



DEPARTMENT OF THE ARMY  
NORTH ATLANTIC DIVISION, US ARMY CORPS OF ENGINEERS  
FORT HAMILTON MILITARY COMMUNITY  
BROOKLYN, NEW YORK 11252-6700

REPLY TO  
ATTENTION OF

CENAD-PD-PP

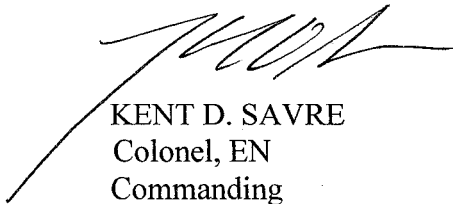
DEC 5 2012

MEMORANDUM FOR Commander, New England District, ATTN: CENAE-EP-PS

SUBJECT: Review Plan Approval for Merrimack River, Massachusetts and New Hampshire  
Section 729 Watershed Assessment

1. The attached Review Plan for the subject study has been prepared in accordance with EC 1165-2-209, Civil Works Review Policy.
2. The Review Plan has been coordinated with the Ecosystem Planning Center of Expertise of the Mississippi Valley Division, which is the lead office to execute this plan. For further information, contact Ms. Jodi Creswell at 309-794-5448. As no specific projects for construction will be evaluated for this Corps-led watershed assessment, the Review Plan does not include independent external peer review, as it is not applicable to this effort.
3. I hereby approve this Review Plan, which is subject to change as study circumstances require, consistent with study development under the Project Management Business Process. Subsequent revisions to this Review Plan or its execution will require new written approval from this office.

Encl  
as



KENT D. SAVRE  
Colonel, EN  
Commanding

# **REVIEW PLAN**

## **MERRIMACK RIVER MASSACHUSETTS AND NEW HAMPSHIRE SECTION 729, WATERSHED ASSESSMENT**

**New England District**

**MSC Approval Date: Pending**

**Last Revision Date: November 13, 2012**



**US Army Corps  
of Engineers®**

**DRAFT REVIEW PLAN**

**MERRIMACK RIVER  
MASSACHUSETTS AND NEW HAMPSHIRE**

**SECTION 729, WATERSHED ASSESSMENT**

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## 1. PURPOSE AND REQUIREMENTS

a. **Purpose.** This Review Plan defines the scope and level of peer review for the Merrimack River, Massachusetts and New Hampshire, Section 729, Watershed Assessment Study.

b. **References.**

- (1.) Engineering Circular (EC) 1105-2-412, Assuring Quality of Planning Models, 31 March 2011
- (2.) EC1165-2-209, Civil Works Review Policy, 31 January 2010
- (3.) EC 1105-2-411, Watershed Plans, 15 January 2010
- (4.) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
- (5.) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (6.) Upper Merrimack and Pemigewasset River , Project Study Plan, July 2006
- (7.) Watershed Assessment Management Plan, June 2012
- (8.) District Quality Management Plan, CENAER 5-2-7, 1 June 2000

c. **Requirements.** This review plan was developed in accordance with EC 1165-2-209, which establishes an accountable, comprehensive, life-cycle review strategy for Civil Works products by providing a seamless process for review of all Civil Works projects from initial planning through design, construction, and operation, maintenance, repair, replacement and rehabilitation (OMRR&R). The EC outlines four general levels of review: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review. In addition to these levels of review, decision documents are subject to cost engineering review and certification (per EC 1165-2-209) and planning model certification/approval (per EC 1105-2-412).

## 2. REVIEW MANAGEMENT ORGANIZATION (RMO) COORDINATION

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for decision documents is typically either a Planning Center of Expertise (PCX) or the Risk Management Center (RMC), depending on the primary purpose of the decision document.

The RMO for the peer review effort described in this Review Plan is the Ecosystem Restoration Center of Expertise. The Corps does not have a center of expertise for watershed studies so the review is managed by the PCX that is most closely aligned with the study objectives. In this case the watershed study objectives to improve water quality to meet water quality requirements now and in the future for aquatic habitat and other designated uses are most closely aligned with the Ecosystem PCX.

Generally, the RMO will coordinate with the Cost Engineering Directory of Expertise (DX) as appropriate to ensure the appropriate expertise is included on the review teams to assess the adequacy of cost estimates, construction schedules and contingencies. The study will not result in a Corps recommended project and Corps project costs will not be developed. Therefore, coordination with the Cost DX will not be necessary for the watershed study.

