DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington, D.C. 20314-1000

EC 1105-2-411

CECW-P

Circular
No. 1105-2-411

15 January 2010

EXPIRES 15 JANUARY 2012

Planning
WATERSHED PLANS

1. Purpose. The purpose of this Circular is to provide guidance for conducting watershed planning and preparing watershed plans led by the Corps under Section 729 of WRDA 1986, as amended, and other specifically authorized watershed planning authorities. Watershed planning addresses problems, needs and opportunities within a watershed or regional context; strives to achieve integrated water resources management (IRWM); and, results in general, non-project specific, holistic plans or strategies to address those watershed needs. Watershed plans may recommend programs and the initiation of site-specific project implementation studies. Project-focused planning is addressed in other guidance although the same watershed principles, as discussed in paragraphs 4b, 5 and 6 below, apply.

2. Applicability. This Circular applies to all Headquarters, U. S. Army Corps of Engineers (HQUSACE) elements, laboratories, major subordinate commands and district commands having Civil Works responsibilities. These principles are applicable to all Corps of Engineers Civil Works planning studies, with the exception of Continuing Authorities Program (CAP) studies. See Continuing Authorities Program (CAP) guidance (ER 1105-2-100, appendix F) for procedures to accomplish more comprehensive planning under CAP.

3. References. See Appendix A.

4. Background.

a. The Corps approach to water resources planning heretofore frequently focused on problem solving and decision making for specific sites and projects. A common element of Corps planning is alternative plan formulation, evaluation and selection, plan recommendation, and related requirements, including environmental compliance, to support authorization and appropriation for implementation of a Corps project.

b. In the mid 1990s the Corps began to renew its emphasis on taking a more comprehensive view of project planning. Instead of primarily focusing on single purpose projects, the Corps recognized the need to undertake planning in a broader, integrated, systems context. The 1999 Policy Guidance Letter #61 was issued describing the importance of managing water resource

activities within a watershed context and the application of a watershed perspective to Corps activities. The Policy Guidance Letter lays out the principles for watershed planning which include integrating water and related land resources management; seeking sustainable water resources management taking into consideration environmental protection, economic development and social well-being; coordinating planning with responsible Federal, tribal, State and local governments; promoting interagency cooperation that incorporates local, regional, tribal and national water resource management goals; leveraging of resources and programs among Federal, tribal, State and local interests; identifying existing and future water resource use demands; using interdisciplinary teams; evaluating of the monetary and non-monetary trade-offs; using sound science and data; applying the principles of adaptive management; and, soliciting public input to water resources development and management. Similarly, the Planning Guidance Notebook (ER 1105-2-100, April 2000) emphasizes the importance of considering broad system aspects of problems and solutions as principles of analysis in Corps studies.

c. The existing Civil Works Strategic Plan (March 2004) emphasizes the increased application of these watershed principles and the proposed 2010 revised plan furthers these principles. The watershed approach is the unifying theme that links and integrates the Corps Civil Works goals together. Under these principles, the Corps will:

(1) work collaboratively with a broad range of stakeholders to help solve water resources problems in an integrated and sustainable manner;

(2) use systems approaches to understand the connection between natural and man-made systems;

(3) analyze water resources problems on larger geographic scales; and

(4) strive to achieve multiple goals and functions using water and related resources in a balanced manner.

5. Watershed Planning for IWRM. Watershed Planning, as described in this circular, goes beyond project planning for specific Corps projects towards more comprehensive and strategic evaluations and analyses. Integrated watershed approaches cross diverse political, geographic, physical, institutional, technical, and stakeholder considerations and are valuable to both project planning and watershed planning. Watershed planning will address the identified water resources needs from any source in the watershed and provide a joint vision of a desired end state including potential solutions regardless of agency responsibilities and will reflect other Federal interests as well as potential Corps interest. Watershed plans may identify potential Corps projects consistent with priority missions; however, this is not the primary consideration of watershed planning. In conducting watershed planning, the Corps uses its planning capability in a broader sense to meet the changing water resources needs of the nation.

