Attachment A

REVIEW PLAN

Ecorse Creek, Wayne County, Michigan
General Reevaluation Report

Detroit District

August 2009

US Army Corps
of Engineers ®

REVIEW PLAN

Ecorse Creek, Wayne County, Michigan
General Reevaluation Report

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REVIEW PLAN

Ecorse Creek, Wayne County, Michigan
General Reevaluation Report

1. PURPOSE AND REQUIREMENTS

a. Purpose. This Review Plan defines the scope and level of peer review for the Ecorse Creek, Wayne County, Michigan, General Reevaluation Report.

b. References

(1) Engineering Circular (EC) 1105-2-410, Review of Decision Documents, 22 Aug 2008
(2) EC 1105-2-407, Planning Models Improvement Program: Model Certification, 31 May 2005
(3) Engineering Regulation (ER) 1110-2-12, Quality Management, 30 Sep 2006
(4) Project Management Plan, Ecorse Creek, Wayne County, Michigan, General Reevaluation Report August 2009

c. Requirements. This review plan was developed in accordance with EC 1105-2-410, which establishes the procedures for ensuring the quality and credibility of U.S. Army Corps of Engineers (USACE) decision documents including all in-house, A/E, and in-kind services through independent review. The EC outlines three levels of review: District Quality Control, Agency Technical Review, and Independent External Peer Review. In addition to these three levels of review, decision documents are subject to policy and legal compliance review and, if applicable, safety assurance review and model certification/approval.

(1) District Quality Control (DQC). DQC is the review of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). It is managed in the home district and may be conducted by staff in the home district as long as they are not doing the work involved in the study, including contracted work that is being reviewed. Basic quality control tools include a Quality Management Plan providing for seamless review, quality checks and reviews, supervisory reviews, Project Delivery Team (PDT) reviews, etc. Additionally, the PDT is responsible for a complete reading of the report to assure the overall integrity of the report, technical appendices and the recommendations before approval by the District Commander. The Major Subordinate Command (MSC)/District quality management plans address the conduct and documentation of this fundamental level of review; DQC is not addressed further in this review plan.

(2) Agency Technical Review (ATR). ATR is an in-depth review, managed within USACE, and conducted by a qualified team that is not involved in the day-to-day production of the project/product. The purpose of this review is to ensure the proper application of clearly established criteria, regulations, laws, codes, principles and professional practices. The ATR team reviews the various work products and assure that all the parts fit together in a coherent whole. ATR teams will be comprised of senior USACE personnel (Regional Technical Specialists (RTS), etc.), and may be supplemented by outside experts as appropriate. To assure independence, the leader of the ATR team (RTS) shall be from outside the home MSC.

(3) Independent External Peer Review (IEPR). 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. IEPR is generally for feasibility and reevaluation studies and modification reports with Environmental Impact Statements (EIS). IEPR is managed by an outside eligible organization (OEO) that is described in Internal Revenue Code Section 501(c) (3), is exempt from Federal tax under section 501(a), of the Internal Revenue Code of 1986; is independent; is free from conflicts of interest; does not carry out or advocate for or against Federal water resources projects; and has experience in establishing and administering IEPR panels. The scope of review will address all the underlying planning, engineering, including safety assurance, economics, and environmental analyses performed, not just one aspect of the project.

(4) Policy and Legal Compliance Review. Decision documents will be reviewed throughout the study process for their compliance with law and policy. These reviews culminate in Washington-level 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 Chief of Engineers. Guidance for policy and legal compliance reviews is addressed further in Appendix H, ER 1105-2-100, Planning Guidance Notebook. When policy and/or legal concerns arise during DQC or ATR that are not readily and mutually resolved by the PDT and the reviewers, the District will seek issue resolution support from the MSC and HQUSACE in accordance with the procedures outlined in Appendix H, ER 1105-2-100. IEPR teams are not expected to be knowledgeable of Army and administration polices, nor are they expected to address such concerns. The home district Office of Counsel is responsible for the legal review of each decision document and signing a certification of legal sufficiency.

