US Army Corps of Engineers ®

JOHNSON COUNTY, KENTUCKY SECTION 202 PROJECT

VOLUME 7: ADDITIONAL DOCUMENTATION

OCTOBER 2019

U.S. ARMY CORPS OF ENGINEERS

LOUISVILLE DISTRICT

TABLE OF CONTENTS

Additional Documentation

1 SECTION 202 LEGACY GUIDANCE

1.1 ORDR 1105-2-4

1.2 ETL 1110-2-299 GUIDANCE FOR OT EVALUATIONS

1.3 SECTION 202 OVERTOPPING EVALUATION

*CEORDR 1105-2-4

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEERING DIVISION, OHIO RIVER
CORPS OF ENGINEERS
P. O. BOX 1159
CEORD-DL CINCINNATI, OHIO 45201-1159

Regulation
No. 1105-2-4 10 March 1992

Planning
RESPONSIBILITIES, REQUIREMENTS, AND PROCEDURES
FOR IMPLEMENTING THE SECTION 202 PROGRAM

1. Purpose. This regulation describes responsibilities, requirements, and procedures for implementing activities in accordance with Section 202 of Public Law 96-367, October 1980, and the Section 202 General Plan for Project Implementation, as submitted to the Assistant Secretary of the Army for Civil Works [ASA(CW)] in 1981. The intent of this regulation is to provide comprehensive guidance for managing the Section 202 Program in a responsible manner that is both cost-effective and responsive.

2. Applicability. This regulation applies to all division and district offices having Section 202 responsibilities.

3. References. Specific references are as listed in the text. General references pertinent to the Section 202 Program are at Appendix a.1. This regulation on Section 202 has been reviewed by both the appropriate district and division staffs and is approved for immediate implementation.

FOR THE COMMANDER:

7 Appendices
APP A Through G

ALEXANDER R. JANSEN
Colonel, Corps of Engineers
Deputy Commander

DISTRIBUTION:
A

*This regulation supersedes ORDR 1105-2-4, dated 7 June 1991

Policy and Planning

RESPONSIBILITIES, REQUIREMENTS, AND PROCEDURES FOR IMPLEMENTING THE SECTION 202 PROGRAM

TABLE OF CONTENTS

CHAPTER 1

GENERAL

1-1. Purpose. This regulation describes responsibilities, requirements, and procedures for implementing activities in accordance with Section 202 of Public Law 96-367, October 1980, and the Section 202 General Plan for Project Implementation, as submitted to the Assistant Secretary of the Army for Civil Works [ASA(CW)] in 1981. The intent of this regulation is to provide comprehensive guidance for managing the Section 202 Program in a responsible manner that is both cost-effective and responsive.

1-2. Applicability. This regulation applies to all division and district offices having Section 202 responsibilities.

1-3. References. Specific references are as listed in the text. General references pertinent to the Section 202 Program are at Appendix A.

1-4. Policy. All Section 202 projects will be managed in accordance with Life Cycle Project Management (LCPM) principles and procedures contained in ER 5-7-1, Project Management.

a. Section 202 projects will be introduced into the LCPM system by completing a Project Executive Summary (PES) upon Division Project Review Board (PRB) approval of the Initial Project Management Plan (IPMP). Upon approval of the IPMP, the Specific Project Report (SPR)/Detailed Project Report (DPR) cost estimate will become the "Baseline Estimate/Current Approved Estimate" and the schedule will become the "Baseline Schedule/Current Approved Schedule", for that specific report, and reported in the PES.

b. It is recognized that the Section 202 Program is a unique and dynamic program which requires continuous efforts to improve its overall quality and cost-effectiveness. The districts are encouraged to seek better, more efficient methods of program execution. Specific project issues are to be raised in a timely manner using the LCPM system to achieve resolution. Deviations to this regulation will be approved by the division commander.

c. For on-going and future Section 202 SPR studies, potential sponsors will be formally notified early in the SPR study, prior to submission of the IPMP, that, in addition to the project implementation and construction costs: (1) pre-implementation project costs (such as preparation of SPR, plans and specifications, Design Memorandum (DM), General Plan

Supplements, etc.) must be cost shared, and (2) these costs are a component of the first year construction cost and are included in the sponsor's first year cash requirement. For on-going SPR studies, all SPR project costs incurred on and after 17 November 1986 (the enactment date of Public Law 99-662) are subject to this cost sharing requirement. A Letter of Intent (LOI) indicating the willingness and capability of the sponsor to provide sponsor requirements in these pre-implementation activities will be included in the IPMP.

d. All Section 202 projects will comply fully with the provisions of the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA). The district will insure that Hazardous, Toxic, and Radioactive Waste (HTRW) is addressed in accordance with APPENDIX E.

e. The IPMP will be developed in accordance with Appendix C of CEORDR 5-1-1, Project Management and the Planning Study Process. The district PRB will approve the IPMP prior to its submission to the division for review and approval. The IPMP will focus on all activities from division approval of the IPMP to ASA(CW) approval of the SPR or Detailed Project Report (DPR). The IPMP will address the basis for selection of either a standard SPR or a DPR level of detail in Section III, para E (Work Scope, Key Assumptions).

f. All Section 202 SPR submissions will be accompanied by a Project Management Plan (PMP) which has been fully coordinated with all functional elements and approved by the district PRB. The PMP will focus on activities occurring subsequent to ASA(CW) approval of the SPR through project completion. The PMP will be prepared in accordance with ER 5-7-1, Project Management, Appendix II-A. The PMP must be prepared to a sufficient level of detail to enable the Project Manager (PM) to manage project costs in accordance with memorandum, CEORD-DL/CEORD-RM, 6 February 1991, subject: Control by Project Manager of Direct Charges. The PMP becomes a contract, between the PM and functional elements, for project execution. Upon approval of the M-CACES estimate and the PMP by the Division, the "Baseline/Current Approved Estimate" and the "Baseline/Current Approved Schedule" are established for the project.

1-5. Program Objectives. The objective of the Section 202 Program is to implement cost-effective measures that will assure a level of protection against flooding such as occurred in April 1977. Implementation of a cost-effective plan will emphasize a streamlined, efficient approach to the delivery of Section 202 projects. The district commander will assure that planning, engineering, real estate, and construction activities are

accomplished in a manner which establishes a clear audit trail of decisions and actions taken in executing the 202 Program.

1-6. Responsibilities.

a. Division. The division is responsible for establishing policy guidance, resolving issues impacting project execution raised by the district, approving project cost and schedule changes in accordance with ER 5-7-1, and approving technical products as identified in this regulation.

b. District. The district is responsible for implementation of the Section 202 Program consistent with this regulation and in conformity to sound engineering, planning, real estate, and management principles.

CHAPTER 2

SECTION 202 PROGRAM CRITERIA

SECTION I. ELIGIBILITY

2-1. General. Eligible structures are those located in the floodplain that would receive structural or content damages by a recurrence of April 1977 flood levels. Uninhabitable structures, outbuildings, and nuisance damage on residential properties located in the floodplain are not eligible for inclusion in the program unless part of acquisition. The program may be structural or nonstructural, and is dependent on the cost effectiveness of the measures developed, not on a specific approach. Structural programs will comply with existing USACE guidance as stipulated in Appendix C, Engineering and Technical Criteria.

2-2. Eligible Owner Alternatives.

a. Since participation in the nonstructural program is generally voluntary, an owner may choose not to participate in the program. An owner who chooses to participate in the program will be offered the least costly alternative of floodproofing or acquisition.

b. The least costly alternative will be determined by a comparison of a detailed engineering analysis of the cost to floodproof the residence with the cost of acquisition. The cost of acquisition will include: fair market value of the structure as determined by a detailed real estate appraisal, the relocation benefits based on the maximum standard Public Law 91-646 relocation benefits paid for the type of relocation being considered, and the cost of demolition of any structures on the tract, to include lot restoration.

c. An owner may choose to pay the difference between a least costly acquisition alternative and a more costly floodproofing alternative, subject to the government's approval. An owner will not be given the option of acquisition if floodproofing is the most cost effective alternative.

d. Changes in eligible owner alternatives will be submitted to CEORD-RE for approval as final taking line changes. All changes will contain sufficient information to show the effect of the proposed change on project schedules and cost.

e. The district will maintain a permanent file on each tract in the Floodplain Master Plan, or the Project Completion Report, that contains all data required to substantiate the decision to floodproof or acquire a given structure.

2-3. Floodproofing. Structures eligible for floodproofing are those located in the flood fringe and capable of meeting the engineering requirements of Appendix C.

2-4. Acquisition. Acquisition of the property by the government or sponsor is the only option available to owners in the floodway who choose to participate in the program. Acquisition is also available to those owners who are in the flood fringe and meet one of the following: (1) have floodproofing costs greater than acquisition costs, or (2) have a house incapable of floodproofing (i.e., structure will not withstand a raise-in-place, or the height of raise exceeds 12 feet, etc). A renter will be eligible to relocate under the nonstructural program as a displaced renter with relocation benefits only if the owner of the structure participates in the plan.

SECTION II. LEVEL OF PROTECTION

2-5. General. The level of protection provided depends upon the type of plan, structural or nonstructural, selected. As a general rule, the design level of protection will be the April 1977 flood. Deviation from this level will be considered on a project-by-project basis.

2-6. Structural. A structural plan, such as a levee, floodwall, channel diversion, etc., effects the flow characteristics. The level of protection for structural projects will be the April 1977 Flood plus freeboard. Exceptions will be considered in the possibility of catastrophic overtopping, but must be approved on a case-by-case basis (see Appendix C).

2-7. Nonstructural. A nonstructural plan, such as construction of a ring levee to protect a single structure, floodproofing, evacuation, etc., does not affect the flow characteristics. For structural components (ring levees, etc.) of a nonstructural plan, the level of protection generally will be the April 1977 flood plus freeboard. Nonstructural measures (floodproofing, etc.) will comply with Executive Order 11988, and use the April 1977 flood+1 foot, or the 100 year flood+1 foot, whichever is greater.

CHAPTER 3

PLANNING GUIDANCE

SECTION I. GENERAL PLAN

3-1. Authorization. Section 202 of Public Law 96-367, October 1980, provided Congressional authority to undertake flood damage reduction measures, as determined to be necessary and advisable, in the Tug and Levisa Forks of the Big Sandy River Basin and in the Upper Cumberland River Basin. The Section 202 General Plan for Project Implementation, as submitted to the Assistant Secretary of the Army for Civil Works [ASA(CW)] in 1982, represents the framework within which administrative approval is obtained for all project implementation activities pursuant to the Section 202 authority. The General Plan, as it is commonly called, delineates an overall plan of development for the Section 202 program and sets forth the requirement for a number of Specific Project Studies to define detailed project needs. These studies result in Specific Project Reports (SPR's) or Detailed Project Reports (DPR's) which are submitted to ASA(CW) recommending either supplementation of the General Plan or implementation of projects contained within the General Plan.

3-2. Supplements. Supplements to the General Plan may be prepared for the Levisa Fork and the Upper Cumberland River areas. General Plan Supplements will provide the rationale for and description of basin-wide actions. Information on individual projects generally will be at "reconnaissance report" level of detail, as specified in Chapter 2 of ER 1105-2-100, unless the General Plan Supplement also is the vehicle for compliance with environmental legislation, in which case "feasibility study" detail will be required.

3-3. Project Options. The results of the planning phase of the 202 Program will be documented by either a Special Project Report (SPR) or a Detailed Project Report (DPR). Upon approval by the ASA (CW), the report becomes the technical document upon which a Local Cooperation Agreement (LCA) may be executed. The SPR (Section II) is more streamlined than the DPR, but requires the preparation of a Flood Plain Master Plan (FPMP) prior to project implementation. The DPR (Section III) is a more comprehensive document, incorporating many of the technical requirements of the FPMP; however, after ASA (CW) approval, the district may proceed without preparation of the FPMP. The district will address, in the IPMP, the basis for selection of either a SPR or DPR level of detail in Section III, para E (Work Scope, Key Assumptions).

SECTION II. SPECIFIC PROJECT REPORTS

3-4. General. A Specific Project Report (SPR) will consist of comprehensive planning, engineering, and real estate investigations and findings at a level of detail sufficient to support recommending the most cost-effective plan and to assure a high degree of confidence in the estimated costs and implementability of plan features. Draft ER 1110-2-XXXX, Engineering and Design for Civil Works Projects, was distributed for use by EC 1110-2-265 and should be utilized as a guide for developing project plans and cost estimates at a level of detail which minimizes changes in project features and costs subsequent to ASA(CW) approval of the SPR. The SPR will be in compliance with requirements for coordination with other federal and state agencies and local governmental bodies.

3-5. Scope. Formulation will be comprehensive, considering both structural and nonstructural measures. The selected plan will be the most cost-effective combination of measures. Deviation from the most cost-effective plan may be recommended but the rationale must be fully documented in the SPR.

3-6. Format. A SPR will consist of a main report and a separate technical annex for supporting documentation. The SPR will be accompanied by an M-CACES cost estimate, a Project Management Plan (PMP), a draft Local Cooperation Agreement (LCA), the sponsor's financing plan, and any documentation required to support compliance with all environmental legislation.

a. Main Report. The main report, signed by the district commander, will be a concisely written summary report containing the district commander's recommendations. The main report will describe alternatives considered, provide the rationale for selection and significant features of the recommended plan, discuss the M-CACES cost estimate, summarize the PMP, discuss the ability to pay determination and reduction in cost sharing if applicable, contain a current Letter of Intent (LOI) from the sponsor which addresses his willingness and capability to comply with all sponsorship requirements and his agreement with the terms of the draft LCA, and contain appropriate documentation of compliance with all environmental legislation. All other supporting documentation will be provided in the technical annex.

b. Technical Annex. The technical annex will contain separately tabbed sections for formulation, real estate, economics, ability to pay analysis, environmental compliance, public involvement, engineering, project schedule, Housing and Community Development (H&CD) Site descriptions and layouts,

specific structure data and disposition plans, floodproofing, and others as appropriate. In these separately tabbed sections, the materials will comply with appropriate planning, project management, and engineering guidance provided in this or other regulations. The specific structure data will be of comparable level of detail, whether an acquisition or a floodproofing. Acquisition costs require a gross appraisal of structures (ORDR 405-1-3). Floodproofing estimates for the recommended plan will be based on an assessment of each structure (see para-3-6c(2)). The technical annex will not duplicate material contained in the main report nor will it contain duplicates of documents supplied as accompaniments to the SPR or DPR.

c. Accompanying Documents. The SPR will be accompanied by responses to division comments on the draft report, the Issue Resolution Conference (IRC) Memorandum for Record (MFR) and subsequent Project Guidance Memorandum (PGM), a PMP, a LCA, the sponsor's financing plan, the M-CACES and any documentation required to support compliance with all environmental legislation.