### 3. STUDY INFORMATION

- a. **Watershed Assessment.** The overall objective of the effort is performance of comprehensive technical watershed assessment study is to provide scientific information to guide wise water resource management decisions in the Merrimack River Watershed. This study is being conducted under the Section 729 authority and will not result in a decisions document for a Corps implemented project. The Watershed Plan is not an implementation document since it will not directly lead to implementation of a project as defined by EC 1165-2-209 the watershed assessment is an "other work product". No National Environmental Policy Act (NEPA) documentation will be produced with this watershed assessment. No Corps project will be recommended and Congressional authorization will not be needed. Headquarters of the U.S. Army Corps of Engineers, Washington, D.C. (HQUSACE) will conduct policy review of the report and once review is complete coordinate the report (plan) with the Assistance Secretary of the Army for transmittal to Congress for information.
- b. **Study/Project Description.** This study is being conducted in response to language contained in Section 437 of WRDA 2000 that directed the USACE to conduct a comprehensive study of the water resource needs of the Merrimack River Basin in Massachusetts (MA) and New Hampshire (NH), in the manner described in section 729 of the WRDA 1986, as amended.

The Merrimack River is formed by the confluence of the Pemigewasset and Winnepesaukee Rivers in Franklin, New Hampshire. See Figure 1. The river flows southward for approximately 78 miles in New Hampshire; it turns abruptly across the New Hampshire - Massachusetts border and flows in a northeasterly direction for approximately another 50 miles before discharging to the Atlantic Ocean at Newburyport, Massachusetts. The final 22 miles of the river, downstream of Haverhill, Massachusetts, are tidally influenced. The Merrimack River watershed is about 5,010 square miles (sq. mi.) with 3,810 sq. mi. in New Hampshire (76%) and 1,200 sq. mi in Massachusetts (24%). The watershed encompasses a variety of terrain and climate conditions, from the mountainous White Mountain region in northern New Hampshire to the estuarine coastal basin of northeastern Massachusetts. Precipitation in the watershed is fairly evenly distributed throughout the year. There are, however, large inter-basin variations in the amount and type of precipitation (*i.e.* rain versus snow) primarily as a result of the effects of terrain, elevation, latitude, and proximity to the ocean.