(5) Safety Assurance Review. In accordance with Section 2035 of Water Resources Development Act (WRDA) of 2007, EC 1105-2-410 requires that all projects addressing flooding or storm damage reduction undergo a safety assurance review of the design and construction activities prior to initiation of physical construction and periodically thereafter until construction activities are completed on a regular schedule sufficient to inform the Chief of Engineers on the adequacy, appropriateness, and acceptability of the design and construction activities for the purpose of assuring public health, safety, and welfare. A future circular will provide a more comprehensive Civil Works Review Policy that will address the review process for the entire life cycle of a Civil Works project. That document will address the requirements for a safety assurance review for the Pre-Construction Engineering Phase, the Construction Phase, and the Operations Phase. The decision document phase is the initial design phase; therefore, EC 1105-2-410 requires that safety assurance factors be considered in all reviews for decision document phase studies.

(6) Model Certification/Approval. EC 1105-2-407 requires certification (for Corps models) or approval (for non-Corps models) of planning models used for all planning activities. The EC defines planning models 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 EC does not cover engineering models used in planning. Engineering software is being address under the Engineering and Construction (E&C) Science and Engineering Technology (SET) initiative. Until an appropriate process that documents the quality of commonly used engineering software is developed through the SET initiative, engineering activities in support of planning studies shall proceed as in the past. 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.

2. STUDY INFORMATION

a. Decision Document.

The Ecorse Creek, Michigan, Flood Risk Management Project is the title for this work. The decision document shall be the *Ecorse Creek, Michigan, Flood Risk Management General Reevaluation Report.* This report shall present measures to reduce flood risk damages along Ecorse Creek, drainage basin.

The purpose of the Ecorse Creek, Wayne County, Michigan, General Reevaluation Report (GRR) is to review the 1987 Feasibility study, "*Feasibility Report for Flood Control Protection in the Ecorse Creek Drainage Basin, Wayne County, Michigan"* and the "*2008 Wayne County North Branch of the Ecorse Creek Flood Control Study"*, then develop a General Reevaluation report based on current conditions. Conditions have substantially changed from the time the original August 1987 Ecorse Creek feasibility study was completed. Corps Planning Guidance requires a General Reevaluation Report (GRR) be conducted if physical or economic conditions have changed substantially from the previous evaluation. Since local, state and Federal authorities all agree that this is the case within Ecorse Creek, a GRR will be conducted regarding potential Flood Risk Management measures on Ecorse Creek. With regards to meeting NEPA requirements, an Environmental Impact Statement (EIS) will be prepared.

The 1987 feasibility report and an Environmental Impact Statement (EIS) for Ecorse Creek was completed and approved by North Central Division on August 1988 and it recommended constructing a retention basin along the North Branch Ecorse Creek, but at that time, the sponsor was not able to provide construction funds. Since then, several major flood events have occurred along Ecorse Creek since 1988 and as a result, Wayne County requested the Corps to reevaluate the "*Feasibility Report for Flood Protection in the Ecorse Creek Drainage Basin, Wayne County, Michigan*" dated, July 1987. A significant amount of urban growth has occurred along Ecorse Creek since the Feasibility Report and EIS were approved, and as such they are out dated.

b. Level of Review

This study in itself may present extraordinary challenges with regard to disposal of excavated material (approx. 2 million (2M) cy), archeological issues, and unknown contaminate issues. A draft Environmental Impact Statement is to be included in the Draft GRR. The GRR is likely to possess significant interagency interest and safety assurance issues. At this time it is anticipated that a request for project authorization from HQUSACE would be involved since the project is complex, controversial, and excessively costly. It is expected that implementation costs will exceed the $45 million cutoff for IEPR requirement. For this reason, the General Reevaluation report shall be subjected to Agency Technical Review (ATR), and an Independent External Peer Review (IEPR).

c. Study Description.