(1) The Project Management Plan (PMP) will specify the number and sequencing of the Flood Plain Master Plan(s) (FPMP's) required, and the method for prioritizing acquisitions and floodproofings. For complex projects involving multiple project sponsors, or involving complex project issues which may affect formulation and final plan selection, the draft LCA will require on-going review and evaluation by the division commander. This determination will be made by the Division PRB after review of the IPMP. Deviations from the approved LCA format require sound written justification.

(2) The M-CACES estimate will include the cost of labor, material, equipment and overhead for raising each structure. Where historical prices are deemed reasonable, they may be used to compute these costs. Costs of a representative sample may be applied to a group of structures if the design and other parameters are the same for these structures. The cost estimate should reflect variances of known conditions, such as height of raise, within a group. Contingency factors will be used to reflect the degree of variance and uncertainty within each group of structures.

3-7. Approval Process.

a. Major Action Points and Study Schedule. The major action points shown in Table 3-1 will be incorporated into the Specific Project Study and approval process and is to be submitted as part of the Initial Project Management Plan (IPMP) for division approval. This schedule along with the suggested

time frames may be modified to accommodate unique requirements for Specific Project Studies and Detailed Project Studies. The schedule will reflect the level of detail required for the approval document based on size and complexity of the project, master plans, DM's and RES/REDM's anticipated, etc. The District may proceed with work on a RES/REDM for a nonstructural project prior to approval of the SPR if such activities are included in the approved IPMP. However, the scheduled time frames for division and Washington level involvement will not be reduced from that indicated in Table 3-1.

b. If the RES/REDM are processed concurrently, they will be consistent in the recommended plan. The disposition of structures will be based on cost effectiveness rather than eligibility.

c. Issue Resolution Conference. A mandatory Issue Resolution Conference (IRC) will be scheduled at approximately the 29th month of the Specific Project Study. The preliminary SPR and accompanying documents will constitute the IRC package, which will be submitted 60 days prior to the IRC. The district should identify potential issues and problems. CEORD-PE will prepare the IRC MFR. Involvement of Washington-level staff representatives will be handled on a case-by-case basis.

d. Processing a Specific Project Report Not Requiring Documentation of Additional Environmental Compliance. Where environmental compliance was documented in a prior report, that report will be referenced and the environmental findings summarized in the main report. In the tabbed environmental section of the technical annex, a discussion of impacts, permits previously acquired, mitigation requirements, and any conditions or restrictions which will prevail during project implementation, operation, and maintenance should be included. The conclusion that additional environmental compliance is not required must be fully justified in the tabbed environmental section of the technical annex.

e. Processing a Specific Project Report Requiring Documentation of Additional Environmental Compliance. Where environmental compliance has not been completed in a prior report, or in the circumstances in which a significant change in plan formulation has been incorporated into the recommendation in the SPR, an EA and either a Finding of No Significant Impact (FONSI) or Environmental Impact Statement (EIS), or supplements thereto, and Record of Decision (ROD) will be required. An EIS should be a self-supporting document, and it should not be bound into the SPR. The procedure for environmental compliance will

generally follow that of a feasibility report under the General Investigations (GI) program as presented in ER 1105-2-100. Division approval of the draft SPR/EIS is required prior to circulation of these documents for state, other federal, and agency review. The final SPR will contain letters received as a result of the public review process and resolution of issues raised. HQUSACE will circulate the final report and EIS for the 90-day review by state and other federal agencies. The division commander will be responsible for filing the final EIS with the Environmental Protection Agency (EPA).

3-8. Engineering and Design. The district may proceed with detailed engineering and design of the recommended project following approval of the SPR by the ASA(CW), subject to the availability of funds. Execution of the LCA and project implementation will not begin prior to ASA(CW) approval of the SPR. Subsequent to LCA execution and HQUSACE approval of the RES/REDM, the District may proceed with acquisition activities for those structures not eligible for floodproofing as described in paras 2-4.

3-9. Flood Plain Master Plan. A Flood Plain Master Plan (FPMP) will be prepared whenever a nonstructural project (or nonstructural components of a project) has been approved for implementation, and the SPR option is executed.

a. Scope. Each FPMP will be a stand-alone document which will definitively set forth all structure-by-structure actions. It will serve as the vehicle for reporting and approving all related project refinements which may arise from HQUSACE and ASA(CW) review of the SPR. The FPMP is intended for use in administering and monitoring implementation activities within the flood plain, and to serve as the record of the final completed project.

b. Format. Each FPMP will consist of a brief summary report, a technical annex, and an addendum. The summary report and implementation map will be of a nontechnical nature developed for public distribution as background for public discussions and to give homeowners in the flood plain a clear understanding of proposed actions. Accompanying the summary report will be a technical annex containing a structure-specific assessment for each structure in the flood plain for which an action is proposed. Also accompanying the summary report will be other annexes to present technical details not requiring general public review. The addendum will be added after project completion and will update the FPMP to reflect the final project.

(1) Normally, one FPMP will be submitted for each SPR; however, multiple FPMP's may be required under certain circumstances, such as large or complex projects which would be implemented in phases. Depending upon the extent of the flood plain and the proposed schedule for implementation, FPMP's may be prepared for segments of an approved nonstructural project. Each FPMP may include or exclude the floodway or may cover only the floodway where appropriate. Separate FPMP's may be processed for residential and commercial/industrial components. If the nonresidential nonstructural component is extensive and large numbers of commercial structures must be floodproofed or evacuated, a separate FPMP limited to the nonresidential components could be prepared. If multiple FPMP's are used, the PMP submitted with the approval document will provide a listing and sequencing of their preparation.

(2) Summary Report with Map(s). Minimum but sufficient detail will be incorporated to allow for the FPMP to serve as a stand-alone document. The existing, and the with-project flood plain, will be described in the text and delineated on the map(s). Each structure for which an action is proposed will have a unique identifier, as required by ER 405-1-12, which will be used consistently throughout the report. Utilization and management of all lands retained for public use and/or environmental compliance will be fully described, and proposed nonstructural activities will be fully explained. Compliance with environmental laws and regulations as well as coordination with appropriate state and federal agencies will be reaffirmed as necessary. On 100 percent federally funded projects, which have lands proposed for acquisition which are anticipated to be declared surplus to the project, a complete rationale for such determination, along with projected impacts of subsequent disposal, will be included.

(3) Technical Annexes. Appropriate annexes will be included as necessary for technical engineering studies, real estate requirements, cost estimates, project implementation schedules, and funding requirements. If maps in addition to the map with the summary report are required, they as well as overlays and other appropriate graphics describing the flood plain and its existing and with-project developments will be included in an annex.

(4) Addendum. The Addendum is intended to record completion of nonstructural actions within the flood plain, except for activities for the transfer or disposal of real estate. It will assess the completeness of regulatory activities and record the satisfaction of all environmental and regulatory requirements, and the administration and monitoring of

implementation activities completed within the flood plain. Appropriate appendices should be included to support changes from the FPMP, and to document the information already stated. The maps or folios should be updated as appropriate to reflect the completed actions with project conditions. The addendum will be filed in the Real Estate Tract File (RETF) upon completion, and a copy furnished to CEORD.

c. Processing and Approval.

(1) The FPMP will be reviewed in the division office and approved by the division commander. The district may either submit a draft FPMP for division review and comment followed by submission of a final FPMP for division commander approval or submit a proposed final FPMP which may be conditionally approved by the division commander subject to compliance with division review comments, provided compliance will not entail major changes.

(2) Division/district In-Progress Review (IPR) conferences will not be required, except that the district should schedule at least one IPR for an FPMP which encompasses large numbers of structures, is particularly time sensitive, or will be submitted as a proposed final FPMP.

d. Proposed Major Change to Flood Plain Master Plan. If, subsequent to approval of the FPMP, the district wishes to recommend a major technical change in the nonstructural project or nonstructural component of a project, a brief letter report should be submitted for division review and approval. Only major changes in substance, and other than cost effectiveness or time (which are handled through the PPM system) require this action. The letter report should address environmental consequences of the proposed change and should be accompanied by revised documents such as the PMP, financing plan, LCA, etc.

SECTION III. DETAILED PROJECT OPTION

3-10. General. The district may elect to accomplish a Detailed Project Report (DPR) which combines the elements of a SPR, Flood Plain Master Plan, and Relocation Site Master Plan into one document, instead of separate documents. If the DPR option is utilized, masterplan level of detail will be presented as annexes to the DPR.

3-11. Scope. Formulation contained in DPR's will be comprehensive, considering both structural and nonstructural measures. The selected plan will be the most cost-effective combination of measures. Deviations from the most cost-effective plan may be recommended but the rationale for selecting an alternate plan must be fully documented in the DPR.

3-12. Format. A DPR will consist of a main report, which summarizes the results of the project; a separate technical annex for supporting documentation and technical data; and a section for Accompanying Documents.

a. Main Report. The main report, signed by the district commander, will be a concisely written summary report containing the district commander's recommendations. The report will contain a one-page executive summary, and specific sections should be provided to address the appropriate issues listed below; additionally, any other key issues concerning the specific project should be included.

(1) Details provided in the Technical Annex should be summarized in the Main Report:

(a) Section 1, The Study and Report--This section deals with the project overview and includes: a one page executive summary; a brief description of the project area, scope and objectives; and any other issues relevant to the coordination of the project.

(b) Section 2, Resources and Analysis of the Study Area-Addresses the physical geography of the area, to include topography, climate, environment, and river characteristics and flooding history. Also analyzes socioeconomic characteristics and the probable without project condition.

(c) Section 3, The Selected Plan--Describes significant features of the recommended plan, both structural and nonstructural; gives an environmental overview, to include a discussion of potential mitigation requirements; and covers the disposition of evacuated flood plain lands.

(d) Section 4, Project Implementation--Covers the efforts necessary to execute and maintain the project: implementation resources, project funding schedule, cost sharing and ability to pay analysis, analysis of local sponsor's financial capability, and operation and maintenance requirements and responsibilities.

(e) Section 5, Conclusions and Recommendations--Details the conclusions reached from the study and the District Commander's recommendation.

(2) All other supporting documentation will be provided as accompanying documents to the main report or will be included in the technical annex.

b. Technical Annex. The technical annex will contain all report documentation and technical data needed to support each of the alternatives and the recommended plan in the DPR. Also the technical annex will contain sufficient structure specific data to serve as the beginning of the audit trail for each structure included in a recommended nonstructural project. These items will be included in the technical annex as separately tabbed sections:

(1) Annex A, Engineering--A review of the technical studies, both structural and nonstructural, accomplished during the report.

(2) Annex B, Real Estate--A stand alone real estate planning document prepared in accordance with the requirements for a Real Estate Summary (RES), as stated in Chapter 12, ER 405-1-12. The mapping presented in the RES will be the project baseline real estate mapping for any subsequent taking line approvals and changes.

(3) Annex C, Formulation of Alternatives and Selection--Includes information on the process used to develop the alternatives and select the recommended plan. Should include evaluation of the structural and nonstructural measures considered, and an analysis of their effectiveness to include: hydrologic characteristics, overtopping floods (mode and consequences), flood warning and emergency evacuation measures, forecasting capabilities, and any sudden, unique or extreme impacts.

(4) Annex D, Cost Estimate Summary--Should review all significant cost estimates, to include venture level cost estimates, and the M-CACES cost estimate for the recommended plan.

(5) Annex E, Public Involvement--This should provide information on the significance of meetings held with local officials and the results of interaction with the public and other agencies on project issues.

(6) Annex F, Environmental--Provides a detailed analysis of the environmental issues on the project. Wildlife mitigation and historic preservation are also covered in this section.

(7) The supporting materials included in these tabbed sections will comply with appropriate planning, project management, real estate and engineering guidance provided in this or other regulations. The specific technical data required for each structure in the project area to support a decision to acquire or floodproof the structure will be collected and evaluated at a comparable level of detail.

c. Accompanying Documents. The DPR will be accompanied by numerous documents included in this section: responses to division comments on the draft report, the Issue Resolution Conference (IRC) Memorandum for Record (MFR) and subsequent Project Guidance Memorandum (PGM), the PMP, the LCA, the sponsor's financing plan, and any documentation required to support compliance with all environmental legislation (EA/FONSI, EIS) and the M-CACES cost estimate.

(1) The Project Management Plan (PMP) will specify the types and submission schedule of additional documents needed to implement the recommended project following approval of the DPR (i.e., RES/REDM's, RSMP's, FDM's, FWEEP's, etc.). For complex projects involving multiple project sponsors, or for complex project issues which may affect formulation and final plan selection, the draft LCA will require on-going review and evaluation by the division commander. Deviations from the approved LCA format require sound written justification.

(2) The M-CACES cost estimate will include an analysis of floodproofing and acquisition costs. Floodproofing estimates for the recommended plan will be based on an assessment of each structure, and will include the cost of labor, material, equipment and overhead for raising each structure. Where historical prices are deemed reasonable, they may be used to compute these costs. Costs of a representative sample may be applied to a group of structures if the design and other parameters are the same for these structures. The cost estimate should reflect variances of known conditions, such as height of raise, within a group. Contingency factors will be used to reflect the degree of variance and uncertainty within each group of structures. Acquisition costs require a gross appraisal of structures (ORDR 405-1-3), and include those costs specified in paras 2-2b. Data presented for structures which cannot be floodproofed under program guidelines will include costs for acquisition and relocation benefits. Data presented for

structures which can be floodproofed under program guidelines will include, for cost comparison purposes, both costs for floodproofing and acquisition and costs for demolition and lot restoration. Program costs displayed in the DPR, will use the most cost effective option listed in the technical annex for each structure. However, specific decisions for each structure eligible for the floodproofing program will be based on detailed appraisals and engineering investigations undertaken following approval of the DPR. Changes in program options occurring as a result of these detailed investigations will be documented in the District files and will be reflected in modifications to the PMP and final taking line approval process. Changes in project costs will be reflected in updates of the Current Working Estimate. The technical annex will not duplicate material contained in the main report nor will it contain duplicates of documents supplied as accompaniments to the DPR.

