purchased and used for a natural sheet flow way.
- Use "Cypress Country" for water storage.
- Use more currently existing onsite reservoirs.
- Agrees that the CERP offers good potential for buying up property and building reservoirs.
- Take a regional look at historical embankments and flow ways.
- Focus on a plan to reconnect natural flow ways.
- Concern over whether the agencies that will control flows have the expertise to do so.
- Address future problems with flow in Ten-Mile Canal and the sandstone aquifer.
- Storage capacity of the Caloosahatchee River is being systematically dismantled.
- There are public concerns about flooding in many areas, including the Bonita Springs area near Interstate 75, west of Florida Gulf Coast University, and in northern Collier County, and northern Lee County.
- Wellfields versus water retention areas – how will they be managed?
- The 30-foot clay layer on the Berry Groves site will stop water from moving down but not laterally. Therefore, the site won't hold water.
- Without lining reservoirs in this area, you won't hold water.
- Cleaning and snagging of tributary to bay that WMD is doing is doing more harm than good. Was originally being done as a result of flooding.
- Problems coming out of the Caloosahatchee Water Management Plan (CWMP) – low flows to the estuary.
- Backpumping is not a viable option, per the CWMP.
- Do not back pump water from the Caloosahatchee to Lake Okeechobee.
- Lake Okeechobee is the logical place to store water.
- Reduce peak flows from Lake Okeechobee.
- Excess flows will have to be stored. Usually store on private lands which usually means agricultural lands. There seems to be a current policy that cannot store excesses on public lands.
- Inadequate storm water management, especially in Bonita Springs is a concern. This area floods in the wet season and dries out during the dry season.

- Public perception that sheetflow is a problem for Bonita Springs – sheetflow needs to be better explained in a positive manner.
- Need to protect/restore sheetflow systems and isolated wetlands.
- Address stormwater events and their potential (i.e. 25-year event)

Water supply

- Ensure adequate water supply.
- Protect existing water resources.
- Study the groundwater resources of the area.
- A cutback in releases from Lake Okeechobee will reduce the ability to meet demand at a reasonable cost.
- Lehigh wells are drying.
- Remedy the over-drainage of water; in particular, the Golden Gates Estates area canal system is draining freshwater out through Naples Bay.
- There is too much water being drained to tide.
- Stormwater drainage is occurring too fast.
- Some drainage is irreversible.
- There is a need to purchase lands to serve as conservation corridors for aquifer recharge.
- There is a need to have a system of reservoirs for recharging the aquifer.
- Recharging of the aquifer by changing water flow patterns is necessary before the water supply issue gets worst.
- Aquifers are not addressing growth to the north and could result in potential impacts on deeper aquifers.
- Utilize canal systems in Lehigh and Cape Coral as opposed to buying property for ASRs.
- Concern over the development of existing recharge areas.
- Concern over maintaining a viable water supply of well fields against growth pressures encroaching upon those wellfields.
- Protection of existing water resources from growth intrusion and saline intrusion in the City of Marco Island.
- Excessive lawn irrigation is a problem.
- The use of water resources should be accomplished without having to go out to the Big Cypress area for water resources.
- Need a means to store excess water during the wet season to be used during the dry season. An ASR well being planned north of Gator Slough may be a solution.
- Use ASR wells for untreated water for reuse to control saltwater intrusion or for irrigation purposes.
- Maintain a viable water supply and allocate it so that large sums of money isn't spent on desalination and reverse osmosis (RO) plants.
- Impose a requirement for the coast to use saltwater as potable water through current/updated desalination and RO methods as opposed to using freshwater sources.
- West coast has little public water control infrastructure, but much private infrastructure. Do not want a lot of public drainage infrastructure.
- Concerns about applying a canal system on the west coast.
- Concern about the backpumping of water routed to the west coast for the east coast. As the study progresses, provide reassurance that the water allotted for the west coast stays on the west coast.
- Just because the smaller counties have a smaller population, they do not want to end up on the short end of the stick with regard to water supply.