During the GRR, the original alternative plans will be reevaluated as well as alternatives developed by the sponsor to reduce flood damage. It is likely that new and updated engineering information will impact the study's previous recommendation (example, technology has improved hydraulic modeling of rivers since the original hydraulic model was conducted, which may result in a change of the recommended alternative). The cost and benefits for alternative plans considered will also be economically reevaluated. If the reevaluation of the alternatives determines that there is Federal interest, then a revised recommendation will be made to continue with the Implementation phase, to include the preparation of Plans and Specifications and Construction. For the recommended alternative, a detailed project cost estimate and construction schedule will be prepared during the GRR. The feasibility phase will include preparation of an appropriate environmental document as required by the National Environmental Policy Act (NEPA). It is believed at this time that an Environmental Impact Statement (EIS) will be the appropriate document to describe the environmental impacts. A description of EIS tasks and costs will also be prepared at this time. Coordination will be accomplished with local, state, and Federal agencies and with the public concerning the findings of the study.

The study area includes the Ecorse Creek drainage basin which is in the south central portion of Wayne County, located in southeastern Michigan. The drainage basin consists of approximately 44.6 square miles. Portions of the 12 communities utilize the storm water drainage facilities offered by the basin. Those communities are the cities of Ecorse, Wyandotte, Southgate, Taylor, Romulus, Westland, Inkster, Dearborn Heights, Allen Park, Melvindale, Detroit and Lincoln Park. While portions of the 12 communities make up the drainage basin, approximately 90 percent of the basin lies in portions of only 5 of the communities.

At this time, this study will be a single purpose project, flood risk management.

The following alternatives will be considered;

1) Channel Improvements – This alternative proposes to provide channel improvement mitigation measure as identified below:

- Trapezoidal vegetated channel
- Restore previous design, trapezoidal vegetated channel

2) Crossing Improvements - This alternative proposes to improve bridge & culvert crossings measures as identified below:

- Clean sediment and debris from crossings
- Removal of crossings
- Replacement of crossings
- Allowed overtopping of crossing

Bridge and culvert (drain) crossings along the North Branch Ecorse Creek Drainage (NBECD) were surveyed. A total of 81 drain crossings existed along the NBECD at the time of the survey.

3) Storm Water Detention Facilities – This alternative proposes to add storm water detention facilities. Storm water detention facilities temporarily store or detain excess storm water and thus reduce peak flood flow rates. Currently there is no significant detention facilities directly connected to the NBECD. There are several facilities in the LeBlanc Drain but they do not directly connect to the NBECD and do not provide flood relief for the middle and upper reaches of the NBECD.

4) Diversions/Drainage Transfers - This alternative proposes to construct diversions or drainage transfers as identified below:

- Divert NBECD to Rouge River along I-94
- Divert LeBlanc Drain to NBECD at Monroe Street
- Divert Reeck Drain to NBECD at Monroe Street
- Allow overflow of NBECD to the City of Dearborn storm sewers
- Divert NBECD to Huron River

5) Storm Water Tunnels - This alternative proposes to construct tunnels to divert Storm water as potential mitigation measures. The initial idea was that the tunnels would minimize channel, crossing, and detention improvements and reduce disturbance to landowners and residents that would be realized with the construction of open channel improvements. Three tunnels were identified:

- Tunnel to the Rouge River (I-94 alignment)
- Tunnel along Van Born Road from Gully Street to Southfield Freeway (Van Born alignment)
- Tunnel to the lower NBECD from Southfield Freeway to Austin Avenue (Southfield alignment)

6) Floodplain Management- This alternative proposes to consider several mitigation measures regarding floodplain as shown below:

- Acquire undeveloped lands in floodplain/create new floodplain
- Acquisition of flood prone structures
- Install vegetative and wetland buffers along drain corridor

7) Greenway – This alternative generally consists of a combination of reconstructing the open channel, replacing undersized bridges and culverts, installing a parallel drain enclosure near Merriman Road, and constructing three (3) regional storm water detention basins.

The non-Federal Sponsor is the Wayne County, Department of the Environment.

d. Factors Affecting the Scope and Level of Review.

- **Challenges:**

1) Disposal of approximately 2M cubic yards of excavated material along the stream banks of Ecorse Creek. It has not been verified, if the excavated material is contaminated or if a disposal site is required.

2) Cultural; Native Americans lived in the study area; thus, there may be archeological issues.
3) The study area may have significant historical issues; thus, the State Historical Preservation Office (SHPO) may be involved.
4) The study area includes several small communities that have been impacted by flooding; thus social and political issues may influence the recommended plan.