3-13. Approval Process.

a. Major Actions Points and Study Schedule. The major action points shown in Table 3-1 will be incorporated into the Specific Project Study and approval process and the Specific Project Study is to be submitted as part of the Initial Project Management Plan (IPMP) for division approval. This schedule along with the suggested time frames may be modified to accommodate unique requirements for Specific Project Studies. The schedule will reflect the level of detail required for the approval document based on size and complexity of the project, master plan, DM's and RES/REDM's anticipated, etc. However, the scheduled time frames for division and Washington level involvement will not be reduced from that indicated in Table 3-1.

b. Issue Resolution Conference. A mandatory Issue Resolution Conference (IRC) will be scheduled as action point number six (6) of the Specific Project Study. The preliminary DPR and accompanying documents will constitute the IRC package, which will be submitted 60 days prior to the IRC. The district should identify potential issues and problems. CEORD-PE will prepare the IRC MFR. Involvement of Washington-level staff representatives will be handled on a case-by-case basis.

c. Processing a Detailed Project Report Not Requiring Documentation of Additional Environmental Compliance. Where environmental compliance was documented in a prior report, that report will be referenced and the environmental findings summarized in the main report. In the tabbed environmental section of the technical annex, a discussion of impacts, permits previously acquired, mitigation requirements, and any conditions or restrictions which will prevail during project implementation,

operation, and maintenance should be included. The conclusion that additional environmental compliance is not required must be fully justified in the tabbed environmental section of the technical annex.

d. Processing a Detailed Project Report Requiring Documentation of Additional Environmental Compliance. Where environmental compliance has not been completed in a prior report, or in the circumstances in which a significant change in plan formulation has been incorporated into the recommendation in the DPR, an EA and either a Finding of No Significant Impact (FONSI) or Environmental Impact Statement (EIS), or supplements thereto, and Record of Decision (ROD) will be required. An EIS should be a self-supporting document, and it should not be bound into the DPR. The procedure for environmental compliance will generally follow that of a feasibility report under the General Investigations (GI) program as presented in ER 1105-2-100. Division approval of the draft DPR/EIS is required prior to circulation of these documents for state, other federal, and agency review. The final EIS will contain letters received as a result of the public review process and resolution of issues raised. HQUSACE will circulate the final report and EIS for the 90-day review by state and other federal agencies. The division commander will be responsible for filing the final EIS with the Environmental Protection Agency (EPA).

3-14. Engineering and Design. The district may proceed with detailed engineering and design of the recommended project following approval of the DPR by the ASA(CW), subject to the availability of funds. Execution of the LCA and project implementation will not begin prior to ASA(CW) approval of the DPR. Upon execution of the LCA between the ASA (CW) and the local sponsor, and approval of the RES/REDM by HQUSACE, the District may proceed with implementation of floodproofing and flood plain acquisitions.

3-15. Project Completion Report. The Project Completion Report is used in conjunction with the DPR and is the document which provides the final view of the project as it was executed.

a. Scope. The PCR should summarize, with various plates and text, what transpired during project execution, and should depict the final project definition. It is not necessary to provide the fine detail demonstrated in the FPMP, since the DPR provided a higher degree of detail than the SPR. Structure specific details beyond that provided in the DPR, and a summary or end result shown in the PCR, should remain in the Real Estate Tract Files (RETF) in the district. A complete listing of documents required to be kept in the district for audit is shown at Appendix G.

b. Format. Each PCR will consist of a brief summary report with an implementation map or map folio denoting all affected structures, and a section addressing the disposition of all lands acquired during the project. Additionally, annexes should be used to update the plan presented in the DPR, and to explain any major deviations. The PCR will be filed in the RETF upon completion, and a copy furnished to CEORD.

SECTION IV. FLOOD WARNING AND EMERGENCY EVACUATION PLANS

3-16. General. A Flood Warning and Emergency Evacuation Plan (FWEEP) will be prepared for all Section 202 projects. The plan will delineate measures and actions to be taken to help protect life and property from flooding, and it will be developed to accommodate the staged implementation of the project. Prior to completion of project construction and acceptance by the sponsor of the completed project (and delivery of deed of conveyance to the local sponsor, if acquired in the name of the United States), a final FWEEP must be coordinated, approved, and implemented.

3-17. Scope. The FWEEP should be a comprehensive plan for flood warning and evacuation of the flood plain. It should be a stand-alone document which will serve as the decision document for FWEEP actions and as the operating manual for emergency operations officials. It should include warning systems, identification of responsible officials and agencies, evacuation routes, and any temporary evacuation housing sites, if necessary.

3-18. Format. The FWEEP will be presented in a report containing details of all hardware features (e.g., flood warning systems) and procedures which are necessary for implementation and administration. The FWEEP will provide simple and clear procedures to be followed for flood events. In the case of a complex FWEEP, the FWEEP will consist of a brief summary report, with flood zone and flood evacuation maps, and technical annexes. The summary report will be used for public distribution and as background for public education programs and discussions. The summary report and technical annexes will be used by emergency officials. For a relatively simple project, the FWEEP may be presented in one document.

a. Summary Report. Minimum but sufficient detail will be incorporated to allow for the FWEEP to serve as a stand-alone document. The summary report will be prepared in a logical format with major sections tabbed.

(1) Standard operating procedures will be developed and displayed for each warning level.

(2) Officials and their responsibilities will be displayed.

(3) An emergency operations section should be provided that specifically addresses those actions required to implement and support the flood warning and evacuation effort.

(4) The summary report will contain, as a separable folder, a community "evacuation booklet" which may be distributed prior to project completion. This booklet will provide the public with the primary information necessary for response to a flood emergency.

b. Technical Annexes. Appropriate annexes will be included as necessary. Annexes should include emergency response actions; background authority, scope, need, and coordination; history of flooding and existing flood protection; flood threat recognition procedures; warning dissemination; flood recovery; FWEEP management; miscellaneous information useful to the FWEEP operator; appropriate figures and tables; and additional maps, if necessary.

c. Implementation Responsibilities Annex. The officials responsible for implementing the various emergency actions and the official with overall lead responsibility must be identified in the FWEEP. A detailed discussion of preparedness activities should clearly define the responsibilities of each official.

d. Other Annexes. The following items should also be addressed, as necessary:

(1) Security procedures to be followed during emergency actions (e.g., issuance of worker ID, procedures for protecting property, etc.)

(2) Public relations (e.g., procedures should be developed for making public announcements, dealing with the media, etc.)

(3) Identification of staging areas, evacuation routes, temporary shelters, and evacuation plans for any jails or prisons.

(4) The local sponsor's coordination with relief activities by Red Cross.

3-19. Processing and Approval. The FWEEP will be identified in the PMP as a major work product, and will be reflected in both the Work Breakdown Structure (WBS) and the Responsibility Assignment Matrix as necessary for project completion. The Local Cooperation section of the PMP will outline the District's plan to involve the local sponsor in the preparation, coordination and approval process. The FWEEP will be reviewed in the division office and approved by the division commander prior to completion of the project.

3-20. Implementation. The approved operating official and the flood evacuation committee will be responsible for implementation of the FWEEP. A letter of acceptance by the sponsor of the approved FWEEP will be required prior to completion of project construction.

TABLE 3-1. MAJOR ACTION POINTS

REQUIRED ACTION POINT	TIME (months)	ELAPSED TIME (months)	REQUIRED ACTION POINT	TIME (months)	ELAPSED TIME (months)
1. Approve Preliminary PMP (PRB Action) District PRB Division PRB		0	9. Submit Draft SPR & M-CACES District submits to CEORD draft SPR plus drafts of M-CACES, 404b(1) evaluation and SOF, ETA, EIS, LCA, PMP, and financing plan.	1.5	34
2. Select Alternative Plans CEORD calls IPR with Sponsor/District to select final array of alternative plans to be studied.	6	6	10. Approve Draft SPR (PRB Action) CEORD PRB approves draft SPR and accompanying draft documents.	2	36
3. Select Tentative Plan (PRB Action) Sponsor/Division/District IRC/IRC/PRB to select tentative plan. Illustrated through system of accounts for screening purposes.	11	17	11. Public Review District distributes main report of the draft SPR with accompanying draft documents for 45-day agencies' review and comment.	2	38
4. Submit Preliminary SPR & M-CACES District submits to CEORD preliminary SPR plus the following in preliminary form: ETA, M-CACES, 404b(1) evaluation and SOF, EIS, LCA, PMP, and financing plan.	9	26	12. Submit Final SPR District completes final SPR and submits it plus the following in final form: 404b(1) evaluation, SOF, CWA Public Notice, the state's water quality certification, EIS, ETA, M-CACES, PMP, financing plan, and draft LCA.	1	39
5. CEORD Evaluates Preliminary SPR Package and Provides Comments to District Upon receipt of CEORD's comments on preliminary SPR and accompanying documents, District furnishes preliminary SPR and accompanying documents to Sponsor and HQ, IRC is scheduled, and District begins revisions to preliminary SPR and accompanying documents.	1	27	13. Commander's Approval CEORD Commander approves and forwards SPR and accompanying documents to HQ for Washington-level and agency review.	1	40
6. IRC Sponsor/HQ/CEORD/District in attendance.	2	29	14. Washington-level and Agency Review WLRC field meeting has been held, 90-day agencies' review has been accomplished and comments received, and WLRC review has been completed.	4	44
7. MFR CEORD submits MFR to HQ.	0.5	29.5	15. HQ Approval	1	45
8. PGM HQ provides PGM to CEORD.	3	32.5	16. ASA(CW) Approval	1	46

CHAPTER 4

ENGINEERING GUIDANCE

4-1. Technical Criteria. Section 202 projects shall be designed in accordance with HQUSACE and division design policies. The design criteria that is used to design the features of the project will be listed in the Engineering Technical Appendix (ETA) to the Specific Project Report (SPR) or Detailed Project Report (DPR) and follow-on Design Memorandums (DM's). Where there is a conflict, the most stringent criteria will be used as per Corps of Engineers' policy. Appendix C, Engineering and Technical Criteria, of this regulation provides the format and content requirements for the ETA.

4-2. Cost Estimate. All cost estimates shall be prepared in the Code of Accounts format and in accordance with the guidance provided in EM 1110-2-1301, Cost Estimates-Planning and Design Stages, EM 1110-2-1302, Cost Estimates: Government Estimate of Fair and Reasonable Cost to Contractor, EC 1110-2-263, Civil Works Construction Cost Estimating and EC 1110-2-538, Civil Works Project Cost Estimating-Code of Accounts.

4-3. Design Memorandum. The format and content of a Design Memorandum (DM) will conform to the requirements of Appendix B and Appendix C of draft ER 1110-2-XXXX, Engineering and Design for Civil Works Projects. In regards to Relocations Design Memorandum (RDM), the district will follow the guidance provided in CEORDR 1110-2-39, Relocation Design Memorandum Documentation for Civil Works Projects.

4-4. Facility Relocations.

a. The provisions of CEORDR 1110-2-39, Relocation Design Memorandum Documentation for Civil Works Projects, will be followed concerning the relocations, alterations, vacations, and abandonments of elements in the recommended plan contained in the Specific Project Report (SPR) or Detailed Project Report (DPR).

b. The design criteria to be used for relocations will be listed in the ETA or, if applicable, a follow-on Relocation DM. Engineering, real estate, and legal aspects of relocation problems and proposed solutions will be presented in sufficient detail to serve as a basis for preparation of the relocation agreement and plans and specifications. If a DM is required, all alternatives that were considered, including the view of owners of facilities to be relocated, should be presented with the reasons for the selection of a particular alternative.

CHAPTER 5

REAL ESTATE GUIDANCE

SECTION I. NONSTRUCTURAL GUIDANCE

5-1. General Guidance.

a. Section 202 of Public Law 96-367 does not mandate a voluntary acquisition or floodproofing program. It is, however, the policy of ASA(CW) to achieve the approved project plan and legislative goals by voluntary participation of property owners.

b. During the Specific Project Study, a thorough evaluation will be made of the projected supply of structures during the project implementation period. Project implementation will be planned to maximize the availability of recyclable sites. During planning and implementation, every attempt will be made to facilitate the working of the private sector to enhance cost-effectiveness of project implementation and maintenance of community cohesion and integrity. Developments will be encouraged by private sources or public sources other than the federal government, when these are more cost-effective.

c. Eligibility for property owners to participate in the program, and benefits received, are covered in Chapter 2.

5-2. Utilities. Unless the proposed project will take a compensable interest, a real property interest will not be acquired from TV cable companies, private utilities and railroads (exclusive of business offices, workshops, and warehouses normally considered as commercial activities) which are not affected by or integral to the operation of a flood protection structure. Publicly owned utilities will be analyzed on a case-by-case basis and generally will not be included in the plan unless clear and compelling reasons for their inclusion are approved by the division in advance of submission of the report.

SECTION II. FLOODPROOFING

5-3. Floodproofing Agreement.

a. If the floodproofing alternative is offered, a floodproofing agreement will be entered into between the eligible owner and the district, or other organization acting for the sponsor. Prior to entering into the agreement, the ownership will be confirmed by a minimum one owner search of the public records.

b. The floodproofing agreement will be recorded in the county land records by the acquiring entity and include a reference to the owner's source of title and to the government's tract number.

c. The floodproofing agreement will include, as part of the consideration for floodproofing the residence the following:

The owners, for themselves, their heirs, and assigns, hereby grant unto the party of the second part, and its assigns, the perpetual right, power and privilege of access to the land and residence thereon at all reasonable times considered necessary by the Government or its contractors, assigns or representatives, to ensure that this agreement, its covenants and restrictions, and the intents and purposes of the projects are being complied with by the owners, their heirs and assigns.

Further, the owners, for themselves, their heirs and assigns, do hereby warrant and covenant with the party of the second part, that from the date hereinafter set forth forever, no structures of any kind for human habitation or for commercial purposes shall be constructed or placed on said land with a first habitable floor or first business floor below elevation _____ feet mean sea level. And they do further warrant and covenant with the party of the second part, that no portion of the floodproofed structure shall be used for human habitation or for commercial or business purposes if said portion lies below elevation _____ feet mean sea level.

d. The floodproofing agreement will provide that the government or the sponsor will agree to pay by check payable jointly to the owner and the owner's contractor, subject to the availability of funds, the reasonable and legitimate expenses involved in floodproofing the structure, not to exceed a certain dollar amount approved by the government and that any additional cost in excess of the contract amount is to be borne by the owner unless such additional amount is expressly approved by the government and the sponsor as necessary for the purposes of flood damage reduction.

e. The floodproofing agreement will provide that the owner agrees the government, its agents or assigns, may inspect the work upon its completion and/or at any time during its progress to insure that the work is acceptable to the government and has been satisfactorily performed to meet the project's criteria as to design.

f. The floodproofing agreement will include a provision that the owner will agree to forever save and hold harmless the United States of America and it assigns from all claims for damages or injuries of any kind arising from or attributable to the floodproofing work authorized by the agreement and any flooding of the floodproofed structure.

g. Lienholder and tenants will join in the floodproofing agreement for the purpose of consenting to the terms of the agreement and waiving, releasing, and subordinating their rights in the premises to the extent necessary to accomplish the work specified in the agreement and to covenants contained in the agreement.

h. The district Chief of Real Estate will approve all floodproofing agreements used by the local sponsor. If the government is a party to the floodproofing agreement, it will be accepted on behalf of the government by the district commander or his Chief of Real Estate.

i. The floodproofing agreement must be an assignable instrument. The rights, warrants and privileges granted to the sponsor or the government by the agreement must be incrementally assigned by recordable instrument to the sponsor responsible for Operations and Maintenance (O&M) of the project.

j. Solicitation and Award of Floodproofing Contracts. A test program to determine the true cost of floodproofing is underway. Guidance on the most cost-effective method of solicitation and award of floodproofing contracts will be provided.

k. No structure will be raised, nor additional space provided, solely to accommodate utilities.