Watershed planning is an approach for managing water resources within specified drainage areas or watersheds and addresses problems in a holistic manner that reflects the interdependency of water uses, competing demands, and the desires of a wide range of stakeholders in addressing

watershed problems and opportunities. Watershed planning facilitates the collaborative evaluation of a more complete range of potential solutions and is more likely to identify the most technically sound, environmentally sustainable, and economically efficient means to achieve multiple goals in the entire watershed over the long term, i.e., integrated water resources management.

6. Specific Considerations.

(a) Systems Approach: Within watersheds, there are many competing demands for available water resources. In utilizing a systems approach within a watershed, the planning effort should identify and characterize the systems of interest to the current and future needs of the watershed. A watershed contains many systems which may or may not interact with one another. Systems that may be considered in watershed planning include, but are not limited to, such things as river and drainage systems, geomorphic and subterranean resources, weather (including climate change), transportation systems, power grid systems, water supply and wastewater systems, economic systems, recreation systems, institutional systems and legal frameworks, regulatory frameworks, floodplain management, ecosystems, water management systems, navigation systems, human resources and any other characterized system pertinent to the needs of the watershed effort. Particular attention should be paid to the interrelationships among land resources and water bodies and the upstream to downstream linkages that characterize a watershed. The cumulative effects of any action that may occur among these systems and along these links must also be considered during the planning process. The interaction, coordination and integration of the applicable considerations and needs within the watershed across systems, agencies, and programs should seek interdependent, long term holistic solutions rather than piecemeal approaches and provide a blueprint for continued involvement in the watershed, regardless of the entity that might ultimately implement the proposed actions.

(b) Public Involvement, Collaboration and Coordination. Public involvement, collaboration and consultation with Federal, tribal, state, interstate, and local government entities are a keystone of the USACE watershed approach and are essential to the success of watershed planning. The goal of public involvement, collaboration and coordination is to open and maintain channels of communication in order to give full consideration to the views of others in the planning process. Strategies for developing effective public involvement are described in ER 1105-2-100, Appendix B. In addition, the Council on Environmental Quality has published a handbook that provides a framework for considering collaboration strategies (See Appendix A) and the Shared Vision Planning tool is available through the Corps Institute for Water Resources (IWR). USACE is required to consult with Federal, tribal, state, interstate, and local government entities when it is leading most assessments of a watershed under Section 729 of WRDA 86, as amended. Consultation with other government entities enables USACE to leverage the expertise, authorities, and resources of those entities as well as to consider their issues and concerns. Both public involvement and consultation must occur, however, with the awareness that USACE cannot relinquish its statutory decision-making responsibly.

(c) Leveraging of Resources During Implementation: Watershed planning should include strategies for implementation, both Federal and non-Federal, to allow programs to work together

over time. Federal, State, Tribal and local government entity missions, goals, objectives, funding requirements, and timeframes should be fully understood so that efforts can be accomplished by various entities in an integrated way in accordance with a collaboratively developed plan. Through data sharing and recognition of each entities' areas of expertise, limited resources can be used over time in a more integrated fashion to achieve a greater sum than if the agencies and stakeholders pursued action independently. The objective is to consider and apply the various capabilities, programs, resources, and authorities of the various collaborators to develop and implement effective watershed plans using innovative arrangements.

(d) Study Area: Watershed planning addresses resource conditions in the watershed, land uses, and multiple stakeholder interests. By definition, watershed planning focuses on a watershed, a geographic area that is defined by a drainage basin. Most frequently this geographic area is described using hydrologic cataloging units. Watershed planning should address a geographic area large enough to ensure that plans will address the problems and opportunities in the area under study and encompass areas that are potentially affected by or that could affect candidate solutions so the solutions can be examined appropriately. In some cases, aspects other than hydrologic interaction may contribute to defining the "planning area." For example, the planning area associated with an inland waterway and related port capability problems, is likely to include the regional transportation sector.