• **Risks:**
1) There is an unknown amount of contaminated sediment
2) There is an unknown archeological factor to consider
3) There is an unknown historical preservation factor to consider

It is most likely that as a result of the hydraulic modeling that a significant amount of homes will be identified to be demolished that are in the floodway.

• **Significant economic, environmental, social effects:**
1) The location for the disposal of contaminated sediment may be controversial to home owners.
2) The discovery of any Native American artifacts may become controversial to the local tribes.
3) The determination of any significant historical homes or buildings may become controversial to SHPO.
4) The demolition of homes may be controversial to home owners.

• **Significant interagency interests:**
1) The Michigan Department of Environmental Quality will be involved with any disposal of contaminated material and associated permitting.
2) The Fish & Wildlife Service will be involved with any protected species.

• **Human Safety:**
1) It has not been assessed at this time.

•**Controversial Issues:**
1) As stated above, it is most likely that a significant amount of homes will be identified to be demolished as a result of the study, which will impact home owners.
2) The location of the disposal of the excavated contaminated stream bank material, may impact the surrounding businesses or residences.
3) If any Native American burial sites are discovered, it will impact tribal members.

e. In-Kind Contributions.

In-Kind work will be a part of the GRR, however, the specific tasks and amount of effort supplied by the non-Federals sponsor have yet to be finalized. Preliminary negotiations with Wayne County have resulted in the following items to be considered for in-kind work:
JAAOO Survey and Mapping
JABOO Hydrology and Hydraulics Studies
JACOO Geotechnical Studies
JADOO Design Analysis
JAEOO Engineering Appendix
JAGOO Resolution of ATR comments
JAIOO Resolution of IEPR comments
The estimated cost for the above items is $939,452.

3. AGENCY TECHNICAL REVIEW (ATR)

a. General. The estimated cost for the ATR and comment resolution is approximately $53,000. ATR for decision documents covered by EC 1105-2-410 are managed by the Flood Risk Management Planning Center of Expertise (FRM-PCX) with consultation with the allied Communities of Practice such as engineering and real estate. The ATR shall ensure that the product is consistent 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 the results in a reasonably clear manner for the public and decision makers. Members of the ATR team will be from outside the home district. The ATR lead will be from outside the home MSC. The leader of the ATR team will participate in milestone conferences and the Civil Works Review Board (CWRB) to address review concerns.

b. Products for Review.

- Alternative Formulation Briefing
- Draft General Reevaluation Report
- Draft Environmental Impact Statement
- Final General Reevaluation Report
- Final Environmental Impact Statement

c. Required ATR Team Expertise.

Discipline	Recommended Qualifications for ATR
Planner (Regional Technical Specialist)	The team member shall have extensive knowledge of Planning processes, with special emphasis on Flood Risk Management studies.
Environmental Scientist	The team member should have extensive knowledge of the integration of environmental evaluation and compliance requirements, pursuant to national environmental statutes (NEPA), applicable executive orders and other Federal planning requirements, into the planning of Civil Works comprehensive plans and implementation projects.
Economist	The team member should have the ability to utilize, and evaluate results from, most recent version of the Corps HEC-FDA (Hydrologic Engineering Center, Flood Damage Reduction Analysis) program. In addition, the economist must have an understanding of Hydrologic data adequate to recognize sufficiency and appropriate utilization in alternative evaluation. It requires an understanding of economic related requirements as depicted in EM 1110-2-1619 and ER1105-2-101. It requires knowledge of Corps accepted benefits and costs utilized in flood damage reduction analysis. An ability to implement and assess risk evaluation methodology. An ability to evaluate coordination between hydrologic engineering and economics on determination of the study configuration and merging of data toward formulation and evaluation of the potential flood risk management plans.
Civil Design Engineer	Team member will be an expert in the art and science of flood risk management projects such as design of channels, detention ponds