5-4. Residential.

a. Residential floodproofing generally will consist of raising structures in place. Modifications to the structures will be made only to assure structural integrity or to compensate on an equitable use basis for living areas destroyed in the raising process. If, during the study phase, the visual field inspection indicates that a large number of structures in the project area appear to meet this criteria, an appropriate contingency will be added to project costs.

b. Structures will be raised according to the criteria prescribed in Appendix C.

c. Exterior features such as steps, porches, and decks will be provided on an equitable use basis. Provisions will be made for handicapped access when appropriate.

d. Aesthetic treatment of the exterior of the raised portion of the structure will be tailored to the specific project area and will be limited to painting the foundation wall. The owner may, at his expense, apply other treatment.

e. Walks, driveways, etc. will be restored as necessary to the pre-raise condition.

f. Landscaping will reflect the pre-raise condition. Mature vegetation will not be replaced in kind but will be replaced by plantings typically utilized for new construction. Limited additional landscaping will be used to "blend in" the raise.

g. The existing basement wall will be extended unless a structural examination indicates obvious foundation problems which would require a new wall for raise-in-place.

5-5. Nonresidential. A structure-by-structure analysis is required for each nonresidential structure being considered for floodproofing. This analysis will be based on field investigations and will provide a cost for the most practicable structure specific solution. Raising of nonresidential structures will consider the effect raising would have on the continued operation of the activity. Watertight closures or veneer walls should be considered where a low risk exists for destruction of the structure by excessive water depths or floating debris in high velocity areas. Individual ringwalls may be recommended when cost-effective.

SECTION III. ACQUISITION

5-6. General. Eligibility for participating in the program is detailed in Chapter 2.

a. Existing vacant lots and nonhabitable structures will not be acquired under the nonstructural program. Restrictions on floodplain development contained in Local Cooperation Agreements (LCA's) and in the existing floodplain ordinances will control the development of vacant property to prevent damageable development.

b. Floodplain lands purchased under the acquisition program will be acquired in the name of the local sponsor for cost shared projects, and in the name of the United States of America for non-cost shared projects. Lands not required for project mitigation which are suitable and needed for Public Law 91-646 relocations will be recycled if this is cost effective. Recycled lands will be conveyed with appropriate restrictions on the deeds to control the development of property to prevent damageable development by a recurrence of stages associated with the 1977 flood. Subsequent to completion of the project, floodplain lands which were acquired under the evacuation program and which were not recycled or dedicated for mitigation purposes will be owned by the local sponsor and disposition of the lands will be at the sponsor's discretion. The government will approve all deeds from the local sponsor disposing of excess project lands to assure that they contain the deed restrictions set forth in the LCA.

c. For non-cost shared 202 projects, real estate not required for project purposes will be excessed to the General Services Administration (GSA) for disposal. Deed restrictions will be identified to GSA, and profits from the sale will be returned to the Treasurer of the United States.

d. If they are not incompatible with mitigation provisions of the project, uses compatible with floodplain restrictions could be permitted on evacuated floodway lands including gardening, recreation, picnicking areas, walking trails, plantings for wildlife habitat, short term parking areas, and playgrounds. These uses could be developed, operated, and maintained by the local sponsor or by lessees. Areas suitable for these uses will be delineated by the local sponsor to insure compatibility between adjacent uses and conformance with project objectives.

5-7. Acquisition Criteria.

a. Standard real estate acquisition policies and procedures will be followed in acquiring real property interest for both structural and nonstructural Section 202 projects. Districts will be governed by ER 405-1-12, Public Law 91-646, CEORDR 405-1-3 and 49 CFR, Part 24.

b. Public Law 91-646, authorizing payment of relocation benefits to persons displaced from their homes, businesses, or farms by federal and federally assisted programs, is applicable to all Section 202 projects. Prior to submission by the district of a SPR/DPR or Real Estate Summary (RES)/Real Estate Design Memorandum (REDM) for a Section 202 project, a relocation plan

and survey will be made. The objective of the survey and the plan is to provide a reliable estimate of currently available replacement housing to meet the needs of the homeowners and families being displaced. A discussion of findings and determinations will be included in the SPR/DPR or RES/REDM. The district will retain copies of the relocation survey and plan in the Real Estate Tract File (RETF) in the district.

(1) Provisions of 49 CFR Part 24 will be followed in justifying a determination of last resort housing and the method to be used.

(2) The International Right-of-Way Association publication Administering The Uniform Relocation Assistance Program: Practical Procedures and Problem Solutions may be used as a guide in completing a preliminary relocation plan for the SPR/DPR and a pre-acquisition plan for the RES/REDM. If the SPR/DPR and RES/REDM are submitted in the same time frame, the two plans may be combined.

(3) If the district determines that a sufficient supply of Decent Safe and Sanitary (DSS) residential comparable housing does not exist in a project area, the latitude to implement project wide last resort housing may be requested and approved by the RES/REDM approval process.

(a) Every effort will be made to relocate individual homeowners using standard Public Law 91-646 benefits before implementing any last resort housing alternative.

(b) The last resort housing method selected must be the most cost-effective method available. The district will document this decision making process and forward a copy of the documentation to CEORD-RE-A within ten days after documentation.

(c) In no case will a Housing and Community Development (H&CD) site method of supplying last resort housing be selected without approval from the division commander. Should H&CD sites become necessary, a Resettlement Site Master Plan (RSMP) will be prepared as specified in Appendix D.

(4) Public Law 91-646 does not authorize last resort housing benefits to owner's of nonresidential structures.

c. The district will submit a RES/REDM for approval with each Section 202 SPR/DPR that is submitted. The RES/REDM will be a detailed document describing all project real estate requirements.

(1) The RES/REDM will be based on the premise that there will be 100 percent participation in the program and that the potential number of acquisitions will be determined by comparing the cost of floodproofing with the cost of acquisition, as detailed in paras 3-6 or 3-12.

(2) Approval of the RES/REDM will be the basis for implementation of acquisition proceedures (subject to the availability of funds). Acquisition costs developed for the RES/REDM will be the basis for budgeting and requesting funds for each fiscal year, if the M-CACES is not available.

(3) Upon approval of the project SPR/DPR and RES/REDM, the district will conduct a landowners' meeting with the local sponsor(s). The landowners' meeting, a requirement of Public Law 91-646, starts the two year period in which landowners may decide to sign-up for the program.

d. Vacant or unimproved land in the flood plain not occupied by an eligible structure will not be acquired. However, eligible participants owning contiguous property in the flood plain may, at the government's option, elect to sell the entirety or may elect to retain the severed portion and waive severance damages.

e. While the program is voluntary in nature, condemnation procedures may be used to clear title encumbrances or settle price differences once an owner decides to participate in the program and agrees not to challenge the government's right to take and agrees with the government's legal description. Condemnation may also be used to achieve an approved project plan that includes nonstructural items such as ringwalls or H&CD sites.

f. It is the responsibility of the sponsor to provide the lands, easements, rights-of-way and disposal areas necessary for the construction, operation and maintenance of the project. If the district is performing acquisition services on behalf of the local sponsor, title to the property will ordinarily be acquired in the name of the local sponsor. If it is proposed that title repose in the United States, the district must submit the proposal through division to CERE-AP for decision.

g. Where it is agreed that the district will acquire land or provide other services, the terms and conditions concerning these services will be fully set forth in a written Memorandum Of Agreement (MOA) with the sponsor. These MOA's will be approved by the Division Commander or ASA(CW) as required. In

a nonstructural project where the real estate is not acquired until after the LCA is executed, the LCA can stipulate the agreement.

h. Recycling of acquired land may be accomplished to provide housing to displacees where last resort housing as provided by Public Law 91-646 is declared necessary. The sponsor/district MOA or LCA must address the sponsor's willingness and capability to make project land available at no cost for last resort housing.

5-8. Residential.

a. Housing and Community Development (H&CD) sites will be planned only after a thorough investigation of the projected supply over the project implementation period reveals that a sufficient supply of housing is not available in the area and that other less costly methods of last resort housing are not available. An H&CD site may be provided only if it is found to be a more cost-effective method of last resort housing. Whenever cost-effective, H&CD sites should be provided by the sponsor or a public or private developer other than the federal government.

b. H&CD site locations will be selected on the basis of cost-effectiveness and developed to optimize the number of units and to provide for operation and management by a nonfederal sponsor.

c. Fully developed H&CD sites will be fully sustainable by an established, willing, and fully capable town, city, county, state or other public entity, without any involvement by the federal government.

d. The sponsor will be willing and capable of providing utilities and public services and maintaining roads to and within the H&CD site or will assure the provision of such services.

e. Renters will be eligible for resettlement with full benefits only if the owner of the structure to be evacuated voluntarily participates in the evacuation plan.

5-9. Nonresidential. Relocation benefits will be administered in accordance with Public Law 91-646 as described by regulations promulgated in Part 24, 49 CFR and by ER 405-1-12.

SECTION IV. OPERATIONS AND MAINTENANCE

5-10. General. The sponsor accepts project Operations and Maintenance (O&M) responsibilities upon acquisition in the sponsor's name, or upon conveyance to the sponsor if the land is acquired in the name of the United States. The fact that the sponsor has O&M responsibilities does not prohibit the district from performing further services such as Public Law 91-646 relocations, disposal of structures, and clearing of the land for the sponsor, provided the district has the resources and an approved MOA.

5-11. Implementation.

a. Prior to completion of the project (or completion of a separate phase), the district will furnish to the sponsor a nonstructural O&M manual addressing the sponsor's responsibility for enforcement of restrictive covenants contained in floodproofing agreements or deeds of conveyances of excess project lands. The manual will stipulate the owner's responsibility for operation and maintenance of the entire project and to insure mitigation requirements are fulfilled.

b. To assure that the local sponsor is fulfilling all O&M responsibilities described in the LCA and project operations manual, the district will require the local sponsors to provide annual certification that they have inspected the non-structural project, including the floodproofed structures, and find no violation of restrictive covenants. Further, the district will require the sponsor to advise the government of all violations and the steps being taken to correct the violation.

CHAPTER 6

CONSTRUCTION MANAGEMENT

6-1. Nonstructural. Construction Division will participate in the development of project schedules during the planning and engineering stages and provide construction quality assurance oversight on nonstructural floodproofing. Concurrent with the planning and engineering phases of the project, Construction Division will actively participate in the preparation and review of design documents and the subsequent plans and specifications. Biddability, Constructibility, and Operability (BCO) reviews will be a required part of this process. During the floodproofing of residential or commercial structures, construction management will consist of periodic reviews to assure construction is completed in accordance with the Corps' requirements. Upon completion, final approval will be provided and a receiving report will be prepared.

6-2. Structural. For any structural solution within the Section 202 Program, Construction Division will participate in (1) the development of project schedules during the planning and engineering stages, (2) preparation and review of design documents and the plans and specifications, (3) preparation of construction schedules for use in the design stages, (4) support of the Life Cycle Project Management (LCPM) process, (5) BCO reviews, and (6) total construction management services appropriate for the project to include construction quality assurance, timely completion, required modification of the work, and periodic and final payments to the contractor.

6-3. Demolition and Clearing. Construction Division will participate in the development of project schedules for the proposed demolition and clearing portion of the work. Upon being advised by Real Estate Division that land(s) and improvements thereon are available and clearing is required, Construction Division, along with Contracting Division, will determine the best contracting method for demolition, final grading and stabilization of designated sites. In addition, Construction Division will provide total construction management services appropriate for the selected contracting method, to include construction quality assurance, timely completion, required modification of the work, and periodic and final payments to the contractor.

CHAPTER 7

ACCOUNTING, CONTRACTING AND AUDITING

7-1. Programming and Budgeting. Programming and budgeting for reconnaissance and feasibility level detail will be under the Specific Project Report (SPR) account of the Section 202 Program. After approval of a SPR or Detailed Project Report (DPR) by the ASA(CW), budgeting for engineering, design, real estate and construction will be in accordance with the annual budget EC 11-2-XXX. Congressional adds and changes may; however, dictate annual work allowances.

7-2. Contracting. Contracting for Section 202 structural and nonstructural projects, that are not approved by CERE as real estate contracts, will be accomplished in accordance with the FAR and supplements thereto. The Uniform Contract Format (UCF) will be utilized in accordance with EFAR 14.201-1. All solicitations and awards for construction contracts will be accomplished through the Standard Army Automated Contracting System (SAACONS).

7-3. Audit.

a. General. Contract audits will be performed in accordance with audit provisions contained in the contracts awarded and/or issued. All contracts awarded and/or issued will provide for specific audit access to all contractor records that support contract actions. Audits on cost reimbursable (cost incurred) contracts will be performed on an interim basis as work progresses or prior to payment of the final invoice and contract closeout. Audits of proposed non-competitive contracts will be performed on a preaward basis; audits of contracts awarded on a true competitive basis will not be performed.* For purposes of accounting and auditing standards, only FAR, Part 31 will be used.

*NOTE: Competitive contracts not requiring audit are those that are awarded based on low bid or those that are negotiated and awarded as a result of comparing two or more competitive proposals. Noncompetitive contracts requiring audit are those contracts that are awarded based on a single source bid or based on negotiations resulting from a single source proposal.

b. Division Contract Audit. As requested by the Contracting Officer and/or as required by contract provisions or payment processes, the Ohio River Division contract audit office

will provide preaward, interim, and/or post award audit assistance in determining fair and reasonable prices or in verifying actual costs incurred.

7-4. Internal Review.

a. Not sooner than 6 months nor later than 12 months from the implementation date of this regulation, the district internal review office will program and conduct a review relative to this regulation. The purpose of this review will be to assess the implementation of this regulation and to evaluate the effectiveness of the internal controls contained therein. A written report of the review results will be issued to the district commander with a copy furnished CEORD-AO.

b. During the life of the 202 project, the district commander will ensure that annual internal reviews are programmed and completed. The subject matter of these reviews will be in an area or areas of the Section 202 Program deemed appropriate for a "look see." Subject areas will be developed using input from the division commander and staff, as well as input from the district commander and staff.

APPENDIX A

REFERENCES

CEORDR 5-1-1. Project Management and the Planning Study Process.

CEORDR 405-1-3. Real Estate Appraisals.

CEORDR 415-1-5. Bidability, Constructibility and Operability.

CEORDR 1110-2-8. "As Constructed" Drawings for Civil Works Projects.

CEORDR 1110-2-10. Delegation of Authority--Approval of Plans and Specifications for Civil Works Construction Projects.

CEORDR 1110-2-12. Soils and Geology Data in Survey Reports, Design Memoranda, and other Civil Works Projects.

CEORDR 1110-2-15. Approval of Plans and Specification and of Advertising and Bid Opening Dates (Civil Works).

CEORDR 1110-2-39. Relocation Design Memorandum Documentation for Civil Works Projects.

COE National Flood Proofing Committee Publication; Flood Proofing Techniques, Programs, and References; February 1991.

EC 11-2-XXX. Annual Program and Budget Request for Civil Works Activities Corps of Engineers, Fiscal Year 19XX.