7. Corps Participation in Watershed Planning. There are two primary ways the Corps can participate in watershed planning: one as a participating agency and the other as the lead agency. Figure 1 illustrates these concepts.

a. Corps as a Participant in Watershed Planning (not lead agency). When the Corps participates in efforts led by others, it brings technical expertise, skills, tools and data to the table. Ultimately, there may be a watershed plan developed that may identify a potential Corps project under Corps mission areas which requires further project specific study under normal project planning and budget procedures. Alternatively, the watershed plan may identify limited or no further Corps involvement. Funding for such activities is available under Section 22 Planning Assistance to States and other similar technical assistance authorities. There is value to partnering with non-Federal entities in watershed planning.

b. Corps as Lead Agency in Watershed Planning. More comprehensive watershed planning which results in a holistic watershed plan (not a project) is the focus of this Engineering Circular. A watershed plan may or may not identify a potential Corps project. If a comprehensive watershed study identifies potential projects for Corps implementation, a separate and more detailed feasibility study may be initiated through the new start feasibility process in accordance with the annual budget circular. The watershed study may serve as the technical component of a reconnaissance study; however, the development of the Feasibility Cost Sharing Agreement (FCSA) and Project Management Plan (PMP) with the Review Plan (RP) are still required for the project specific study. If a watershed study is conducted under another authority, the cost sharing and other provisions associated with that authority will be used. In addition, site specific project planning will be conducted in a watershed context. Consistent with the planning process and the annual budget circular, the following process will be used for the preparation of a watershed plan

under the authority of Section 729 of WRDA 1986 as amended.

(1) Initial Watershed Assessment (similar to a traditional reconnaissance study): The Initial Watershed Assessment (IWA) will be used to identify a non-Federal sponsor(s), define the scope and the objective of the Section 729 Assessment, prepare a Watershed Assessment Management Plan (WAMP) and negotiate a cost sharing agreement. This effort should not exceed $100,000. Any IWA costs in excess of $100,000 will be shared with the non-Federal sponsor at 75 percent Federal and 25 percent non-Federal pursuant to the terms of a Section 729 Assessment Agreement executed by the District Commander and the non-Federal sponsor. No funds in excess of the $100,000 will be allocated to the assessment until the Section 729 Assessment Agreement is executed.

(2) Section 729 Assessment Agreement:- HQUSACE has initiated work on a model Section 729 Assessment Agreement and the Assistant Secretary of the Army (Civil Works (ASA (CW)) has designated the latest version of the draft model Section 729 Assessment Agreement as an interim model. Contact CECW-PC for a copy of the interim model. Until the model is completed and approved, the MSC Commander must forward, to the appropriate RIT, one hardcopy and an electronic copy of a Section 729 Assessment Agreement package containing: a clean copy of the negotiated draft assessment agreement; a copy of the draft assessment agreement with the deviations from the interim model along with detailed reasons for each deviation; Certificate of Legal Review signed by the District Counsel; current letter of intent from the non-Federal sponsor, and the non-Federal sponsor's signed Self-Certification of Financial Capability for Agreements. All documents requiring signature (Certificate of Legal Review, Letter of Intent, and the non-Federal sponsor's Self-Certification of Financial Capability for Agreements) must be scanned so that required signatures are contained in the electronic file. The appropriate RIT will coordinate the necessary HQ-level review. If there are no deviations from the interim model (other than filling in assessment specific information), HQ can approve the agreement. If there are deviations from the interim model, ASA (CW) will approve the agreement. The Section 729 Assessment Agreement will be executed upon approval. Watershed assessments conducted under other authorities may require different agreements and CECW-PC should be contacted for guidance.

(3) Assessment Cost Sharing: Watershed assessments conducted under the authority of Section 729 of WRDA 1986, as amended, are cost shared 75 percent Federal/25 percent non-Federal. Non-Federal sponsors may contribute their share as work in kind under Section 729 of WRDA 1986, as amended. Watershed assessments conducted under other specific authorities will follow cost sharing specified in that authority.