- Government reduces water supply each time they buy land.
- Concern over having enough water if Lake Okeechobee water level is low and ASR wells dry up.
- Pursue regional water treatment and recharge rather than localized “quick” fixes.
- Concern over relinquishing existing water resources in exchange for a promise of resources and technological systems that are not tested and proven successful.
- Identify non-point sources and fit it into the Southwest Florida Study.
- No dredging or canal projects.
- They don’t have a water supply problem but a water management problem.
- CREW was to provide water supply - sounded good but it's not being used for anything but restoration.
- How do you get water from reservoir to where it’s needed (engineering concern)?
- A representative from one area stated they generally have too much water. Can someone else (Lower East Coast) use the water?
- A regional sewage system rather than a septic system should be examined.
- There are too many individual wells and septic systems.
- There were many concerns over the expansion, repair, and retrofitting of stormwater sewer systems to handle projected build-out.
- Imbalance in recharge, use, and runoff.
- Disparate sense of ownership/priority of water users, e.g., golf courses using water from aquifers and competing with residential users

Economic

- Maintain value of land.
- No lands should be taken away.
- Lands inland will be needed for solving the problems in the South Florida Gulf Coast area.
- Create a mechanism for acquiring lands with a maintenance plan – balance against permitting impacts.
- Refocus land acquisition programs and integrate needs/uses.
- Should set aside lands for multiple uses. Look at opportunities for multiple uses.
- Take the land that is less valuable if you have to take the land (wetlands).
- If government owns big acreage, then government should use their own lands for the solution – government buys up land but then uses private lands.
- Focus on water management policies that do not threaten public lands.
- Put EVERYONE’S land on the table as the solution.
- What happens to land the government buys but doesn’t use immediately?
- Land in private domain is what you're focusing on....what private lands are you looking at?
- Need to have multiple uses for public lands when appropriate (i.e. stormwater treatment and storage).
- Can't restore sheet flows without displacing landowners.
- Relating money to impacts
- The economics need to be well defined and studied to identify natural capital values.
- A clean environment with abundant water is good for economic development.
- Provide for the landowner’s existing uses that are affected when the project is started.
- Their economy is based on a diversity of things such as agriculture, growth, boating and fishing.
- Develop infrastructure for the continued growth of the urban and agricultural communities.
- Address water supply as it relates to economic growth.

- One county will be big donors of the project through their land (9000 acres) but what will be done to help the county (road easements)?
- One County Commissioner's desire is to become a medium to upper scale bedroom community.
- Some need to plan (taxes, revenues, and development planning) for their future but can't do so without knowing what government is doing with regard to land purchase. Would like a map showing potential land acquisition so they can plan accordingly.
- Looking for government to make recommendations back to them to mitigate the impacts we're causing on them.
- Concerned about this document becoming a no-growth document.
- Do not want a tax base reduction.
- Economic value of estuary is being overlooked.
- Urban sprawl – permitting and growth outreach
- The existing problems are not agricultural; they're population sprawl and urbanization.
- Development pressure is very intense. The Comprehensive Plan shows development to the southwest border. Is this fixed or can it be changed?
- There are no large tracts to build on in the urban areas. Rural areas are now targeted – there is a white hoe economic growth engine.
- Be proactive instead of reactive – don't just accommodate growth; preserve and protect.
- Research to anticipate population growth and determine where it will most likely occur and where infrastructure is needed.
- Building moratorium due to the growth factor is needed to allow time to review and study the water situation in Southwest Florida.

Agriculture

- Agricultural lands are at risk for conversion to residential use. Existing agriculture lands should not be used to solve urban problems that arise from new development.
- Concern over adequate irrigation to crops
- Consider how to get around the rules of converting agricultural lands to residential use.
- Look at water supply projections for agriculture as it relates to the Caloosahatchee River.
- Take the low end agricultural use (not the Berry Groves property).
- The EIS says no intensification of agriculture. This is untenable.
- Pay farmers to use their land for water storage, habitat, etc, rather than buying the land.
- There are potential adverse impacts on agricultural when storage is increased.

Other

- The Southwest Florida EIS Alternative Development Group was pro-environment and biased against private property rights.
- Do not want the Regulatory EIS to set the blueprint for the Study.
- Data from EIS is questionable and may not be fully accepted. Should use caution in accepting this information.
- How will this study complement the Southwest Florida EIS?
- One individual thought the EIS is a good tool to address economic growth within Southwest Florida and is hopeful that the outcome of the EIS will create a formula for mitigation.
- Establish a comprehensive approach to permitting with a set of rules that are specific to the west coast.