	and drainage structures. Should also be a licensed professional engineer.
Geotechnical Engineer	The team member should have an extensive experience in geotechnical evaluation of flood risk management structures such as static and dynamic slope stability evaluation, evaluation of the seepage through earthen embankments and under seepage through the foundation of the flood risk management structures, including dam and levee embankments, floodwalls, closure structures and other pertinent features, and in settlement evaluation of the structure.
Hydrology and Hydraulic Engineer	Hydrology & Hydraulics: Team member will be an expert in the field of hydrology & hydraulics and have a thorough understanding of open channel dynamics, application of detention/retention basins, flood routing, and watershed hydrology and a working knowledge of HEC-RAS and HEC-HMS.
Cost Engineer	Cost Engineer: Team member shall be familiar with estimates for civil works (water retention, flood control, etc.), structural work (bridges, overpass, etc.) and environmental clean-up. The Cost Engineer will be required to perform some quantity checks. Be familiar with the USACE estimating software MII in reviewing cost estimate.

d. Documentation of ATR. Dr Checks 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, commentors may seek the clarification of information or the resolution of specific concerns by the project delivery team. The ATR documentation in Dr Checks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical coordination, and lastly the agreed upon resolution. The ATR team will prepare a Review Report which includes a summary of each unresolved issue; each unresolved issue will be raised to the vertical team for resolution. Review Reports will be considered an integral part of the ATR documentation and shall:

- 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; 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 HQUSACE for resolution and the ATR documentation is complete. Certification of ATR should be completed, based on work reviewed to date, for the AFB, draft report, and final report. A sample certification is included in ER 1110-2-12.

4. INDEPENDENT EXTERNAL PEER REVIEW (IEPR)

a. General. IEPR is conducted for decision documents if there is a vertical team decision (involving the district, MSC, PCX, and HQUSACE members) that the covered subject matter meets certain criteria (described in EC 1105-2-410) where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside the USACE is warranted. IEPR is coordinated by the appropriate PCX and managed by an Outside Eligible Organization (OEO) external to the USACE. IEPR panels shall evaluate whether the interpretations of analysis and conclusions based on analysis are reasonable. To provide effective review, in terms of both usefulness of results and credibility, the review panels should be given the flexibility to bring important issues to the attention of decision makers; however, review panels should be instructed to not make a recommendation on whether a particular alternative should be implemented, as the Chief of Engineers is ultimately responsible for the final decision on a planning or reoperations study. IEPR panels will accomplish a concurrent review that covers the entire decision document and will address all the underlying engineering, economics, and environmental work, not just one aspect of the study. Whenever feasible and appropriate, the office producing the document shall make the draft decision document available to the public for comment at the same time it is submitted for review (or during the review process) and sponsor a public meeting where oral presentations on scientific issues can be made to the reviewers by interested members of the public. An IEPR panel or OEO representative will participate in the CWRB.

b. Decision on IEPR.

A total project cost greater than of $45M requires an IEPR. The construction cost for the proposed project is estimated to be approximately $250M, therefore in accordance with EC 1105-2-410 an IEPR is required.

c. Products for Review.

- Draft General Reevaluation Report
- Draft Environmental Impact Statement

d. Required IEPR Panel Expertise.

Discipline	Recommended Qualifications for IEPR
Environmental Scientist	Team member should have extensive knowledge of the integration of environmental evaluation and compliance requirements, pursuant to national environmental statutes (NEPA), applicable executive orders and other Federal planning requirements, into the planning of Civil Works comprehensive plans and implementation projects.
Economist	The Team member should have the ability to evaluate results from most recent version of the Corps HEC-FDA (Hydrologic Engineering Center, Flood Damage Reduction Analysis) program. The economist must have an understanding of Hydrologic data adequate to recognize sufficiency and appropriate utilization in alternative evaluation. Requires an understanding of economic related requirements as depicted in EM 1110-2-1619 and ER1105-2-101. Requires knowledge of Corps accepted benefits and costs utilized in flood damage reduction analysis. Able to implement and assess risk evaluation methodology. Ability to evaluate coordination between hydrologic engineering and economics on determination of the study configuration and merging of data toward formulation and evaluation of the potential flood risk management plans.
Civil Design Engineer	Team member will be an expert in the art and science of flood risk management projects such as design of channels, detention ponds and drainage structures. Should also be a licensed professional engineer.
Geotechnical Engineer	The team member should have an extensive experience in , geotechnical evaluation of flood risk management structures such as static and dynamic slope stability evaluation, evaluation of the seepage through earthen embankments and under seepage through the foundation of the flood risk management structures, including dam and levee embankments, floodwalls, closure structures and other pertinent features, and in settlement evaluation of the structure
Hydrology and Hydraulic Engineer	Hydrology & Hydraulics: Team member will be an expert in the field of hydrology & hydraulics and have a thorough understanding of open channel dynamics, application of detention/retention basins, flood routing, and watershed hydrology and a working knowledge of HEC-RAS and HEC-HMS.
Cost Engineer	Cost Engineer: Team member shall be familiar with estimates for civil works (water retention, flood control, etc.), structural work (bridges, overpass, etc.) and environmental clean-up. Will be required to perform some quantity checks. Be familiar with the USACE estimating software MII in reviewing cost estimate. Coordinate or go through review with the Cost Engineering DX at Walla Walla, WA