8. Watershed Planning Process. The watershed planning process is built upon the establishment of a collaborative partnership between a Corps planning team, which includes Corps functional elements such as Planning, Operations, Regulatory and Engineering and affected Federal, tribal, state, interstate, and local government entities. A partnership of these entities should be formed at the outset of the planning process and should continue throughout the planning process. The Corps should also employ a public involvement plan to keep the public and other stakeholders informed of the Corps plan as it develops and to consider the public's views during the process.

In accordance with normal Civil Works planning guidelines and Federal law (i.e. Federal Advisory Committee Act), however, the collaborative partnership is limited to Federal, tribal, state, interstate and local government entities. The watershed planning process resulting in a watershed plan will generally follow the six step Civil Works planning process. This framework is integral to any quality analysis and planning. The District Planning Chief must insure that the planning process and watershed principles are adhered to in watershed planning. The following elements are key to facilitating an effective watershed planning process:

a. Define the Study Area. Defining the appropriate watershed or study area is critical. The area needs to be broad enough to capture the impacts and influences of the problems and likely solutions on the significant resources under study in order to ensure that potential impacts and interactions are fully analyzed. This may mean including downstream areas that are otherwise technically not in the local watershed or perhaps including a much broader, more regional watershed to adequately capture the full ranges of influence as well as identifying all municipalities and entities that could potentially be part of the partnership.

The study area should encompass the significant resources affecting the need for action or likely to be affected by potential actions, both directly and indirectly. The study area should be extensive enough to consider synergies and tradeoffs among affected resources, and among existing water resources projects and programs, including current or future planning by the agency or others and expected implementation that is related to but not part of the study under consideration.

b. Identify Problems and Opportunities. Engage the partnership of Federal, tribal, state, interstate and local government entities to determine problems, needs and opportunities in the watershed. By its very nature, these stakeholders will hold a more expansive view of problems, needs and opportunities than what is seen in more conventional project planning.

c. Inventory and Forecast Conditions. Engage the partnership of Federal, tribal, state, interstate, and local government entities to work together to inventory the water and related land resources, the ecosystems that reside within or on those resources, agency programs and capabilities, jurisdictional delineations (who does what and why); identification of demands and needs within the watershed, existing models in use, problems, existing mapping and GIS data, water supply systems, wastewater treatment systems, water rights, current practices, transportation systems, existing knowledge base, existing data, or any inventory consistent with the needs of the study. Reasonable efforts must be made to obtain and analyze relevant data, even where available data may be limited at the outset. Inventory is not limited to those areas used to develop analyses directly related to site-specific project planning.

Watershed planning will reflect the uncertainties and assumptions inherent in planning on a larger scale and will result in a more comprehensive and strategic vision or plan. Examination of anticipated future activities that reflect reasonable outcomes allows consideration of the likely effects of a range of activities, decisions, or other courses of action. Watershed planning may involve a number of likely outcomes (scenarios) that should be appropriately defined and understood to convey the acceptability of those possible outcomes. For watershed planning, the

examination should be consistent with the needs of the study effort.

d. Evaluation and Comparison of Alternative Approaches. Watershed alternative approaches may include alternative courses of action and their expected outcomes, alternative ways to address identified needs through programs of other Federal, tribal, state, interstate and local government entities, alternative combinations of future efforts, basin wide strategies, and other alternatives. In watershed planning, alternatives should be developed in the context of options or choices and their resultant projected outcomes. There may be a myriad of ways to address the needs within a watershed; structured assessment of the pros and cons of pursuing various courses over time allows a comparison of alternatives to one another based upon expected results. Bringing stakeholders together in a collaborative approach should result in a shared vision of possible future conditions. A number of accounts are established in the Principles and Guidelines to facilitate the evaluation and display of effects of alternative plans. These accounts provide an excellent framework for evaluating and displaying effects. Similarly, the four Principles and Guideline evaluation criteria (completeness, effectiveness, efficiency, and acceptability) provide a solid and flexible framework for comparing alternatives from a variety of perspectives.

e. Strategy Selection. The Corps in consultation with the partnership of Federal, tribal, state, interstate and local government entities should assess strategies and broad plans that are necessary to address significant identifiable watershed problems and will reflect the shared vision and values of the partners for implementing activities and will identify the government entity (i.e., Federal, tribal, state, interstate and local government) best suited for accomplishing such activities.