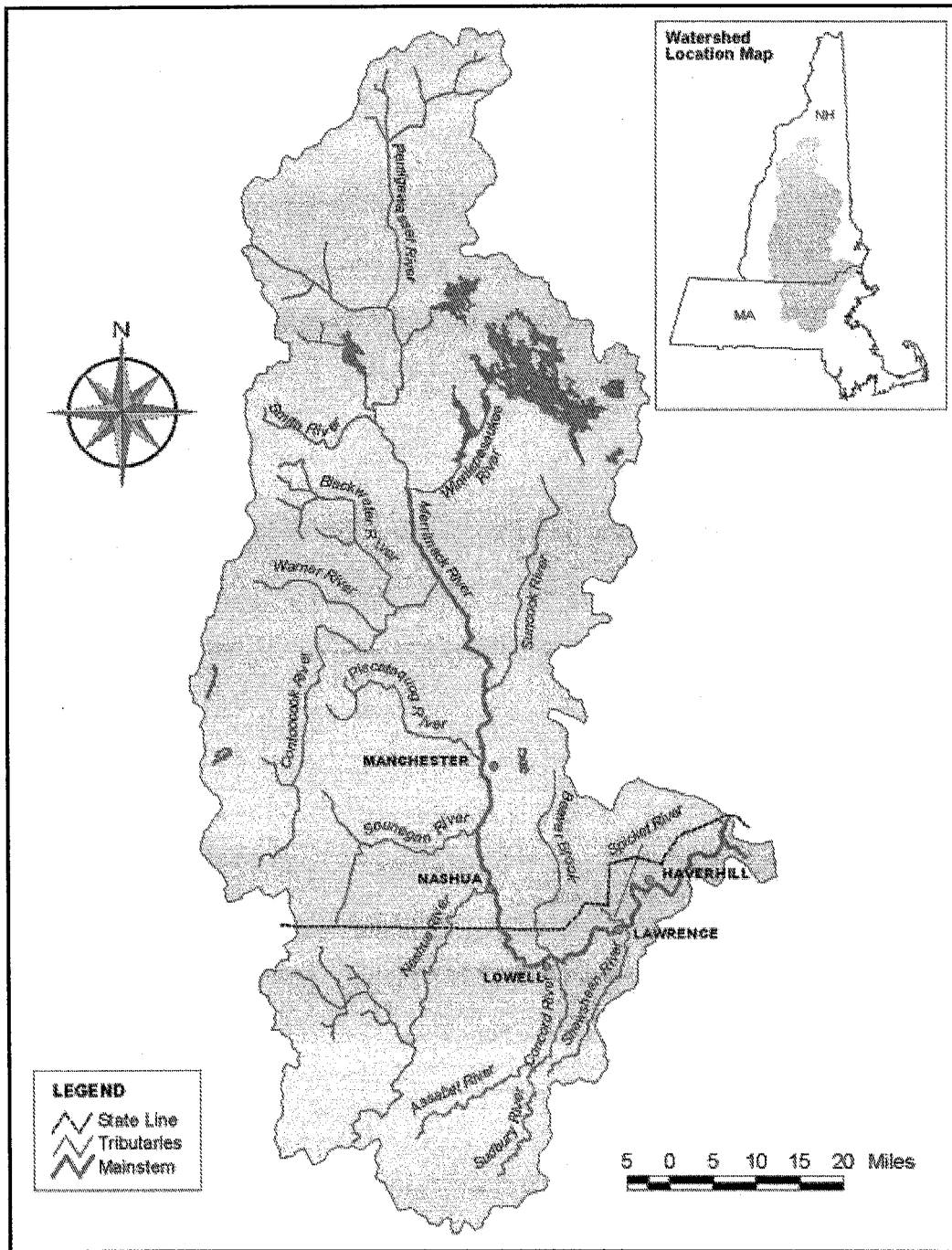


Figure 1. Merrimack River Watershed

Temperatures in the watershed vary widely on an annual basis. July is typically found to be the warmest month (high temperatures above 90 degree Fahrenheit) and January is generally the coldest (low temperatures below 32 degrees Fahrenheit).

A mix of deciduous and evergreen forest covers approximately 77 percent of the watershed area and dominates the land use in the upper basin. Urban areas, including residential, industrial, and commercial land uses, make up the second largest land use category covering about 10 percent of the total watershed area. Six major urban/industrial cities on the river are Concord, Manchester, and Nashua in New Hampshire and Lowell, Lawrence, and Haverhill in Massachusetts. Existing uses of the river and its tributaries include: aquatic habitat for fish and wildlife (including anadromous species), water supply for towns along the river, contact and non-contact recreation, hydropower production, and receiving waters for treated wastewater discharges.

Within the past several decades, significant improvements have been made to the water quality of the river and its watershed. However, water quality, quantity and fish and wildlife habitat concerns remain. Some of the reaches of the main stem river are listed on the States (Massachusetts and New Hampshire) 303(d) lists for violation of water quality standards. Water quality and flows in the river are dependent on conditions in the watershed and factors include: non-point sources, direct discharges, water withdrawals, dams, and meteorological variations. The purpose of the study is to conduct scientific data collection, computer modeling and evaluation to characterize and compare the water quality and flows under existing conditions and future conditions (multiple likely scenarios). Water quality is a key characteristic for aquatic habitat, water supply, and recreation.

- c. **Factors Affecting the Scope and Level of Review.** Watershed Assessment is anticipated to be challenging and beneficial, but it will not be novel, controversial or precedent-setting. The study will provide technical knowledge to the stakeholders concerning the watershed, tributaries and river characteristics and conditions. The study will utilize a suite of watershed models to evaluate and compare water quality and flows in the river and watershed for future scenarios. The study will provide scientific information to stakeholders in the watershed for future watershed management planning.
- The watershed study assessment is challenging due to the size of the watershed and the fact that there are two states involved in the assessment of the watershed and the river. However, no unusual difficulties are anticipated and the PDT is familiar with the watershed and the types of evaluations to be performed. No institutional or social challenges are anticipated. There is moderate uncertainty regarding future conditions in the watershed, however the consequence of this uncertainty on the results of the assessment is low as more than one future condition will be analyzed and reported.
  - This is a watershed assessment study and there is no proposed project. Thus, there is no threat to human life or safety due to a project.