EC 405-2-14. Real Estate Requirements for Local Cooperation Projects and Related Guidance.

EC 1110-2-263. Civil Works Construction Cost Estimating.

EC 1110-2-268. Engineering and Design for Civil Works Projects.

EC 1110-2-538. Civil Works Project Cost Estimating--Code of Accounts.

Engineer Federal Acquisition Regulation (EFAR).

EM 1110-2-1301. Cost Estimates--Planning and Design Stages.

EM 1110-2-1302. Cost Estimates: Government Estimate of Fair and Reasonable Cost to Contractor.

ER 5-7-1. Project Management.

ER 27-1-1. Claims and Litigation.

ER 405-1-12. Real Estate Handbook.

ER 415-1-11. Biddability, Constructibility, Operability.

ER 1105-2-100. Planning and Policy Guidance.

ER 1110-2-1002. Maps and Drawings.

ER 1110-2-1200. Plans and Specifications.

ER 1165-2-121. Water Resource Policies.

ER 1165-2-131. Local Cooperation Agreements for New Start Construction Projects.

FEMA 85/September 1985. Manufactured Home Installation in Flood Hazard Areas.

FEMA Publication 102/May 1986. Floodproofing Nonresidential Structures.

FEMA 114/September 1986. Design Manual for Retrofitting Flood-Prone Residential Structures.

Public Law 91-646. Uniform Relocation Assistance and Real Property Policies Act of 1970, as amended.

49 CFR Part 24.

APPENDIX B

RESCINDED

APPENDIX C

ENGINEERING AND TECHNICAL CRITERIA

C-1. Purpose. This guidance is to be used to prepare the Engineering Technical Appendix (ETA) for Section 202 Specific Project Reports (SPR's), Detailed Project Reports (DPR's), and Master Plans (MP's).

C-2. Engineering Considerations--SPR's/DPR's. The ETA will generally conform to the requirements for an engineering appendix to a feasibility report as stated in draft ER 1110-2-XXXX, which was distributed for use by EC 1110-2-265, and as provided below. The engineering data will be presented in sufficient detail to firmly establish the project location, level of protection, and total project costs. The format and content of the ETA will generally follow Appendix A (Outline of Engineering Appendix to a Feasibility Report) of the draft ER using the paragraphs listed below. Paragraph numbers, in parentheses, are keyed to those in the draft ER.

C-3. Outline For An ETA--Structural (SPR/DPR).

a. Hydrology and Hydraulics (A-2).

(1) General. The Hydraulics and Hydrology (H&H) studies and analyses for Section 202 projects should include all those normally conducted for levee/floodwall and channel modification projects authorized under other authorities.

(2) Level of Protection. The level of protection is the April 1977 flood, except where the consequences of levee or floodwall overtopping would be catastrophic. In the latter case, the Standard Project Flood (SPF) is the required level of protection, but must be approved on a case-by-case basis.

(3) Design Water Surface Profile.

(a) Basic Water Surface Profile--April 1977. Appropriate adjustments (higher or lower) should be made to the observed April 1977 flood profile to account for changes which have occurred since 1977. These include permanent changes in the stream cross-section caused by natural forces; e.g., aggradation or degradation of the stream bottom or erosion of the stream banks, or by man's action; e.g., installation or removal of bridges, encroachments by structures (including fills, levees, and floodwalls) or changes in the channel roughness. Also included should be changes in the upstream watershed which would

have an effect on the elevation of the 1977 flood discharge or change the peak discharge (and elevation) for the same rainfall.

(b) Basic Water Surface Profile--100 Year Flood and SPF. This profile should be obtained from backwater calculations using the best estimate of 100-year or SPF discharge and the with-project cross-sections and channel roughness.

(4) Freeboard. The freeboard requirements for projects included in the Section 202 program are the same as those in all other Corps' programs. Freeboard should be designed using existing criteria, including guidance provided at the 8-10 May 1990 H&H Conference (Annex A, Appendix C). However, for April 1977 water surface profiles, the freeboard design should not include consideration of the uncertainties involved in establishing the basic profile such as determination of the channel roughness. The minimum freeboard requirement for levees, floodwalls, and channels is three feet unless the district can provide adequate justification for providing a lesser amount.

b. Surveying and Mapping Requirements (A-3).

c. Geotechnical (A-4). The level of effort required should essentially be that defined in paragraphs 9b(2)(d) and (f) outlined in ER 1110-2-XXXX furnished by EC 1110-2-265. Similarities of site conditions and proposed design with those of previously constructed projects in the area should be included.

d. Project Design (A-5).

e. Construction Procedure and Water Control Plan (A-6).

f. Construction Materials (A-7).

g. Cost Estimates (see para. 3-6c or 3-12c).

h. Schedule for Design and Construction (A-10).

C-4. Outline for an ETA--Nonstructural (SPR/DPR).

a. Hydrology and Hydraulics (A-2).

(1) General. The H&H studies and analysis for Section 202 projects should include all those normally conducted for nonstructural projects authorized under other authorities.

(2) Level of Protection. The level of protection is the April 1977 flood.

(3) Design Water Surface Profile.

(a) Basic Water Surface Profile--April 1977 Flood. Appropriate adjustments (higher or lower) should be made to the observed April 1977 flood profile to account for changes which may have occurred since 1977. These include permanent changes in the stream cross-section caused by natural forces; e.g., aggradation or degradation of the stream bottom or erosion of the stream banks, or by man's action; e.g., installation or removal of bridges, encroachments by structures (including fills, levees, and floodwalls), or changes in the channel roughness. Also included should be changes in the upstream watershed which would have an effect on the elevation of the 1977 flood discharge or change the peak discharge (and elevation) for the same rainfall.

(b) Basic Water Surface Profile--100 Year Flood. This profile should be obtained from backwater calculations using the best estimate of 100-year discharge and the with-project cross-sections and channel roughness.

(4) Freeboard. Freeboard for structural components should be designed using the same criteria used for Corps' structural projects. Freeboard should be designed using existing criteria, including guidance provided at para C-3a(4). Nonstructural features; however, normally will not require an initial overtopping section.

(a) Ring Walls and Ring Levees. Freeboard should be designed using existing criteria for structural projects as described above. These structures are usually short and no initial overtopping section is provided.

(b) Floodproofed Structures. When dry floodproofing techniques are used, structures should be floodproofed to the elevation of the April 1977 flood, (no freeboard).

(c) Raised-in-Place Structures. The bottom of the floor system of the lowest habitable floor should be 1 foot above the design flood. To comply with Executive Order 11988, residential structures will use the April 1977 flood or 100 year flood, whichever is greater.

(2) FEMA 114/September 1986, Design Manual for Retrofitting Flood-Prone Residential Structures.

e. Construction Procedure, Water Control Plan Not Required (A-6).

f. Construction Materials (A-7).

g. Cost Estimates (see para 3-6c, or 3-12c).

h. Schedule for Design and Construction (A-10).

C-5. Engineering Considerations--Master Plan. The ETA for Master Plans (MP's) will generally conform to the requirements for Design Memoranda as stated in the draft ER 1110-2-XXXX, which was distributed for use by EC 1110-2-265, 1 September 1989. The format and content of the ETA will generally follow Appendix B (Content of a Design Memorandum) as provided in the draft ER using the paragraphs listed below. Paragraph numbers, in parentheses, are keyed to those in the draft ER.

C-6. Outline for an ETA--Structural (MP).

a. Table of Contents (B-3).

b. Project Description (B-4).

c. Pertinent Data (B-5).

d. References (B-6).

e. Engineering Studies and Investigations (B-7).

f. Plates (B-8).

g. Cost Estimates (B-9).

C-7. Outline For an ETA--Nonstructural (MP).

a. Table of Contents (B-3).

b. Project Description (B-4).

c. Pertinent Data (B-5).

d. References (B-6).

e. Engineering Studies and Investigations (B-7).

f. Plates (B-8).

g. Cost Estimates (B-9).

APPENDIX D

RESETTLEMENT SITE MASTER PLAN

D-1. Resettlement Site Master Plan. A Resettlement Site Master Plan (RSMP) will be prepared for all approved Section 202 projects which include development of a Housing and Community Development (H&CD) Site as a component of the nonstructural plan. The resettlement site master plan process also will be applied to those approved projects which include construction of new floodsafe housing on recycled floodplain tracts requiring the subdivision of large evacuated floodplain tracts, a substantial change in housing density (multi-family replacing single-family lots) or the development of new infrastructure to support housing construction. Use of single, undivided, evacuated floodplain tracts for construction of new single-family floodsafe housing, where sufficient utilities and public services exist, will not require preparation of a master plan.

D-2. Scope. A RSMP serves as a decision and project management document. The master plan will be prepared and approved at the draft stage (or final stage with division comments) prior to the preparation of the Design Memorandum (DM), Real Estate Summary (RES), Real Estate Design Memorandum (REDM), Plans and Specifications (P&S), and construction activities. It should present a process for determining the types and numbers of housing units needed in the site(s) and present adequate details of site layout to facilitate preparation of DM's and P&S for site construction. Project implementation and funding schedules should be comprehensive and adequate to proceed to design, construction, and management of the H&CD site. The RSMP will be the framework for coordinating among regulatory agencies, government agencies, public utilities, and lending institutions. The RSMP will be used to assist in managing and monitoring the overall site development and will provide information necessary to decision makers, managers, developers, homeowners, government agencies, public utilities, health and sanitary regulatory agencies, etc.

D-3. Format. The RSMP will consist of a brief summary report with appropriate site development maps (land-use, site layout with utilities, and preliminary plat). The summary report will include a discussion of the housing needs generated by the floodplain evacuation program (based in-part on the Housing Survey prepared by Real Estate Division for the SPR/DPR), rationale for the types and numbers of housing units proposed for development in the resettlement site(s), description of the

resettlement site features, management guidelines, costs, and implementation schedules for the recommended development. A technical annex will be included as necessary to present data and detailed planning and engineering for the site(s) beyond that required in the summary report.

a. Summary Report with Site Planning Maps.

(1) Minimum but sufficient detail will be incorporated to allow for the RSMP to serve as a stand-alone document. The approved H&CD site will be described in the text and displayed on the maps. The location and boundaries of the H&CD site will be displayed in sufficient detail to facilitate preparation of the RES/REDM for land acquisition following approval of the RSMP. The site will be subdivided to accommodate the types and numbers of housing units required to satisfy the needs of the floodplain evacuation program and will conform to applicable local, state, and federal housing development criteria and regulations. The land-use plan will show the distribution and location of the various housing types (single-family, multi-family), access right-of-ways (ROW's), infrastructure developments located on-site (water storage, sewage treatment facilities), recreation areas, and open spaces. The site layout plan will show all streets, walkways, drainage courses, utilities, recreation facilities, single-family lots, multi-family units and associated parking facilities. In the case where the H&CD site is located on recycled, evacuated floodplain lands, the layout plan also will indicate the location of the floodway limits, the depths of the design flood within the H&CD site, the required heights of floodproofing or fill at each lot and any special utility requirements for floodplain construction. A preliminary plat map, based upon the land-use and site plans will be prepared and included in the RSMP summary report. The preliminary plat will be prepared in accordance with applicable local, state and federal statutes. At a minimum the preliminary plat shall include all lot lines, street right-of-ways, easements, building setbacks, lot numbers and site contours. Each specific plat will be identified with an unique identifier, as required by ER 405-1-12, which will be used consistently in any references in the summary report and maps and in the technical annex. A final plat will be prepared (following completion of the site DM) and filed, as necessary (prior to construction), with the appropriate local governmental entity within whose jurisdiction the site is located. Activities required to develop the resettlement site infrastructure and the resulting facilities will be described in the text and displayed on the maps.

(2) Resettlement sites will be subdivided providing an array of single family lot sizes to accommodate expected replacement homes developed by floodplain evacuees. The site layout plan should reflect the optimum use of the developable property within the H&CD site in accordance with Federal, State, and local subdivision or site planning regulations. Sites will be developed generally in accordance with the least costly legally applicable standard. The site's land utilization should be described in the report text to the extent necessary to confirm that the concepts presented are practicable and feasible and meet the housing needs of the project. Availability and connection to existing utilities and accessibility to needed public services should also be described in the report text and illustrated in the annex as necessary. To the extent practicable within site constraints and applicable development standards, the site design should incorporate measures to minimize impacts on any desirable natural and aesthetic attributes of the site.

(3) The summary report should fully define site management responsibilities and public services (police, fire, sewerage collection and treatment facilities, other utilities, schools, social, etc.) to be provided by the local sponsor. If a site is located where public services and utilities are not readily available, these services and facilities must be provided as a part of the H&CD site development and management. As a minimum, these services should be comparable to services provided to other residents by the managing governmental agency. Should a private entrepreneur develop the H&CD site, similar provision of these facilities or coordinating agreements for their provision must be made with the developer. In each case, the provision of services or the arrangements for services must be fully explained in the report text and illustrated in the technical annex. In cases where the H&CD site is located on recycled, evacuated floodplain lands, the responsibilities for future enforcement of floodplain management regulations regarding floodproofed structures must be coordinated with the local sponsor and described in the text.

b. Technical Annex. The technical annex will contain additional technical information and data needed to support the development plans described in the master plan text and maps. The technical annex will consist of separately tabbed sections including local, state, and federal criteria and standards for development, specific design criteria for infrastructure, real estate requirements, cost estimates, subdivision covenants

applied to the site, and project implementation schedule and funding requirements. If maps in addition to those included in the master plan text are required, they as well as overlays, photographs or other appropriate graphics which describe the existing and the developed site will be included in the technical annex. Copies of the specific local, state and federal standards that the district proposes to use will be submitted to the division for approval prior to preparation of the technical annex.

(1) Standards will be listed for all site layout and construction activities necessary to develop the approved site. Standards will include but not be limited to the location, layout and characteristics of easements, sewerage collection and treatment facilities, other utilities, streets, walkways, on and off-street parking areas, play areas, common areas, storm drainage, fire protection provisions including hydrant locations, plat monuments, lot lines, and building setback lines. In each case the particular local, state or federal standard applied to the feature should be listed. For example, the standard for the number of off-street parking spaces required for multi-family dwellings may be derived from either local, state, or federal standards so long as the least costly legally applicable standard is used. In the case of site control and drainage control, the greater of local, state or federal applicable regulatory standard should be used. In cases where the H&CD site is located on recycled, evacuated floodplain lands, standards for construction in the floodplain will include consideration for raised structures, utilities, flood-resistant materials and post-flood clean-up activities.

(2) The district also will apply specific standards to features which may not be shown in detail on the site layout plan including water and sewer line sizing, culvert sizing, street cross-sections, underground versus aerial telephone and electric service, intersection sight distances, etc. These features will be described and applicable standards designated. In addition the technical annex will describe mineral rights, and any site geology which is sensitive to development patterns (i.e., drainage-ways, wet soils, potential slide areas, mining activities, etc.