e. Documentation of IEPR.

The estimated cost for the IEPR is $200,000.

Dr Checks review software will be used to document IEPR comments and aid in the preparation of the Review Report. Comments should address the adequacy and acceptability of the economic, engineering and environmental methods, models, and analyses used. IEPR comments should generally include the same four key parts as described for ATR comments in Section 3. The OEO will be responsible for compiling and entering comments into Dr Checks. The IEPR team will prepare a Review Report that will accompany the publication of the final report for the project and shall:

- 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; 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.

The final Review Report will be submitted by the IEPR panel no later than 60 days following the close of the public comment period for the draft decision document. The report will be considered and documentation prepared on how issues were resolved or will be resolved by the District Commander before the district report is signed. The recommendations and responses will be presented to the CWRB by the District Commander with an IEPR panel or OEO representative participating, preferable in person. During the public comment period, if the public comments are sent to the Corps by email, then the Corps will respond by email. If the public comments are sent to the Corps by letter, then the Corps will respond by letter. When the comment period is complete the comments will be forwarded to the IEPR team electronically.

5. MODEL CERTIFICATION AND APPROVAL

a. General. The use of certified or approved models for all planning activities is required by EC 1105-2-407. This policy is applicable to all planning models currently in use, models under development and new models. The appropriate PCX will be responsible for model certification/approval. The goal of certification/approval is to establish that planning products are theoretically sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. The use of a certified or approved model does not constitute technical review of the planning product. Independent review of the selection and application of the model and the input data and results is still required through conduct of DQC, ATR, and, if appropriate, IEPR. Independent review is applicable to all models, not just planning models. Both the planning models (including the certification/approval status of each model) and engineering models used in the development of the decision document are described below:

b. Planning Models. The following planning models are anticipated to be used:

Status of Planning Model Certification

Model Name	Model Type	Requirement	Proponent	PCX	Status
HEC-FDA	Economics	Corporate Certification	HEC/IWR	FRM-PCX	1.2.4 Certified

- *HEC-FDA 1.2.4 (Certified).* The Hydrologic Engineering Center's Flood Damage Reduction Analysis (HEC-FDA) program provides the capability for integrated hydrologic engineering and economic analysis for formulating and evaluating flood risk management plans using risk-based analysis methods. The program will be used to evaluate and compare the future without- and with-project plans along the Ecorse Creek to aid in the selection of a recommended plan to manage flood risk.

c. Environmental Models. The following planning models are anticipated to be used:

Status of Environmental Model Certification

Model Name	Model Type	Requirement	Proponent	PCX	Status
HEP	Habitat Evaluation Process	Corporate Certification	HEP/IWR	ECO-PCX	In progress

- *HEP. The Habitat Evaluation Process* is a habitat-based approach for assessing environmental impacts of proposed water and land resource development projects. The method can be used to document the quality and quantity of available habitat for selected wildlife species. The procedures provide information for two general types of wildlife habitat comparisons: the relative value of different areas at the same point in time; and the relative value of the same areas at future points in time. By combining the two types of comparisons, the impact of proposed or anticipated land and water use changes on wildlife habitat can be quantified. The program will be used to evaluate mitigation plans along the Ecorse Creek.