- Permitting of wetland destruction makes no sense while at the same time we are spending billions to restore the Everglades.
- Development of standards and a means of enforcement. Will there be an enforcement mechanism after the study is over?
- The west coast felt left out of the Restudy.
- Financing this project and eliciting public support will be a very difficult task.
- Collier County is very leery of the Corps coming to southwest Florida. This area, in particular, Collier and Lee Counties, does not need any assistance from the Federal Government.
- Local people should solve their problems and there is no need to involve the Corps. There is no accountability to the local people when the Federal Government gets involved in projects affecting this area.
- What are Lee and Collier Counties doing that's so bad?
- Some were pleased to see the focus on this region.
- One commissioner wanted to know if there is something interim his county could be doing for the Southwest Florida Study.
- Do this project with true respect to property rights.
- Want reassurance that the federal government won't come in and tell Lee County how to fix their problems without helping to fix it.
- Will the county government have to provide money for implementation?
- All agencies should be consistent in applying water standards.
- Governments are focusing on problems in inhabited areas (<0.5 of the study area)
- Locals will view a "comprehensive plan" as a "comprehensive land use plan".
- We keep altering the system to the point that we can't recognize the historical conditions.
- Leave the mindset that it can be restored back to what it was.
- Research historic conditions and consider new/man-made conditions.
- Fix the things we can fix.
- If it's not broken, don't fix it.
- Work within the existing Florida water law. Through WRDA 2000, the Federal agencies are trying to supplant this Florida law.
- Visit the Ft. Myers historical museum for photographic evidence of the area's history.
- The higher levels of authority who make the decisions seem to be making those decisions without consideration of local interests and issues and without listening to recommendations of their lower level staff.
- SFWMD board of directors should be an elected board.
- Small rural counties don't have the political voice to compete against the bigger counties.
- The average landowner doesn't know where we're going with all the different groups in existence (CARL, Preservation 2000, Corps, etc.).
- What is the plan? Frustrated that they don't know what's happening – it's like trying to hit a moving target.
- Be mindful that Lehigh Acres issues are somewhat different than issues identified elsewhere in Southwest Florida.
- Implications of reduced flows in the river on NPDES permitting.
- One individual continuously advocates what needs to be done to better serve the county residences.
- Lee county is in the process of purchasing public utility that should help with rezoning and the Comprehensive Plan.
- Will this be a plan to plan or a plan to build infrastructure?
- Need for a long-term master plan for Southwest Florida.
- Growing smartly is a challenge but can provide an opportunity for balance – working together.

- One individual expressed that there has to be a balance somehow – Collier County needs to develop the best way possible.
- We should not dump water into Collier County and Camp Keais Strand – we want environmental answers not engineering answers.
- There is a need to come up with non-engineering solutions as soon as possible.
- No comprehensive look at water resource issues in the Lower West Coast of Florida.
- Comprehensive strategy for wetland mitigation, flow ways, and land acquisition.
- Data collection in the areas of topography and hydrology is very important (i.e. Bonita Springs).
- Structures should have been placed in the Caloosahatchee tributaries rather than dredging the Caloosahatchee, which dropped the water table.
- Navigational integrity of Lake Okeechobee waterway needs to be maintained.
- Need to look at the effects of Lake Okeechobee Regulation schedule on navigation.
- Long range plan for navigation traffic control in waterway.
- Consider public access to water.
- Reduced access to recreational waters is a problem.
- Consider sedimentation on boating.
- Study the effects of channelization in Estero Bay (boating use, dredging, use of jet skis and their effect on wildlife, water quality, safety, annoyance). Make boats fit channel, not the other way around.
- Better marking of navigable and non-navigable waterways for wildlife protection and safe boating areas.
- Manage reservoirs for intent plus wildlife management and public use.
- Retrofit existing urban areas and Ten Mile Canal.
- Lake Okeechobee refinement is critical with regard to its relationship to this area.
- Rapidly changing landscape – need GIS or updated land use maps as a tool. Florida Gulf Coast University may have this information in the form of impervious surface area.
- Sanibel Causeway may not impact anything else. If the causeway was opened (rebuilt). The problems upstream must be fixed first.
- “When did we become the western Everglades?”
- “Cypress Country” is a completely different system from the Everglades.
- People of SWFL should think about the consequences of their actions before inflicting harm on others.