(3) In cases where the district determines that a variation from the applicable standard is necessary to optimize utilization of the site or to substantially reduce site costs,

the district should fully explain the rationale for departure from the standard. In cases where the departure involves an applicable local, state or federal standard, the district should include documentation of coordination and agreement to the departure by the effected agency or regulatory entity.

D-4. Processing and Approval.

a. The RSMP will be reviewed in the division office and approved by the division commander. The district may either submit a draft RSMP for division review and comment followed by submission of a final RSMP for division commander approval or submit a proposed final RSMP which may be conditionally approved by the division commander, subject to compliance with division review comments, if compliance will not entail major changes.

b. Division/district IPR conferences will not be required, except that the district should schedule at least one IPR for an RSMP which encompasses large numbers of structures, is particularly time sensitive, or will be submitted as a proposed final RSMP.

D-5. Implementation. The RSMP will be coordinated with appropriate agencies to assure compliance with existing regulations and guidelines. The RSMP will contain documentation of intergovernmental coordination. Approval of the RSMP will be followed by the usual Corp's design, real estate, and construction processes. Following approval of the RSMP and the completion of the site DM, the preliminary plat will be finalized and filed through appropriate channels.

D-6. Proposed Change to RSMP. If, subsequent to approval of the RSMP, the district wishes to recommend a change in the resettlement site component of the nonstructural project, a brief letter report with revised maps should be submitted for division review and approval. The letter report should address environmental consequences of the proposed change and any changes to the cost estimate. The letter report should be accompanied by revised documents such as the PMP, financing plan, LCA, etc.

D-7. Post-construction. Upon completion of the H&CD site construction, the RSMP summary report with maps, the final plat map and any letter reports approved by the division commander for site modifications will be incorporated into a site O&M manual for transmittal to the local sponsor (prior to the time of site conveyance) to facilitate future operation and maintenance of the site.

APPENDIX E

HAZARDOUS, TOXIC, and RADIOLOGICAL WASTE

SEE MEMORANDUM FOR CDR CEORH, CEORN, 20 DECEMBER 1991, FM CEORD, SUBJECT: "INTERIM GUIDANCE ON HTRW REMEDIATION AT 100 PERCENT FEDERALLY FUNDED SECTION 202 PROJECTS."

HTRW FOR COST SHARED PROJECTS IS UNDER DEVELOPEDMENT, AND WILL BE STAFFED TO THE FIELD AND CEORDO AS SOON AS POSSIBLE.

APPENDIX F

FILES RETAINED BY DISTRICT FOR DPR OPTION

UNDER REVIEW BY CEORDO

APPENDIX G

GLOSSARY OF TERMS

ASA(CW)--Assistant Secretary of the Army for Civil Works

BCO--Biddability, Constructibility, and Operability

DM--Design Memorandum

DPR--Detailed Project Report

EA--Environmental Assessment

EIS--Environmental Impact Statement

EPA--Environmental Protection Agency

ETA--Engineering Technical Appendix

FEMA--Federal Emergency Management Agency

FFMP--Final Floodplain Master Plan

FONSI--Finding of No Significant Impact

FPMP--Flood Plain Master Plan

FRSMP--Final Resettlement Site Master Plan

FWEEP--Flood Warning and Emergency Evacuation Plan

GI--General Investigations

GSA--General Services Administration

H&CD--Housing and Community Development

H&H--Hydraulics and Hydrology

HTRW--Hazardous, Toxic, and Radiological Waste

IFMP--Initial Flood Plain Master Plan

IPMP--Initial Project Management Plan

IPR--In-Progress Review

IRC--Issue Resolution Conference

IRSMP--Initial Resettlement Site Master Plan

LCA--Local Cooperation Agreement

LCPM--Life Cycle Project Management

LERRD--Land, Easement, Right-of-way, Relocation, or Disposal

LOI--Letter of Intent

M-CACES--Micro-Computer Aided Cost Engineering System

MOA--Memorandum of Agreement

NEPA--National Environmental Protection Act

NHPA--National Historic Preservation Act

O&M--Operations and Maintenance

P&S--Plans and Specifications

PES--Project Executive Summary

PGM--Project Guidance Memorandum

PL--Public Law

PMP--Project Management Plan

PRB--Project Review Board

RDM--Relocations Design Memorandum

REDM--Real Estate Design Memorandum

RES--Real Estate Summary

RETF--Real Estate Tract File

ROD--Record of Decision

RSMP--Resettlement Site Master Plan

SAACONS--Standard Army Automated Contracting System

SPF--Standard Project Flood

SPR--Specific Project Report

UCF--Uniform Contract Format

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers

CECW-EH-D | Washington, DC 20314-1000 | ETL 1110-2-299

Technical Letter
No. 1110-2-299

22 August 1986

Engineering and Design
OVERTOPPING OF FLOOD CONTROL LEVEES AND FLOODWALLS

Distribution Restriction Statement

Approved for public release; distribution is unlimited.

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

ETL 1110-2-299

DAEN-CWH-D

Engineer Technical
Letter No. 1110-2-299

22 August 1986

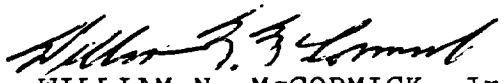
Engineering and Design
OVERTOPPING OF FLOOD CONTROL LEVEES AND FLOODWALLS

1. Purpose. This letter provides a report describing suggested design assumptions and procedures when considering the potential flood overtopping of levees and floodwalls.

2. Applicability. This letter applies to all HQUSACE/OCE field operating activities (FOAs) responsible for planning, design, construction, and operation and maintenance of civil works projects.

3. Discussion. The attached paper was originally presented at the ASCE Hydraulics Division Specialty Conference, "Water for Resource Development", held in Coeur d' Alene, Idaho, on August 14-17, 1984. The paper is published in the proceedings of that conference. As per ER 1110-2-1405, paragraph 6h(6), all project designs containing levees and/or floodwalls should be examined for overtopping risks. In the many cases where overtopping would be potentially hazardous, the enclosed information will aid engineers in minimizing this hazard.

FOR THE COMMANDER:



Encl

WILLIAM N. McCORMICK, Jr.
Chief, Engineering Division
Directorate of Engineering and
Construction

OVERTOPPING OF FLOOD CONTROL LEVEES AND FLOODWALLS

Lewis A. Smith 1/ M.ASCE and Thomas E. Munsey 1/ M.ASCE

ABSTRACT: The risk of overtopping can be significant for flood control levees or floodwalls, and the consequences can be costly and potentially catastrophic. Designs using superiority can force initial overtopping in the least hazardous location. Water surface profiles above the design profile need examining to apply superiority. Documenting overtopping consequences in the protected area is helpful for a flood hazard plan. A local flood warning system can be beneficial to the plan.

Introduction.

Levees and floodwalls are flood control structures meant to keep flood waters out of a floodplain area. These structures have upper limits beyond which larger floods cannot be controlled. This limit is often referred to as the level of protection that the structure provides to the floodplain area. Since the structure will experience bigger floods that will overtop and flood the interior, overtopping becomes a design concern. The rate of failure of a levee or floodwall is difficult to predict with sudden failure a possibility. Sudden failure in an urban setting could cause a catastrophe. The solution for these problems is proper design to control overtopping location and thus minimize failure and safety concerns.

Flood overtopping of a structure into a previously protected area is a risk inherit in any levee or floodwall project. This risk varies with the level of protection afforded by the structure. Risk can still be significant even for areas with protection from rare floods. The following table illustrates the overtopping potential during the typical 100 year economic life of a levee or floodwall, references 1 & 7.

ANNUAL FLOOD LEVEL EXCEEDANCE INTERVAL IN YEARS	EXCEEDANCE FREQUENCY IN PERCENT	RISK IN PERCENT OF "N OR MORE" EVENTS EXCEEDING A GIVEN ANNUAL FLOOD LEVEL IN 100 YEARS N=1	N=2	N=3	N=4	N=5
500	0.2	18	2	Nil	Nil	Nil
100	1.0	63	26	8	2	Nil
25	4.0	98	91	77	57	37
5	20.0	100	100	100	100	100

1/ Hydraulic Engineer, U.S. Army Corps of Engineers, Wash., DC

Enclosure 1

A good overtopping design can:
- Force overtopping in a selected reach, with the following benefits:
  - Controls the initial overtopping to reduce the impact of sudden overtopping failure.
  - Provides an initial cushion of water in interior areas to lessen overtopping impacts in other levee reaches.
  - Reduces the chance of overtopping in less desirable areas.
- Reduce project maintenance and replacement costs.

No overtopping design can prevent overtopping.

Two Types of Overtopping Design.

Two design types can be used to control initial overtopping. An obvious one is the use of different levee heights relative to the design water surface from reach to reach to force overtopping in a desired location. The other design uses notches, openings, or weirs in the structure. The inverts for these features are in the freeboard of the structure, i.e. above the design flood stage but below the neighboring top of levee. Examples are railroad or road openings and rock weirs. There is a logical paradox associated with the notch concept. Levee freeboard is designed to take care of the "unknowns" in the design process: to pass the design flood if it is higher, from unknown or unpredictable causes, than previously determined. A notch in this freeboard might be a cause of overtopping flow which otherwise might have safely passed down the channel, if only the notch had been the same height as the rest of the levee. Never-the-less, this type of design is frequently used to achieve other design goals.

Design Goals.

For initial overtopping, the overriding concern is choosing the least hazardous location for initial inundation of the interior. A least hazardous location could be a golf course, an oxbow lake, a ponding area, the least developed area, or a downstream reach. In some cases, overtopping may be partially controlled in open spaces or by routing to ponding areas. In other situations internal dikes or high ground may control overtopping volumes. Control of development for the above examples thru acquisition of real estate interests is an important part of a project. This real estate control serves two purposes - first, to minimize safety concerns for buildings adjacent to initial and more frequent overflow areas, and second, to allow control of development into the future so that the overtopping design is not compromised.

The level of protection can sway the design emphasis for overtopping. A 20 percent chance annual flood level of protection should have many overtoppings in 100 years. Prudent design would minimize the cost of maintenance or major replacement for the structure due to repetitive overtoppings. In contrast, a 0.2 percent chance annual flood level of protection may have high

levees in an urban setting, causing community dangers from overtopping. The emphasis for this design would stress safety and prevention of a catastrophe.

Superiority in overtopping is a concept dealing with adjacent levees or levee reaches designed to overtop one before the other, references 3, 5 & 6. Superiority may simply mean providing higher levees at all points except where initial overtopping is desired. A more complex example involves two separate levees across the river from one another; one protecting highly urbanized areas, the other mostly agricultural area, but both having similar levee elevations. Value judgements could be made to allow overtopping of the agricultural before the urban. The urban area thus would get wet last and possibly would obtain a higher level of protection in the process, due to the volume of water going over the other levee and not into river level increases. Another concept is chain failure of adjoining but independent levees. Failure of one may rupture the next and the next. Superiority can be used to reduce this potential. A similar idea concerns flank or tie-back levees along tributaries to the river. The hydrology for the tributary may provide higher water surface profiles than the river. In addition the tributary may be flashy with short warning times and potential dangers from quick overtopping. Safety may be a concern and superiority along the tributary reaches over the other reaches is appropriate.

Design goals provide the strategies to help configure the levee or floodwall and provide special considerations for the overall scheme of protection. However, water surface elevations or profiles are usually the dominant concern in overtopping design. The computation of these profiles needs special attention.

Water Surface Profiles.

Once a water surface profile for the design discharge is determined, a minimum freeboard distance above this water surface is determined and typically added to the design water surface profile. There is a tendency by hydraulic engineers at this point in the analysis to declare their work at an end and proclaim the minimum freeboard profile, profile M, as the levee crest profile. This is usually a mistake. Water surface profiles for flows only slightly above the design discharge can do surprising things. In a recent Corps of Engineers flood control project, a water surface profile for a flood 2 feet above the design discharge profile at the downstream end of the levee, resulted in this same flood profile increasing to 10 feet above the design profile at the upstream end. If the project had been designed with a constant 3-foot freeboard, a flood only slightly above the design flood would have overtopped the levee at the upstream end, flowed at high velocity thru the town, filled the area inside the levee like a bathtub, and run over the top of the downstream portion of the levee from the inside out.

The following procedure will generally prevent the above hazard from becoming reality. Having located the least hazardous area for overtopping, a series of water surface profiles (profiles A1, A2, ...AX, ...AY) above the design discharge is computed. One of these profiles, profile AX, will just touch profile M. If this point on profile M coincides with the desired overtopping reach and all other points along profile M are above profile AX, then profile M (the constant minimum freeboard profile) is set as the levee crest.

A more likely outcome is that profile AX will first touch profile M in a reach other than the most desirable overtopping area. In this case, additional profiles with increasing discharges are considered until a profile AY crosses profile M in the reach of least hazardous overtopping. The portion of profile AY above profile M represents a putative levee crest profile which is at exactly the same level as an incipient overtopping flood. Levee superiority is now added to the portion of profile AY above profile M. This allows initial overflow only at the intersection of profiles AY and M, the least hazardous reach. The added superiority should not be in the form of abrupt jumps in levee height (which would tend to make local residents uneasy), but should be gradual increases. As flood stages increase, the length of levee being overtopped should gradually increase; and after initial overtopping, the head differential across the levee crest should be small. Finally, for reaches of profile AY below profile M, profile M should be used as the levee crest.

After all of this the work should still continue. Knowing the impacts of overtopping are as important as the control of overtopping. People protected by the structures need to know about any potential dangers or maintenance and repair requirements. This knowledge can be used effectively in responding to overtopping problems.

Overtopping Impacts and Responses.

The primary emphasis in an impact evaluation should be the description and quantification of dangerous overtopping inundation scenarios. After this, hydrologic and other data should be quantified to meet the concerns of the individual protected area. An example: in an urban setting the duration of inundation may be important for health reasons but in a agricultural area for economic reasons. The following data may be needed to quantify overtopping impacts:

- rate of rise of infrequent floods causing overtopping
- warning time after a flood is recognized as having overtopping potential
- linear extent of initial overtopping along levee or floodwall
- volume of overtopping and subsequent interior depths and areal extent of inundation
- routing or movement of interior inundation with potential velocities

- duration of inundation, which may be a function of the interior flood control features, reference 4
- potential damage to levee, floodwalls or other structures or facilities
- potential crippling or loss of critical public services such as electricity, water, hospitals, fire and police assistance, access along public roads, etc.

All of this information can be used to develop a flood hazard plan to respond to potential flooding of the interior protected area. Any response can be aided by additional warning time. Local flood warning systems can help in determining the maximum water surface and the timing of a current flood situation, reference 2. Developing and institutionalizing a response plan with a flood warning system can significantly lessen the dangers and damage associated with overtopping of flood protection structures.

Summary.

The safety of any levee or floodwall can be increased with proper design of flood overtopping locations. The intelligent understanding of overtopping impacts can aid in planning for the hazard. A local flood warning system coupled with a flood hazard response plan can lessen the adverse impacts of overtopping.