- The study is not likely to involve significant public dispute as the purpose of the study is provide scientific information to watershed stakeholders to assist them in future planning.
  - As the study does not result in a Corps project, public dispute as to the economic or environmental cost or benefit of implementing a project is not anticipated.
  - There is no engineering design with this study and the study does not directly lead to construction. There is no formal project cost estimate because there is no recommendation for project implementation.
  - The watershed assessment does not impact any structures.
  - The watershed assessment does not include any geotechnical information.
  - The watershed assessment does not involve any hazardous wastes and/or disposal of hazardous wastes.
- d. **In-Kind Contributions.** Products and analyses provided by non-Federal sponsors as in-kind services are subject to DQC, ATR, and IEPR. The in-kind products and analyses to be provided by the non-Federal sponsor include: attendance at meeting and study coordination with stakeholders, review of scopes of work, review technical reports prepared for the study, and assistance with field sampling. No in-kind products for ATR are anticipated.

#### 4. DISTRICT QUALITY CONTROL (DQC)

All decision documents (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). The home district shall manage DQC. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC.

- a. **Documentation of DQC.** The technical work including field sampling and computer modeling for the Merrimac River Assessment study is being performed under Contract to CDM of Cambridge Massachusetts. Draft products provided by the Contractor will be reviewed by the Corps PDT members and other stakeholders involved in the study. Comments on study products will be submitted in writing to the Corps Project Manager (PM). The PM will provide comments to the Contractor who will respond to each comment or question in writing and make appropriate changes. The Corps PM will review the responses and determine the adequacy of the responses and changes made by the Contractor in reply to comments. Documentation from the review will be made part of the Corps project file. In addition the Contractor is required to follow their internal quality control and review procedures prior to submitting the deliverable to the Corps PDT for review.



- b. **Products to Undergo DQC.** Draft and final watershed documents will undergo DQC in compliance the New England District's Quality Management Plan.

**5. AGENCY TECHNICAL REVIEW (ATR)**

ATR is mandatory for all decision documents (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published USACE guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. The ATR is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior USACE personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

- a. **Products to Undergo ATR.** The products to undergo ATR are the draft technical assessment reports from the Merrimack River watershed study (two reports) and the Draft Watershed Management Plan.

**b. Required ATR Team Expertise.**

ATR Team Members/Disciplines	Expertise Required
ATR Lead, Plan Formulation	The ATR lead should have experience in watershed studies and plan formulation. The lead should also have the necessary skills and experience to lead a virtual team through the ATR process.
Hydrology, Hydraulic, Water Quality Modeling	The review should be experienced in hydrology and hydraulic modeling in large watershed and knowledgeable in water quality modeling of dissolved oxygen and phosphorus. The reviewer should be experienced in the engineering models used for the Study (SWMM, HSPF, and WASP) or similar models.
Environmental Resources	The environmental reviewer should be experienced in riverine aquatic ecosystems with experience in water quality and water quality standards.

- c. **Documentation of ATR.** DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments should be limited to those that are required to ensure adequacy of the product. The four key parts of a quality review comment will normally include:

- (1) The review concern – identify the product’s information deficiency or incorrect application of policy, guidance, or procedures;
- (2) The basis for the concern – cite the appropriate law, policy, guidance, or procedure that has not be properly followed;
- (3) The significance of the concern – indicate the importance of the concern with regard to its potential impact on the plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability; and
- (4) The probable specific action needed to resolve the concern – identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, comments may seek clarification in order to determine whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

- Identify the document(s) reviewed and the purpose of the review;
- Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
- Include the charge to the reviewers;
- Describe the nature of their review and their findings and conclusions;
- Identify and summarize each unresolved issue (if any); and
- Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. The ATR Lead will prepare a Statement of Technical Review certifying that the issues raised by the ATR team have been resolved (or elevated to the vertical team). A Statement of Technical Review should be completed, based on work

reviewed to date, for the AFB, draft report, and final report. A sample Statement of Technical Review is included in Attachment 2.