d. Engineering Models. The following engineering models are anticipated to be used:

Status of Engineering Model Certification

Model Name	Model Type	Requirement	Proponent	PCX	Status
HEC-RAS	Hydraulic/Hydrologic	Corporate Certification	HEC/IWR	FRM-PCX	Ongoing
HEC-HMS	Hydrologic	Corporate Certification	HEC/IWR	FRM-PCX	Ongoing

- HEC-RAS 4.0. The Hydrologic Engineering Center's River Analysis System (HEC-RAS) program provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used by Wayne County to model steady flow analysis to evaluate the future without- and with-project conditions along Ecorse Creek and its tributaries. HEC-RAS will also be used by Wayne County to calculate unsteady flood routing of historic storms primarily to evaluate alternatives that include proposed regional detention basins within the Ecorse Creek Watershed. Both steady and unsteady scenarios will be reviewed by the Corps of Engineers using HEC-RAS.

- HEC-HMS 3.3. The Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS) is a hydrologic model that simulates precipitation-runoff processes of watersheds. HEC-HMS will be used by Wayne County to calculate the hydrographs that will serve as inputs for any unsteady HEC-RAS modeling scenarios. The Corps of Engineers will use HEC-HMS to verify the hydrologic modeling inputs and outputs provided by Wayne County.

6. REVIEW SCHEDULES AND COSTS

The project is being funded under the American Recovery and Restoration Act (ARRA) and therefore, the schedule is compressed.

a. ATR Schedule and Cost.

	Description	Scheduled Date
	FSM package	Dec 2009
	AFB package	Dec 2010
	DRAFT GRR & EIS	Mar 2011
	Final GRR & EIS	Aug 2011

These dates assume continuous and optimal Federal and Sponsor funding for the study.

b. IEPR Schedule and Cost.

	Description	Scheduled Date
	DRAFT GRR & EIS	June 2011
	Final GRR & EIS	Sept 2011

c. Model Certification/Approval Schedule and Cost.

It is anticipated that all of the models that will be used for this project are certified.

7. PUBLIC PARTICIPATION

After ATR and IEPR review of the draft report and Environmental Impact Statement (EIS) , the documents will be distributed for public comment. In accordance with NEPA, the EIS will be made available for a 30 day public comment period. During the public comment period, if the public comments are sent to the Corps by email, then the Corps will respond by email. If the public comments are sent to the Corps by letter, then the Corps will respond by letter. When the comment period is complete the comments will be forwarded to the IEPR and ATR team leads electronically. During the public review period a public meeting will be held to address concerns of the project.

8. PCX COORDINATION

Review plans for decision documents and supporting analyses outlined in EC 1105-2-410 will be coordinated with the Flood Risk Management Planning Center(s) of Expertise (PCXs) based on the FRM purpose of the basic decision document to be reviewed. The lead PCX for this study is

FRM-PCX Manager is:

1455 Market St
San Francisco, CA 94103-1398
Ph. (415) 503-6852
E-mail: FRM-PCX@usace.army.mil

9. MSC APPROVAL

Great Lakes & Ohio River Division oversees the home district and is responsible for approving the review plan. Approval is provided by the MSC Commander. The commander's approval should reflect vertical team input (involving district, MSC, PCX, 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. Changes to the review plan should be approved by following the process used for initially approving the plan. In all cases the MSC will review the decision on the level of review and any changes made in updates to the project.

10. REVIEW PLAN POINTS OF CONTACT

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

POC	Title	Office Phone Number
	Project Manager	313 226- 6767
	Planner	313 226- 6710
	Division Liaison	312 353- 6351
	FRM-PCX Manager	415 503-6852

ATTACHMENT 1: TEAM ROSTERS

Table 1 – Study Project Delivery Team

Discipline	Name	Office/Agency
Project Manager		CELRE-PM-C
Lead Planner		CELRE-PL-P
Environmental Analysis		CELRE-PL-E
Environmental Analysis, Archeologist		CELRE-PL-E
Environmental Analysis		CELRE-PL-E
Economic Analysis		CELRE-PL-P
Real Estate		CELRE-RE
Real Estate		CELRE-RE
Civil Design Analysis		CERLE-ED-G
Geotechnical Analysis		CERLE-ED-G
Hydrology and Hydraulic Engineering		CELRE-HH-E
Cost Engineering*		CELRE-ED-C
Contracting		CELRE-CT
Public Affairs Officer		CELRE-PA
Office of Counsel		CELRE-OC

*: Cost engineering efforts will be coordinated through the Cost Engineering DX at Walla Walla District.