Process

- Planning and coordination are lacking in the region.
- More intergovernmental coordination and communication is needed.
- Many want to stay involved in our process and have input and feedback in whole process. They don't want this done to them.
- Several individuals asked to be kept informed of the upcoming Governing Board and/or stakeholder meetings involving the Southwest Florida Study.
- How will the team involve the public and who will identify the stakeholders?
- Don't like the way we've combined stakeholders. For example, break out row crops from citrus crops in the agricultural groups. Another example is that there are individuals in the environmental community that don't represent any specific group.
- Circulate the list of stakeholders with whom we've met.
- Some prefer a joint meeting of all stakeholders.
- Others thought separating the stakeholder groups is a good direction to take.

- Ask the stakeholders to bring technical information to the meetings and provide a bias for those providing technical documentation that's useful to the study.
- Be mindful of the scheduled meeting times with regard to paid stakeholders versus the public.
- It was suggested that County Commissioner meetings/workshops, held regularly, could be a means of keeping the Commissioners informed on the progress of the study. There was a suggestion to brief the City Council at one of their workshops.
- One County Commissioner desires an executive summary as a means of keeping local and state governmental officials informed.
- Would like progress reports of study brought back to the Project Coordination Team (PCT).
- Active participants should include agricultural interests, all counties, East County Water Control District, Community Development Districts (Bonita Bay, Bay Creek, Bayside, and Brooks), and existing stakeholder groups, such as the Caloosahatchee Advisory Committee and/or the Governor's Commissioner group.
- Coordinate with Charlotte Harbor NEP.
- Get additional names from the Land Acquisition Group for the Community Based Stakeholder Group.
- Develop an impact evaluation matrix as part of technical advisory committee.
- Coordination database context is needed
- A better understanding of the planning process is needed.
- There was a suggestion that the Corps develop a matrix or a ranking system that describes what this study can address under the current authority. This approach will alleviate the public's false hope about what the study will and can accomplish.
- How long will the study take?
- Frustrations about the amount of time involved with implementing projects.
- Consider incremental products, phase the study, and evaluate the changes that would have taken place on an interim basis and send an interim report to Congress, if appropriate.
- This study should take 2 to 3 years and not 4 to 5 years.
- Would like to know the legal requirements to give input to team at different levels (local, state, federal) and what laws we are required to comply with.
- Use 2050 versus 2020 for population projections.
- Need to cover the same time frame as the east coast.
- We're too shortsighted – what about next 100 years?
- Don't like the boundary of the study.
- Why cut the study off in the middle of Fisheating Creek watershed?
- Lake Okeechobee should be included in the study area since it drains and deposits contaminants (such as blue green algae) into the Caloosahatchee and SWFL study area.
- Concerns with lumping (one basin for East County versus many).
- Do not look at different areas in the state in a piecemeal fashion.
- We must be futuristic, clairvoyant to come up with a plan.
- This should not be a large plan that when we look back, we see we did not do it right.
- Plan for unforeseen consequences.
- Storm water solutions should be real projects with real timeframes for implementation.
- Study should address practical solutions for the lower West Coast problems.
- This study should tell the public what and where the water resources are.
- There are concerns about the Southwest Florida Study process becoming politically driven. We should scope the study with no political persuasions and not compromise for political interests.
- Use the Study to bring science and fact to the process. Implement projects/study in a scientific manner (e.g., Lake Okeechobee is too political).

- Give equal weight to all groups of stakeholders. Organized special interests preclude non-organized sectors from having a district voice.
- Focus on how individuals can help to solve the problems of SWFL.
- Public needs more awareness of our meetings.
- "A community that participates actively in the process will more willingly embrace change."