## **6. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)**

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of USACE is warranted. A risk-informed decision, as described in EC 1165-2-209, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the USACE in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

- **Type I IEPR.** Type I IEPR reviews are managed outside the USACE and are conducted on project studies. Type I IEPR panels assess the adequacy and acceptability of the economic and environmental assumptions and projections, project evaluation data, economic analysis, environmental analyses, engineering analyses, formulation of alternative plans, methods for integrating risk and uncertainty, models used in the evaluation of environmental impacts of proposed projects, and biological opinions of the project study. Type I IEPR will cover the entire decision document or action and will address all underlying engineering, economics, and environmental work, not just one aspect of the study. For decision documents where a Type II IEPR (Safety Assurance Review) is anticipated during project implementation, safety assurance shall also be addressed during the Type I IEPR per EC 1165-2-209.
  - **Type II IEPR.** Type II IEPR, or Safety Assurance Review (SAR), are managed outside the USACE and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels will conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.
- a. Decision on IEPR.** This study does not meet any mandatory trigger for Type I IEPR: a watershed assessment is not a Corps decision document; there is no threat to human life, there will be no construction, the study is not controversial and project recommendations are intended to preserve and enhance ecological health and resilience. The Governor of an affected State has not requested an IEPR. No Federal or State agency has requested an IEPR. EC 1165-2-209 states that "Meeting the specific conditions identified for possible exclusions is not, in or of itself, sufficient grounds for

recommending exclusion. A deliberate, risk-informed recommendation whether to undertake IEPR shall be made and documented by the project delivery team (PDT).”

The PDT has performed a risk assessment for the study and for the reasons stated below, determined an IEPR is not recommended for this watershed assessment.

- (1.) The watershed assessment does not include engineering design and does not directly lead to construction. There is no significant threat to human life addressed in the watershed study.
- (2.) There is no proposed project and the cost of the study is well below the \$45 million trigger for an IEPR identified in EC 1165-2-209. There is no formal project cost estimate because there is no recommendation for project implementation.
- (3.) The watershed assessment does not require NEPA documentation and there is no Environmental Impact Statement (EIS).
- (4.) There is no public dispute over the size nature or effects of the study. The study is not controversial.
- (5.) The study has no impact on scarce or unique tribal, cultural, or historic resources.
- (6.) The study has no adverse impacts on fish or wildlife species or their habitat.
- (7.) The watershed assessment study is an activity for which there is ample experience within the USACE and the industry and as a result there is very minimal risk in the performance of the study.

**b. Products to Undergo Type I IEPR.** Not applicable.

**c. Required Type I IEPR Panel Expertise.** Not applicable.

**d. Documentation of Type I IEPR.** Not applicable.

## **7. POLICY AND LEGAL COMPLIANCE REVIEW**

All decision documents will be reviewed throughout the study process for their compliance with law and

policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the home MSC Commander. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in decision documents.

## **8. COST ENGINEERING DIRECTORY OF EXPERTISE (DX) REVIEW AND CERTIFICATION**

All decision documents shall be coordinated with the Cost Engineering DX, located in the Walla Walla District. The DX will assist in determining the expertise needed on the ATR team and Type I IEPR team (if required) and in the development of the review charge(s). The DX will also provide the Cost Engineering DX certification. The RMO is responsible for coordination with the Cost Engineering DX. The watershed assessment will not include any cost estimates, thus no cost certification is required.

## **9. MODEL CERTIFICATION AND APPROVAL**

EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. Planning models, for the purposes of the EC, are defined as any models and analytical tools that planners use to define water resources management problems and opportunities, to formulate potential alternatives to address the problems and take advantage of the opportunities, to evaluate potential effects of alternatives and to support decision making. The use of a certified/approved planning model does not constitute technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

EC 1105-2-412 does not cover engineering models used in planning. The responsible use of well-known and proven USACE developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the USACE Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

- a. **Planning Models.** No planning models are to be used in the performance of this study.
- b. **Engineering Models.** The following engineering models are anticipated to be used in the development of the watershed assessment:

<b>Model Name and Version</b>	<b>Brief Description of the Model and How It Will Be Applied in the Study</b>	<b>Approval Status</b>
<p>HSPF (Hydrologic Simulation Program FORTRAN) Version 12</p>	<p>The main component of HSPF is a hydrologic model that calculates surface runoff, interflow, and baseflow from pervious and impervious areas in the watershed and routes these flows through successive river reaches and reservoirs. A typical HSPF application divides a large watershed into multiple sub-watersheds, each having its own set of distinct characteristics. Flows and pollutant loads from the different land uses in the sub-watersheds are routed to an in-stream river model. Point-source flow and pollutant loads such as from treatment plants or industrial discharges can be incorporated directly into the model. HSPF is a continuous simulation model meaning it can perform simulations over a long time period, as opposed to over discrete storm events. A great deal of input data is required to set up and calibrate the model. These include watershed characteristics, climate data, and observed streamflow and water quality. The model is capable of detailed output of the hydrologic and water quality conditions on pervious and impervious land surfaces and in water bodies. HSPF model developed will be used to model non-point source runoff and pollutant loads from sub-basins of the Merrimack Watershed to the Merrimack River.</p>	<p>HSPF – HH&amp;COP acceptable for use</p>
<p>SWMM (Storm Water Management Model) Version 5</p>	<p>The USEPA's Stormwater Management Model (SWMM), version, will be used to create a hydraulic routing model of the Merrimack River and the Pemigewasset River from Lincoln, New Hampshire to the Newburyport, Massachusetts. The EXTRAN (Extended Transport) block of SWMM is capable of performing fully dynamic hydraulic routing of flows in open and closed conduits of any complexity, such as branching systems, tidally-influenced systems, regulated systems, and systems with dynamic backwater effects. The SWMM hydraulic routing model will act as an intermediary between HSPF,</p>	<p>SWMM – HH&amp;COP acceptable for use</p>

	<p>which will model overland flow and non-point source pollutants, and WASP, which will model water quality through the hydraulic simulation provided by SWMM. The flows and loads associated with point source discharges and water withdrawals along the mainstem of the river will not be generated by any of the three models, and instead will be represented by information obtained during the Field Sampling Program. The SWMM model will be verified based on observed conditions in the river including USGS gage records and time of travel studies.</p>	
<p>WASP (Water Quality Analysis Simulation Program) Version 7</p>	<p>WASP (Water Quality Analysis Simulation Program) contains is an in-stream water quality model. The EUTRO portion of the model is for simulation of conventional water quality parameters such as dissolved oxygen, nutrients, and phytoplankton. WASP computes time varying concentrations of simulated water quality constituents for each modeled river segment. For each model time step. The model is based on segmentation of the river in one, two, or three-dimensions. For the purposes of the Merrimack River Study, one-dimensional analysis will be performed on the riverine segments, with the possibility of two-dimensional analysis to represent the impoundment segments. The segment delineation used in WASP will be identical to that used in SWMM. For the Merrimack Study, the flows, velocity, depth and volume of each segment for each time step will be computed using the SWMM EXTRAN block and imported to WASP. WASP requires the flow information to computer the mass of constituent transported between river segments for each model time step hydrodynamic data will be fed to WASP from SWMM. The Wasp model will be calibrated using water quality measured during the field sampling program.</p>	<p>WASP – HH&amp;COP acceptable for use</p>

## 10. REVIEW SCHEDULES AND COSTS

- a. **ATR Schedule and Cost.** The ATR will be completed prior to submission of documentation to the MSC. ATR costs for the watershed assessment study are not yet determined but have been budget at maximum of \$20,000 per review. These costs are cost-shared with the study's non-Federal sponsors. ATR will be completed on the following documents.

<u>ATR</u>	<u>Date</u>
1. Draft technical assessment report for the Upper Merrimack River Watered	July 2013
2. Draft technical assessment report for the Lower Merrimack Watershed	tbd
3. Draft Watershed Plan	tbd

- b. **Type I IEPR Schedule and Cost.** Not-applicable.
- c. **Model Certification/Approval Schedule and Cost.** Not applicable.

## 11. PUBLIC PARTICIPATION

The Merrimack River Watershed assessment study is a collaborative effort between Federal, State and local communities. Working group meetings with stakeholders are conducted on a periodic basis to review results of technical assessments. A watershed focused brochure that explains the watershed study is under development and will be posted to the Corps project web site and provided to stakeholders for distribution. The draft watershed plan will be made available for public review and comments received incorporated in the final document. The Corps project web site will be used to provide information electronically to stakeholders. Other social media such as Twitter and Face book available through the Corps New England District Public Affairs office will also be used as appropriate to disseminate study findings.