Table 2 – Major Subordinate Command Planning and Policy Team

Discipline	Name	Office
Great Lakes and Ohio River Division		
Chief, Planning & Policy		CELRD-PP
Chicago District Liaison		CELRD-GL
Planning & Policy		CELRD-GL
Planning & Policy		CELRD-PP
Planning & Policy		CELRD-PP
Planning & Policy		CELRD-PP
ECO-PCX		CEMVD-RB-T
FDR-PCX		CESPD-PDS-P

Table 3 – Major Subordinate Command Planning and Policy Team

Advisory Groups	
	Michigan Department of Natural Resources (MDNR)
	Michigan Department of Transportation (MDOT)
	Michigan Department of Environmental Quality (MDEQ)
	Wayne County Department of the Environment (WCDOE)
	State Historical Preservation Office
Project Development Team	
	U.S. Army Corps of Engineers, Detroit District (USACE)
	U.S. Fish and Wildlife Service (USFWS)
Technical Committees	
	Membership drawn from agencies and groups listed above

Table 4 – Planning Centers of Expertise Team

Discipline	Name	Office
South Pacific Division		
FRM-PCX		CESPD-PDS-P

Table 5 – Agency Technical Review Team

Discipline	Name	Experience (Yrs).	Office/Agency
Planner (Regional Technical Specialist)	TBD		TBD
Environmental Analysis	TBD		TBD
Economic Analysis	TBD		TBD
Real Estate	TBD		TBD
Civil Design Analysis	TBD		TBD
Hydrology and Hydraulic Engineering	TBD		TBD
Cost Engineering	TBD		TBD
Sponsor, Wayne County	TBD		

Table 6 – Independent External Peer Review Team

Discipline	Name	Office
Environmental scientist	TBD	TBD
Economist	TBD	TBD
Civil Design Engineer	TBD	TBD
Geotechnical Engineer	TBD	TBD
Hydrology and Hydraulic Engineer	TBD	TBD
Cost Engineer	TBD	TBD

ATTACHMENT 2: ATR CERTIFICATION TEMPLATE

_____ _____

Project Manager, CELRE

_____ _____

ATR Lead **Date**

_____ _____

Chief of Planning, CELRD

ATTACHMENT 3: ACRONYMS AND ABBREVIATIONS

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CSDR	Coastal Storm Damage Reduction	O&M	Operation and maintenance
CWRB	Civil Works Review Board	OMB	Office and Management and Budget
DPR	Detailed Project Report	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DQC	District Quality Control	OEO	Outside Eligible Organization
DX	Directory of Expertise	OSE	Other Social Effects
EA	Environmental Assessment	PCX	Planning Center of Expertise
EC	Engineer Circular	PDT	Project Delivery Team
EIS	Environmental Impact Statement	PAC	Post Authorization Change
EO	Executive Order	PMP	Project Management Plan
ER	Ecosystem Restoration	PL	Public Law
FDR	Flood Damage Reduction	QMP	Quality Management Plan
FEMA	Federal Emergency Management Agency	QA	Quality Assurance
FRM	Flood Risk Management	QC	Quality Control
FSM	Feasibility Scoping Meeting	RED	Regional Economic Development
GRR	General Reevaluation Report	RTS	Regional Technical Specialist
HQUSACE	Headquarters, U.S. Army Corps of Engineers	USACE	U.S. Army Corps of Engineers
IEPR	Independent External Peer Review	WRDA	Water Resources Development Act
ITR	Independent Technical Review		
LRR	Limited Reevaluation Report		
MSC	Major Subordinate Command		