Other studies and plans

- There is a wealth of technical information available. The key to this study is the existing technical documentation and how the information is assembled.
- Account for local efforts.
- Take advantage of opportunities to incorporate/expand some of the many separate efforts going on in southwest Florida into the Southwest Florida Study.
- Digital data for desirable lands within Lee County will soon be available as a resource.
- Lee County is collecting water quality data from many sources and can make available to study team.
- East County Water Control District has modeling and data.
- Incorporate the water studies and modeling efforts the SFWMD has worked on and use existing WMD data on water table drawdown and the effects on animal communities.
- List out the existing resources, plans, etc. that are in place and can be used.
- Plan should be consistent with the Lee County Comprehensive Plan.
- Coordination is needed with the Lower West Coast Water Supply Plan (LWCWSP) and the Caloosahatchee Water Management Plan (CWMP).
- Is the LWCWSP the only source of information for the Southwest Florida Study?
- Look at the improvements contemplated in South Lee County Study.
- Another thought the South Lee County Watershed Plan includes some bad alternatives. For example, do not want to see water management areas like those on east coast (dike system). However, considers study information good but recommendations poor.
- The Science Plan was tasked with looking at gaps in the PCT 5's projects. Consider the Science Plan in SWFL study.
- Use rapid bioassessment and use the work done by the PCT.
- Is the Southern Golden Gate Estates Project Implementation Report part of the SWFL feasibility study?
- Research the Golden Gate Estates study done by Wilson Miller.
- City of Sanibel is undertaking several studies, including seagrass studies off Bunch Beach, east of Picnic Island, and north of Middlebird Key, and offered the results.
- Apply what's been learned in the Florida Keys through the Carrying Capacity study.
- Look into a carrying capacity study identifying water resources.
- Implement the Charlotte Harbor CCMP.
- One individual stressed the importance of the 1984 Land Use Plan and the 1989 Land Acquisition Program that will allow the county to acquire land now and save it for a future use later.
- What is the status of the projects under CERP? In the SWFL study, use the existing components for the area as specified in the CERP.
- The Corps was offered access to historical data dating back to the 1900s.

The following is a list of proposed projects that were offered for consideration:

- Extend Tamiami Trail culverts further west from US 41.
- Naples Bay flowways restoration.
- Southern Golden Gate Estates restoration.
- Golden Gate Canal restoration.
- Picayune Strand in Northern Golden Gate Estates.
- Belle Meade watershed flowway restoration.
- Expand Panther National Wildlife Refuge.
- Restore riparian connections between Estero Bay and I-75.
- Restore the polluted Ten Mile Canal.
- Restore riparian habitat connections along Caloosahatchee River and tributaries.
- Purchase remaining wetlands in Lehigh Acres.
- Hickey Key Swamp
- Gator Slough Canal
- Charlotte Harbor, Yucca projects
- Look at the website of PCT 5 who proposed about 40 projects to CERP which didn't get into the Comprehensive Plan.
- Get Bunch Beach, Pine Island Sound, Matlacha Pass lands into public ownership.
- Lakes Park and Ten Mile Canal filter marsh.
- Stormwater attenuation program for Ft. Myers Beach
- Collier County District 6 watershed needs money to buy up wetlands that are under developmental threat.
- Buy and preserve CREW CARL projects in Collier and Lee Counties.
- Wood stork protection in CREW area.
- Acquisition of Estero Bay (CARL project).
- Estero Bay Water Management Improvement Plan – first phase is done; consider the second phase (implementation) for funding.
- Fund Tarpon Bay Laboratory.
- Restore Lake Hicopochee.
- Undertake removal of nuisance plant and animal species.
- Develop a funding mechanism for the purchase of historic flow ways for flood control.
- The Caloosahatchee Water Management Plan, Lower West Coast Water Supply Plan, water flows in the environment, water quality, and flood protection projects in Bonita Springs and in South Lee County need regional and federal assistance.
- Consider projects that were "parked" in the SWFL EIS because they weren't regulatory in nature.
- No funds are provided to acquire land for conservation/preservation and natural sheet flow way.
- Corps assistance is needed in funding projects that would increase the aquifer levels.
- Expand Caloosahatchee National Wildlife Refuge from mouth to Lake Okeechobee.
- Opportunity for the defined watershed of Lehigh Acres to Six Mile Basin being restored.
- Restore oxbows in Sanibel River.
- Reconnection of tributary systems which have been severed.
- Acquisition of privately-owned mangrove islands in Pine Island Sound, Matlacha Pass, and Bunch Beach.
- Restoration of Sanibel Gardens Preserve
- Projects in the Florida Panther National Wildlife Refuge - refuge expansion, exotic plant species control, rare orchid restoration, create wetland habitat, perform watershed analysis, develop a multi-agency visitor center.

- Projects in Ten Thousand Islands National Wildlife Refuge – perform watershed analysis, acquire acreage adjacent to refuge boundary, exotic plant species control, develop public use facilities.
- Restore hydrography of Estero Bay.