9. Other Considerations. During the development of a watershed plan additional considerations should be included during the planning process to develop as much information as possible to help evaluate appropriate solutions to identified problems in a watershed. Additional considerations include where such things as economic, environmental, social well being, engineering, cost data and data quality information.

a. Benefit Evaluation. Watershed planning may involve benefit analysis and evaluation including identification of economic and environmental benefits, cost-effectiveness and incremental cost analyses (CE/ICA) and trade-offs at a survey level. Watershed planning may involve a wide variety of proven economic methodologies appropriate to the study effort, including monetary and non-monetary assessments based on yielding the highest value or utility for an alternative's combined objectives, and identified needs. Corps economic principles and expertise should be applied in watershed planning to meet the needs of the study. Economic evaluations may include NED assessments, impacts on the local and regional economy including employment and income (Regional Economic Development (RED)), life and safety impacts and other social affects (OSE), ecosystem restoration (NER), and financial analyses In all cases, the uncertainties, assumptions, specifications and planning objectives need to be identified early in the study, be clearly documented and communicated, and must demonstrate their adequacy through review processes. The use of alternative procedures and/or new benefit categories, including the procedures to be used to estimate them, requires advance approval from HQUSACE (CECW-P) per ER 1105-2-100 (Appendix E).

b. Cost Estimates. Survey level cost estimates are useful tools to assist decision makers in assessing efficient allocation of limited resources. In watershed planning, cost estimates involving savings or least cost options and outcomes are encouraged.

c. Public Involvement. In addition to establishing a partnership of Federal, tribal, state, interstate and local government entities that will remain actively engaged in the watershed planning process, watershed planning must include a public involvement strategy to solicit input and help ensure the transparency of the planning efforts to the public in general. ER 1105-2-100, Appendix B, provides guidance for developing a public involvement strategy. The public involvement strategy and the collaborative partnership strategy must be developed and included in the Watershed Assessment Management Plan.

d. Engineering. Engineering evaluations tailored to the watershed planning effort based upon the identified needs is appropriate. Corps engineering principles and expertise including hydrologic and hydraulic modeling should be applied in watershed planning to meet the needs of the assessment and not confined to project design and cost requirements.

e. National Environmental Policy Act (NEPA) and Environmental Compliance. Because a watershed study will normally fall short of generating a specific proposal for a major Federal action that could adversely affect the human environment as defined by NEPA, the preparation of a NEPA document is normally not required during the study phases. When a watershed plan generates one or more proposals for undertaking additional studies (e.g. a feasibility study) that could be expected to result in a specific proposal, the follow-on study will require a specific NEPA document. The watershed assessment will, however, give full consideration to potential environmental impacts in the development of a watershed plan. Data collection and analysis can be performed that later would be useful in preparing NEPA compliance documentation by either the Corps or others. Corps environmental principles and expertise may be applied in watershed planning to meet the identified needs of the study including environmental compliance requirements and should be tailored to the potential conclusions and recommendation.

f. Real Estate: Detailed real estate information is not required but real estate information should be tailored to a level of detail consistent with the watershed planning effort and consideration of potential real estate requirements should be acknowledged. A Real Estate representative should participate in the watershed planning effort as necessary.