## 12. REVIEW PLAN APPROVAL AND UPDATES

The North Atlantic Division Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input (involving district, MSC, RMO, and HQUSACE members) as to the appropriate scope and level of review for the decision document. Like the PMP, the Review Plan is a living document and may change as the study progresses. The home district is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along



with the Commanders' approval memorandum, should be posted on the Home District's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

**13. REVIEW PLAN POINTS OF CONTACT**

Public questions and/or comments on this review plan can be directed to the following points of contact:

Home District POC	Barbara Blumeris, PM	978-318-8737
Division POC	Larry Cocchieri	347-370-4571
RMO POC	Sue Ferguson	615-736-7192

**ATTACHMENT 1: TEAM ROSTERS**

**TABLE 1.  
PROJECT DELIVERY TEAM (PDT)**

<u>Discipline</u>	<u>Name</u>	<u>Office/Agency</u>
Project/Study Manager/Plan Formulation	Barbara Blumeris	CENAE-EP, Planning Branch
Water Quality and Hydrology and Hydrologic Modeling	Townsend Barker	CENAE-EP, Water Management Branch
Water Quality/Planning	Gregg Comstock	New Hampshire Department of Environmental Services (NHDES), Water Quality Planning Section
Water Quality/Planning	Margaret (Peg) Foss	NHDES, Water Quality Planning Section
Water Supply/Planning	Brandon Kernen	NH DES, Water Division
Community Planning	David Preece	Southern New Hampshire Regional Planning Commission
Water Quality and Hydrology and Hydrologic Modeling	Gary Mercer	CDM, Cambridge, Massachusetts
Water Quality and Hydrology and Hydrologic Modeling	Kirk Westfield	CDM, Cambridge, Massachusetts
Project Manager	Ginger Croom	CDM, Cambridge, Massachusetts
Water Quality/Planning	Jamie Lefkowitz	CDM, Cambridge, Massachusetts

**TABLE 2.  
AGENCY TECHNICAL REVIEW (ATR) TEAM**

<u>Discipline</u>	<u>Name</u>	<u>Office/Agency</u>
ATR Team Leader, Watershed Water Resources Planning	TBD	TBD
Hydrology/Hydraulics Modeling (SWMM, HSPF, WASP)	TBD	TBD
Environmental Resources (Water Quality)	TBD	TBD

**ATTACHMENT 2: SAMPLE STATEMENT OF TECHNICAL REVIEW FOR DECISION DOCUMENTS**

**COMPLETION OF AGENCY TECHNICAL REVIEW**

The Agency Technical Review (ATR) has been completed for the *<type of product>* for *<project name and location>*. The ATR was conducted as defined in the project's Review Plan to comply with the requirements of EC 1165-2-209. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks<sup>sm</sup>.

SIGNATURE

Name  
ATR Team Leader  
Office Symbol/Company

Date

SIGNATURE

Name  
Project Manager  
Office Symbol

Date

SIGNATURE

Name  
Architect Engineer Project Manager<sup>1</sup>  
Company, location

Date

SIGNATURE

Name  
Review Management Office Representative  
Office Symbol

Date

**CERTIFICATION OF AGENCY TECHNICAL REVIEW**

Significant concerns and the explanation of the resolution are as follows: Describe the major technical concerns and their resolution.

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE

Name  
Chief, Engineering Division  
Office Symbol

Date

SIGNATURE

Name  
Chief, Planning Division  
Office Symbol

Date

<sup>1</sup> Only needed if some portion of the ATR was contracted

**ATTACHMENT 3: REVIEW PLAN REVISIONS**

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>

#### ATTACHMENT 4: ACRONYMS AND ABBREVIATIONS

<b>Term</b>	<b>Definition</b>
ASA(CW)	Assistant Secretary of the Army for Civil Works
ATR	Agency Technical Review
DQC	District Quality Control/Quality Assurance
DX	Directory of Expertise
EA	Environmental Assessment
EC	Engineer Circular
EIS	Environmental Impact Statement
EO	Executive Order
ER	Ecosystem Restoration
HH&COP	Hydrology and Hydraulics community of practice
Home District/MSD	The District or MSC responsible for the preparation of the decision document
HQUSACE	Headquarters, U.S. Army Corps of Engineers
IEPR	Independent External Peer Review
MSC	Major Subordinate Command
NEPA	National Environmental Policy Act
O&M	Operation and maintenance
OMB	Office and Management and Budget
OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
OEO	Outside Eligible Organization
OSE	Other Social Effects
PCX	Planning Center of Expertise
PDT	Project Delivery Team
PMP	Project Management Plan
PL	Public Law
QMP	Quality Management Plan
QA	Quality Assurance
QC	Quality Control
RMC	Risk Management Center
RMO	Review Management Organization
RTS	Regional Technical Specialist
SAR	Safety Assurance Review
USACE	U.S. Army Corps of Engineers
WRDA	Water Resources Development Act