APPENDIX - References

1. "Guidelines for Determining Flood Flow Frequency," Bulletin 17B, Revised Sep 81, Editorial Corrections Mar 82, Interagency Advisory Committee on Water Data, Hydrology Subcommittee, USGS, Appendix 10.

2. "Local Flood Warning Systems," draft copy, Interagency Advisory Committee on Water Data, Hydrology Subcommitte, USGS.

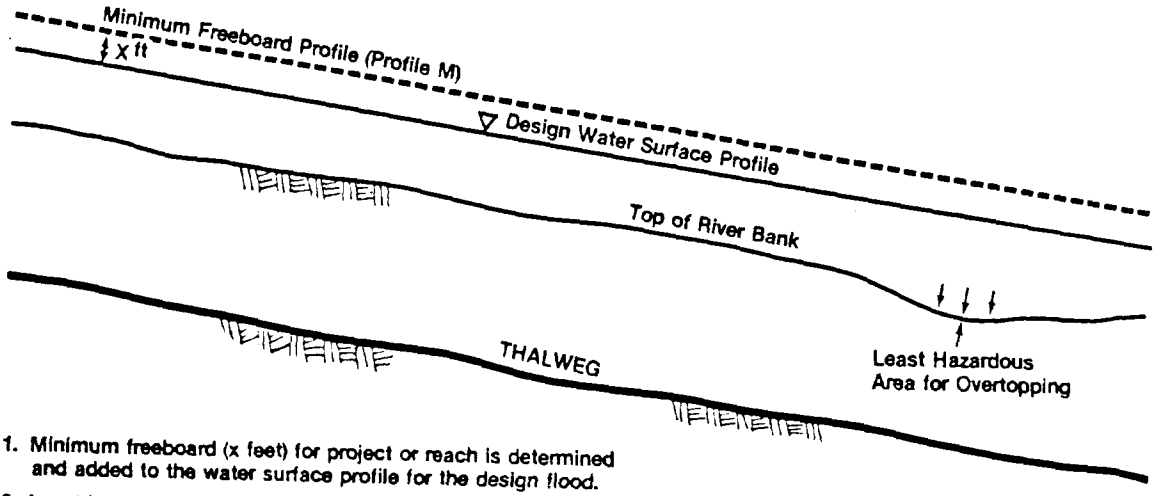
3. U.S. Army, Corps of Engineers, Civil Works Engineer Bulletin 54-14, 1954, "Improvements in Design and Construction Practices in Civil Works", pp 2-4.

4. U.S. Army Corps of Engineers, Engineer Circular 1110-2-247, 1983, Draft Engineer Manual entitled "Hydrologic Analysis of Interior Areas."

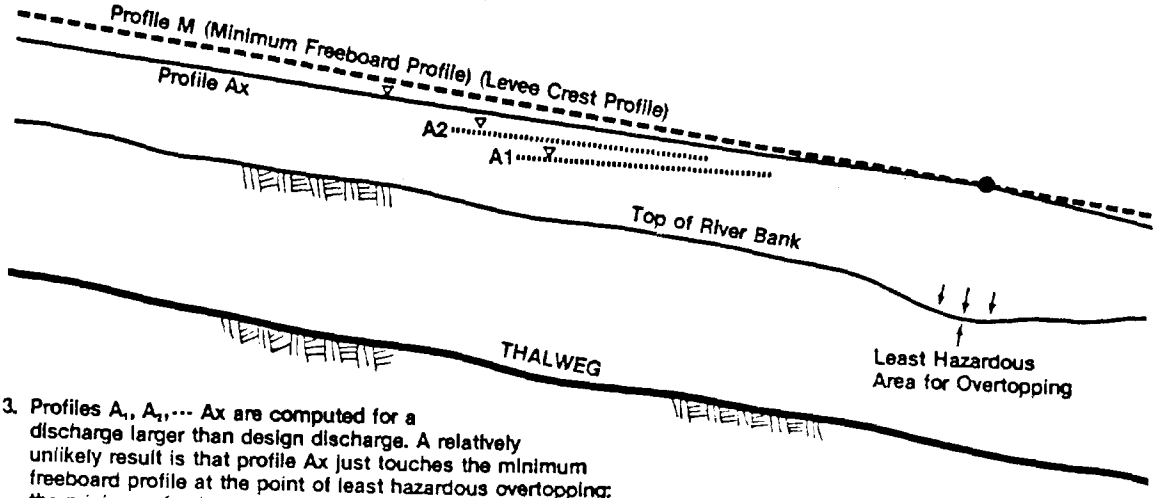
5. U.S. Army Corps of Engineers, Engineer Manual 1110-2-1601, 1970, "Hydraulic Design for Local Flood Protection Projects."

6. U.S. Army, Corps of Engineers, Engineer Regulation 1110-2-1405, 1982, "Hydraulic Design for Local Flood Protection Projects."

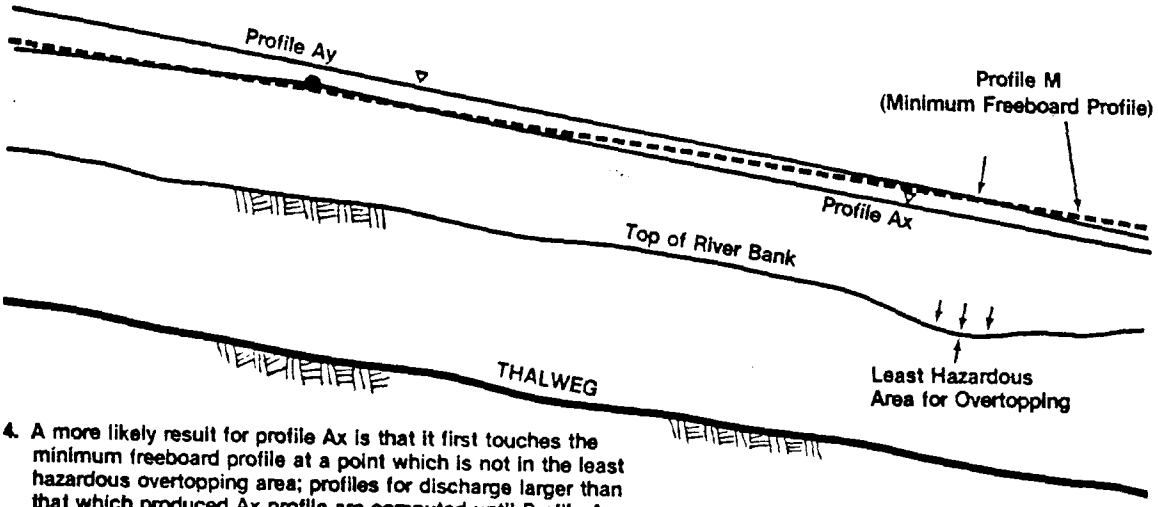
7. U.S. Army, Corps of Engineers, Engineer Technical Letter 1110-2-274, 1982, "Flood Risk Analysis."



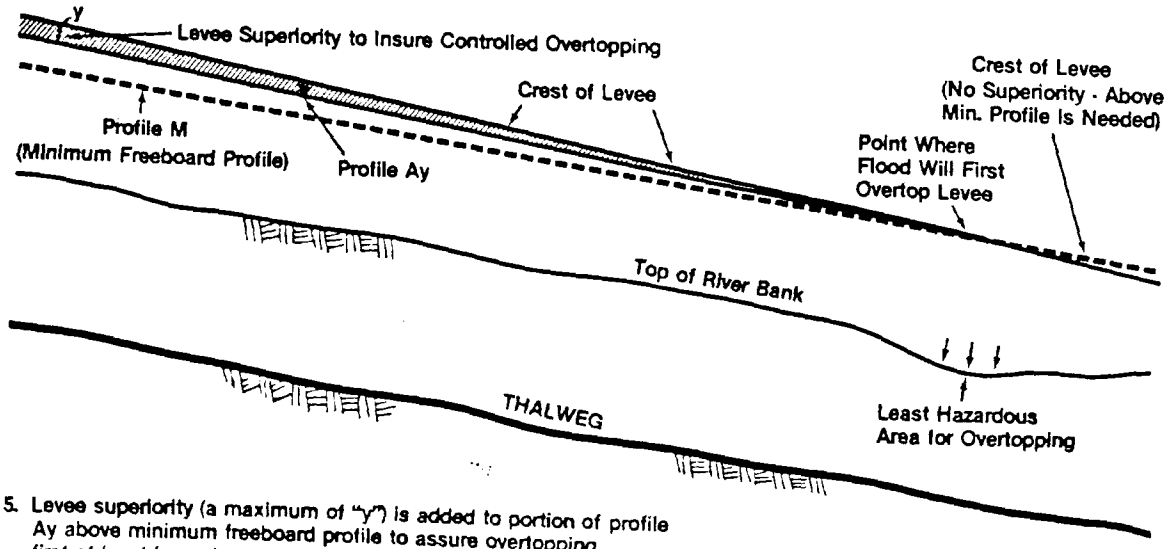
1. Minimum freeboard (x feet) for project or reach is determined and added to the water surface profile for the design flood.
2. Least hazardous area for overtopping is located.



3. Profiles A_1, A_2,··· Ax are computed for a discharge larger than design discharge. A relatively unlikely result is that profile Ax just touches the minimum freeboard profile at the point of least hazardous overtopping; the minimum freeboard profile can then be used as the levee crest profile.



4. A more likely result for profile Ax is that it first touches the minimum freeboard profile at a point which is not in the least hazardous overtopping area; profiles for discharge larger than that which produced Ax profile are computed until Profile Ay crosses minimum freeboard profile at least hazardous point.



5. Levee superiority (a maximum of "y") is added to portion of profile Ay above minimum freeboard profile to assure overtopping first at least hazardous area.

Overtopping Evaluation for Johnson County, KY
Paintsville FRM Project

OVERVIEW

As required by the Assistant Secretary of the Army's (ASA) guidance implementing the Supplemental Appropriations Act, 1982,[1] the District performed an overtopping evaluation in accordance with Technical Letter No. 1110-2-299 (TL 299) for the recommended Flood Risk Management (FRM) project for the City of Paintsville, Kentucky. The PDT compared the consequences that would result from a flood event that overtopped the FRM project with the consequences that would result from the same flood event but without the project. Based on the comparison, the District has concluded that overtopping of the FRM project would not likely result in any sudden or unique catastrophic consequences directly resulting from the overtopping event. Accordingly, the Supplemental Appropriations Act, 1982, does not require the PDT to formulate to the standard project flood (SPF) for this project.

OVERTOPPING SECTION

As the PDT progressed through the feasibility study, alternatives were selected for further consideration and developed to concept design level. In each levee/floodwall segment of every alternative, overtopping sections were included and developed using Engineering Construction Bulletin (ECB) "Managed Overtopping of Levee Systems."

The main floodwall on the recommended plan, which serves to prevent backwater from entering into the City of Paintsville from Levisa Fork, received the most focus and the most resilient overtopping measures. Consistent with TL 299, as well as other current levee design criteria, the overtopping area was designed to force overtopping in a selected reach, with the following benefits:

- Controls the initial overtopping to reduce the impact of sudden overtopping failure.
- Provides an initial cushion of water in interior areas to lessen overtopping impacts in other levee reaches.
- Reduces the chance of overtopping in less desirable areas.
- Reduce project maintenance and replacement costs.

The overtopping design method selected was the notch method. And the location identified to best withstand overtopping was identified in the upstream portion of the main floodwall. The bottom of the notch is equal to the design height of the floodwall. The floodwall portion not designed for overtopping has a significant, 1.6' of additional height. This difference in elevation makes overtopping in areas not designed for overtopping unlikely. In the event of a very extreme event that overtops the entire levee the interior of the levee would already be almost completely inundated due to interior flow and flood waters overtopping the designed section. In this scenario the additional effects of overtopping in an area not designed for overtopping would be minimal due to existing paved landside areas, and short spill plunge heights.

[1] Supplemental Appropriations Act, 1982, Pub. L. No. 97-257, Ch. V, 96 Stat. 818, 832 (1982).

Interior levees and floodwalls are also included and will each receive their own overtopping section designs. The preliminary designs for these overtopping sections have been completed and are discussed in the Engineering technical appendix. Volume 2 tab 1.

RATE OF RISE WITH AND WITHOUT PROJECT CONDITIONS.

	Paint Creek Channel Maximum Rate of Rise Feet per Hour					
	SPF With Project (Baseflow on Paint Creek)	SPF Without Project (Baseflow on Paint Creek)	0.2% AEP With Project (Baseflow on Paint Creek)	0.2% AEP Without Project (Baseflow on Paint Creek)	0.2% AEP With Project (Storm Event on Paint Creek)	NOTES
	MAIN STRUCTURE	EXISTING CONDITIONS	MAIN STRUCTURE	EXISTING CONDITIONS	B550_616.9	
Paint Creek Elevation						
Less than 590	1.3	1.3	1.3	1.2	1.7	Paint Creek remains in channel
590 to 600	1.7	1.3	0.8	1.3	1.4	Paint Creek remains in channel
600 to 610	1.6	1.0	0.2	1.0	0.6	Damage elevation under exisiting conditions
Greater than 610	--	0.6	0.8	0.5	0.4	Interior Wall Height Exceeded

Figure 1 Paint Creek Rate of Rise Chart

Without a project, the Levisa Fork's maximum rate of rise is dependent on the stage of the flood, once the flood extends beyond the banks of the river, the rate of rise decreases. For this evaluation we considered both the 500 AEP event and the SPF event, both of which would overtop the recommended plan's main floodwall. For this evaluation minimal interior flows were assumed since this evaluation is determining if the main wall should consider being constructed to the SPF height. Low base flow scenarios produce the worst-case situation of sudden overtopping producing catastrophic consequences, because if the interior is already full from interior flows, then overtopping the floodwall would have no additional consequential effect.

For an overtopping event by a .2% AEP event the rate of rise decreases significantly with a project, in the channel and between 600 and 610' NAVD88, from 1 ft per hour to .2' per hour. Additionally, the project includes interior walls that would delay damages from occurring until Paint Creek stage reached 610 ft. Without a project, consequences begin at elevation 600 ft. With a project, consequences are delayed until Paint Creek stage exceeds elevation 610 ft. Collectively this would increase evacuation time from 0 hours, to approximately 50 hours in this scenario.

For an overtopping of the main floodwall by an SPF flood, the rate of rise of Paint Creek stage would increase between 600 and 610 when compared to the same flood without a project from 1' per hour to 1.6' per hour, however the stage of reaching consequences is increased by 10' feet. Therefore the project still allows up to 6 additional hours to evacuate in this scenario.

Due to the delicate balance of exterior stage on Levisa Fork and Interior flows on Paint Creek, the evacuation notice will most likely be set well before an overtopping event would occur. This will be developed based on the findings of the risk assessment and design of the FWEEP. Both of which will hold life safety paramount.