g. Data Quality and Model Quality Assurance: In conducting watershed studies, and overall watershed planning, it is recognized that many agencies and stakeholders have developed numerous models and data. Use of existing models and data in watershed planning, whether it is from the Corps, other Federal agencies or local entities is encouraged through collaborative processes, but the quality and validity of these models and data must be evaluated and documented by the appropriate agencies. For Corps-led watershed efforts, all applicable product quality regulations, including but not limited to MSC quality plans, peer review guidance, and model quality assurance guidance apply. The approach to product review for each Corps-led watershed effort shall be specified in a Review Plan (RP) as described in the current guidance on

independent review processes. Each RP will be coordinated, approved and posted as directed in the existing guidance on independent review processes. If the watershed assessment is expected to lead to specific feasibility studies, consideration should be given in the RP that would examine expected peer review needs in the watershed plan vis-à-vis spinoff feasibility efforts to conserve resources and preclude duplication of effort.

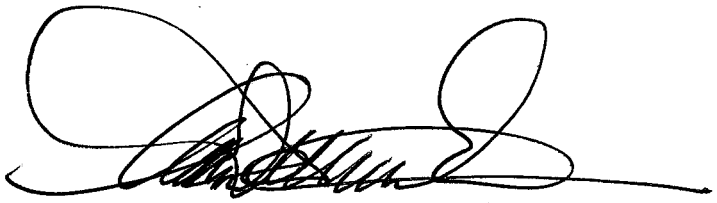
10. Reporting Requirements for a Watershed Plan.

a. Review and Approval process. The review and approval process for Watershed Plans will generally follow the procedures outlined in Appendix H of ER 1105-2-100. Initial watershed assessment and associated Watershed Assessment Management Plan (a PMP) will be approved at the MSC. HQUSACE will be involved in scoping watershed assessments similar to that of a feasibility study to include a scoping meeting and a review prior to the release of the draft assessment for public review. Early vertical team involvement is strongly encouraged. Upon completion of the Assessment, the Watershed Plan will be submitted to the appropriate HQUSACE's RIT which will forward the submittal package to CECW-PC for Policy and Legal Compliance review. The HQ review role will be to ascertain that appropriate considerations have been made and that conclusions are consistent with overall Corps of Engineers policy and the Chief, Planning and Policy Division, HQUASCE, will approve the final document. Once this review is complete, the appropriate RIT will coordinate the report with the Assistant Secretary of the Army for transmittal to Congress for information in response to the study authority.

b. Recommendation. Identified future actions should be stated in the Conclusions section of the report. These actions must be supported by clear statements of responsibilities as agreed to by the partnership. If further Corps actions are identified, then an appropriate recommendation for further Corps involvement should be made following existing guidance.

11. Implementation. This guidance is effective immediately and shall be applied to all Corps watershed planning activities, which should embrace the principles and intent of this guidance to the fullest degree possible.

FOR THE COMMANDER:



ALEX C. DORNSTAUDER
Colonel, Corps of Engineers
Executive Director of Civil Works

Appendix A – References
Figure 1

APPENDIX A
References

a. Policy Guidance Letter #61 – Application of the Watershed Perspective to Corps of Engineers Civil Works Programs and Activities, January 27, 1999.

b. 40 CFR 1500-1508. Council on Environmental Quality. Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.

c. Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (Principles and Guidelines), Water Resources Council, March 10, 1983.

d. ER 1105-2-100, Planning Guidance.

e. Civil Works Strategic Plan, March 2004.

f. New Directions in Water Resources Planning for the U.S. Army Corps of Engineers, National Research Council, 1999.

g. Section 202 of WRDA 2000 Implementation Guidance: CECW-BW Memorandum dated May 29, 2001, SUBJECT: Implementation Guidance for Section 202 of the Water Resources Development Act (WRDA 2000), Watershed and River Basin Assessments, which amends Section 729, WRDA 86, Study of Water Resources Needs of River Basins and Regions.

h. Collaboration in NEPA: A Handbook for NEPA Practitioners, Council on Environmental Quality, October 2007.

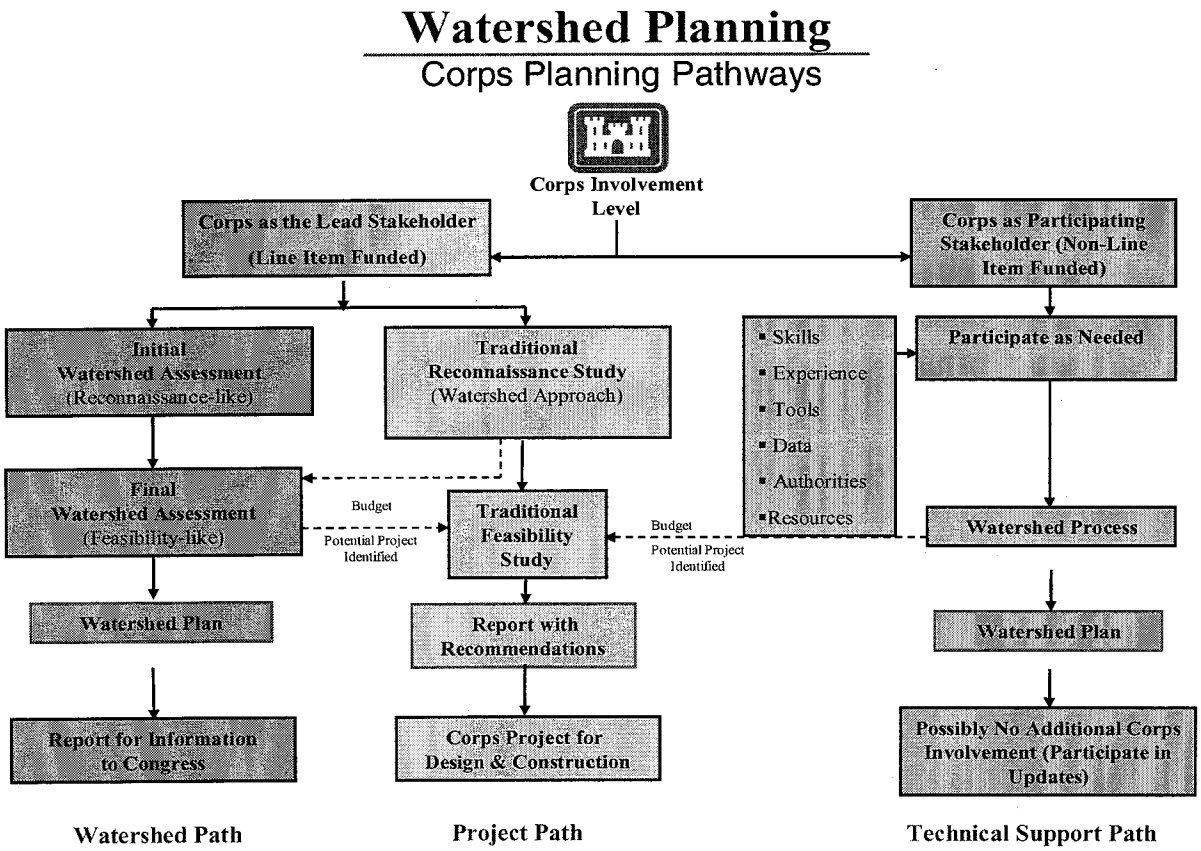

Watershed Planning
Corps Planning Pathways
Corps Involvement Level
Corps as the Lead Stakeholder (Line Item Funded)
Corps as Participating Stakeholder (Non-Line Item Funded)
Initial Watershed Assessment (Reconnaissance-like)
Traditional Reconnaissance Study (Watershed Approach)
Skills
Experience
Tools
Data
Authorities
Resources
Participate as Needed
Final Watershed Assessment (Feasibility-like)
Budget
Potential Project Identified
Traditional Feasibility Study
Budget
Potential Project Identified
Watershed Process
Watershed Plan
Report with Recommendations
Watershed Plan
Report for Information to Congress
Corps Project for Design & Construction
Possibly No Additional Corps Involvement (Participate in Updates)
Watershed Path
Project Path
Technical Support Path

Figure 1