See the figure below for the Levisa Fork 1%, .5%, and .2% AEP profiles compared to the Main Floodwall and the overtopping notch. The SPF profile is not shown. The SPF is estimated at elevation 618.8' NAVD88 at the Paint Creek confluence (mouth) so overtopping would occur from that point and everywhere upstream.

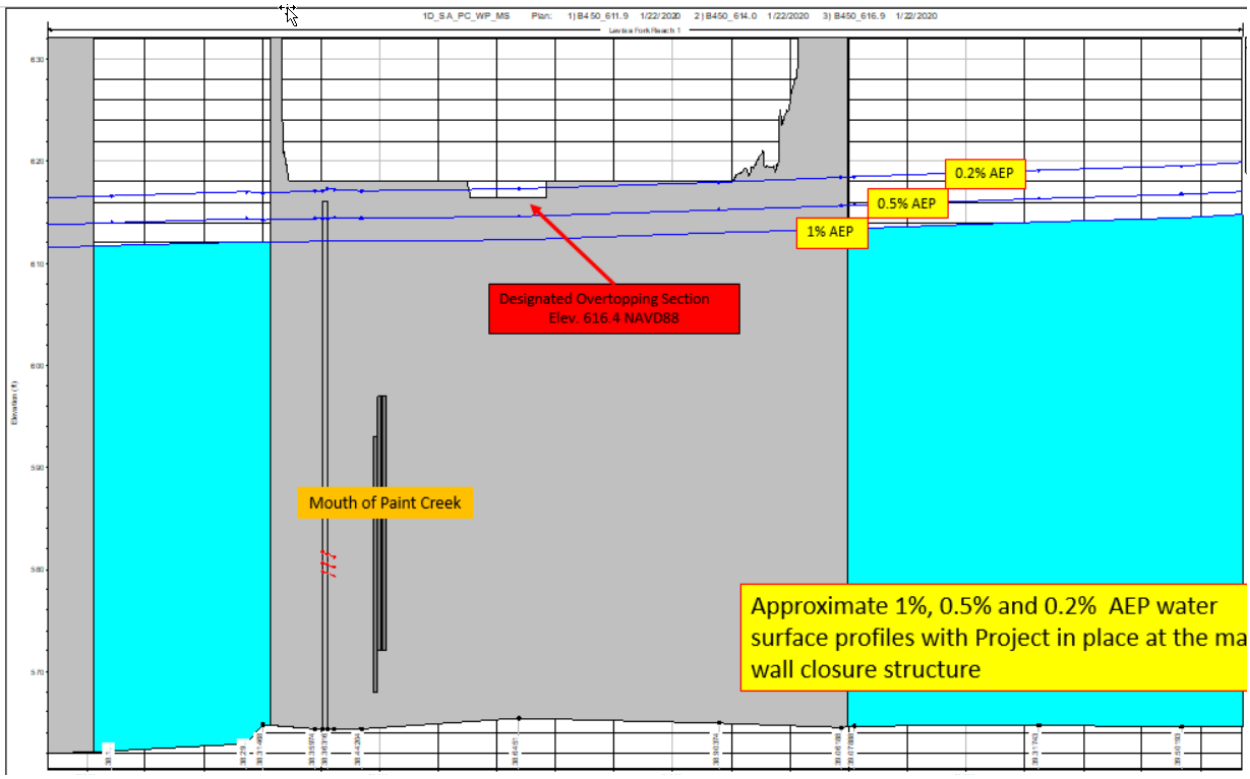


Figure 2 Main Floodwall compared to Annual Exceedance Probabilities

OTHER POTENTIAL FAILURE MODES

With the proposed FRM project in place there are other potential scenarios where the rate of rise increases. Those scenarios include but are not limited to:

-Non-Breach excessive and untimely interior inflows
-Operational failures of the Paint Creek closure structure
-Breach Levee/floodwall Failure

The plan for each of these risk drivers can and will be mitigated. Mitigation measures include a Flood warning and emergency evacuation plan (FWEEP) and robust and resilient design features. The recommended FRM project will include the design, construction, and implementation of a FWEEP that includes the collection of rain, river, and stream data.

Emergency evacuation protocol will be designed based on detailed Life Sim Modeling for a variety of failure and non-failure modes. These potential failure modes have been developed and studied as part of the Simi-Quantitative Risk Assessment. The final design for the FWEEP will necessitate that no increase in life safety takes place with a project.

Breach and operational failures will be mitigated with robust design and evaluated through the risk assessment. These potential failure modes are not part of this evaluation because the risk of these potential failure modes would not be reduced by an increase in the height of the main floodwall.

EVACUATION ROUTE & TRAVEL TIMES

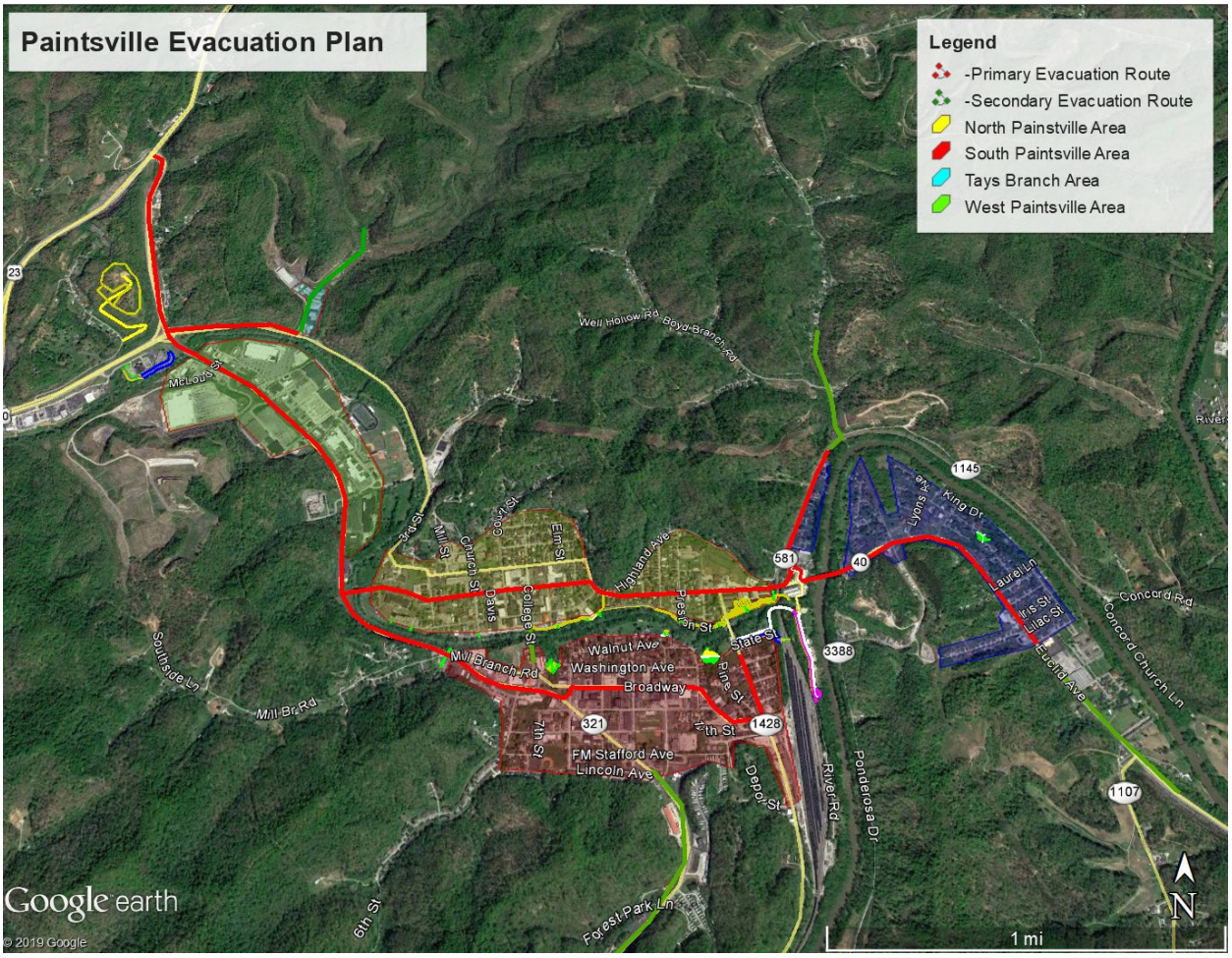


Figure 3 Concept Evacuation Plan

Paintsville has many evacuation routes that will be available during a flood event.

Highway 321 located south of Paint Creek exits the city in both directions. 1428 is an extension of Bridge Street that exits the city to the south while U.S. 23 exits the city to the North. Bridges

that cross Paint Creek will be important for evacuation of the north side of Paintsville and therefore the design ensures that the 2nd Street Bridge will remain open even when all designed flood closure are installed. U.S. 23 is a major access point to the north side of the city of Paintsville but due to its low elevation, it will be excluded from the evacuation plan.

Nearly all areas in the City of Paintsville can evacuate via one of the available routes during a flood and reach interstate 460 in 6-10 minutes.

The evacuation warning produced from the flood warning system and other gages upstream should greatly improve the information that informs the evacuation notice. With a FWEEP in place, the City of Paintsville and Johnson County will be able to provide much more informed and accurate information to make evacuation decisions and estimate flood specific time frames on a case-by-case basis.

SUPERIORITY

TL 299 provides methods for minimizing the amount of required superiority in floodwalls to ensure an overtopping area works properly in an overtopping event. This can be very important when a floodwall top elevation falls with the river hydrograph, and when the overtopping zone is downstream. For the recommended plan, the main floodwall does not fall with the river profile, and the overtopping area is upstream because this location was significantly better and more suitable than any location downstream. The upstream location provided a low spill, wide crest, concrete spill/splashpad, that gradually drains back to Paint Creek. Since Paint Creek in a flood scenario would serve as a storage area this is very much ideal. Conversely overtopping the floodwall on the downstream side of the main floodwall would result in water flowing behind one of the interior floodwalls that would lead to consequences prior to the inundation of the internal leveed area.

Due to the short length of the main floodwall, high elevation available to terminated the floodwall, and evacuation plan that allows traffic to be redirected around the floodwall, the PDT determined that maximizing the superiority in this case would provide the most resilient design without adding significant cost to the project. For these reasons the TL 299 process for determining superiority was not followed, instead a more conservative approach was used. This may be further developed and optimized during design.

OVERTOPPING IMPACTS

This evaluation specifically focuses on impacts to non-breach overtopping. The effects of a 500 year flood overtopping the main floodwall would not be sudden at all in fact, the rate of rise could be as much as one fifth the speed of the same flood without a project, even in a less likely event, such as an SPF flood where the overtopping waters would extend beyond the overtopping zone, the rate of rise would rise slightly but this increase in rate of rise would be offset by the benefits of the interior floodwalls and levees that would delay consequences and allow for additional evacuation time.

Overtopping of the floodwall is not expected to result in any unique flood damages that would result from high speed water or significant erosion. The resilience and robust design surrounding the overtopping zone will be effective in eliminating flood consequences that would be different from flooding without a project. As noted above the project's design will channel overtopping waters back to Paint Creek in a resilient manner that would cause the rise of flood waters within the Paint Creek channel to be much like an event without a project. As stated above, the designed overtopping zone is designed to have a low spill, wide crest, splash pad that will be effective in preventing erosion caused by overtopping. The overtopping area is also far from both business and residential structures. For these reasons an overtopping event is not expected to result in any unique flood consequences.

A key piece of this FRM project is the FWEEP and the design effort that centers around evacuation during flood emergencies. Any loss to life due to a flood is catastrophic; however, overtopping of this project does not increase the risk to loss of life for this community. Similarly, overtopping of this project does not increase net risk to any properties as compared to a flood event without the project. Due to the up and down nature of Levisa Fork and the available storage in Paint Creek, even in an overtopping event, consequences have the potential to be greatly reduced when compared to the same event without a project.

The impacts of overtopping the recommended FRM project when compared to the same event without a project are not anticipated to result in sudden, unique, or catastrophic consequences.

CONSIDERATION OF THE STANDARD PROJECT FLOOD.

Based on the comparison, the District has concluded that overtopping of the FRM project would not likely result in any sudden or unique catastrophic consequences directly resulting from the overtopping event. Accordingly, the Supplemental Appropriations Act, 1982, does not require the PDT to formulate to the standard project flood (SPF) for this project.

That said, as the team formulated the project much consideration of the SPF event was given. Other nearby Section 202 projects determined the SPF to be 618.1 ft NAVD88. In order to reach this elevation, the superiority requirement would create a scenario that limits the east Paintsville area from being able to evacuate. Additionally, designing to this level would produce unmanageable interior drainage requirement. If the formulation focused on only levees and floodwalls on Paint creek then all bridges would require closures also adding evacuation risks that could be catastrophic. Designing to the SPF was not carried forward into the focus alternative array based on risk-informed decision-making by the PDT in response to ECB 2019-03: Risk Informed Decision Making for Engineering Work during Planning Studies.

CONSIDERATION OF THE 1977 FLOOD EVENT.

The PDF considered a floodwall within the City of Paintsville that would provide protection to eligible structures from an event similar in magnitude to the April 1977 flood. The floodwall top elevation would be 608.6. Additional risk and uncertainty, confidence or free board would not be added to this height because the flood stage of 1977 is known and not based on statistics or probability.

A FRM project designed to this AEP stage would not benefit from a main floodwall and Paint Creek Closure so only levees and flood walls along Paint Creek up to the required elevation would be needed. Floodwalls and levees similar to the Interior floodwalls and levees used on alternative 2 and 3 would alone be sufficient for this design stage.

The April 1977 flood was an approximate five percent AEP event within the City of Paintsville. Therefore, a floodwall would not provide protection for a larger event.

Discussion with Johnson County officials indicates that this design stage would not be useful to the community. Carrying forward a project at this level would be widely unsupported and would be unlikely to ever reach construction.

Floodwalls with 1977-level protection were not supported by the nonfederal sponsor, policy, or the planning objectives of this study and were not carried forward for further evaluation during the study or for the purposes of this evaluation.

2 MEMORANDUM OF LAW

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE KY 40201-0059

ATTORNEY-CLIENT AND ATTORNEY WORK PRODUCT
PRIVILEDGED AND CONFIDENTIAL COMMUNICATION

January 24, 2019

MEMORANDUM FOR: Kristin E. Budzynski
Division Counsel, Great Lakes & Ohio River Division (LRD)

THROUGH: Janice E. S. Lengel
District Counsel, Louisville District (LRL)

FROM: Kyle Lewis
Assistant District Counsel, Louisville District (LRL)

BLUF: This memorandum of law requests Division Counsel concurrence with: 1) the decision making framework articulated herein for structural projects authorized by Section 202 of the Energy and Water Development Appropriation Act, 1981 (Section 202); 2) the legal analysis proffered for hypothetical Outcome 1, which concludes that if the District's overtopping evaluation (performed pursuant to the Supplemental Appropriations Act, 1982) determines that the consequences related to overtopping of a levee/floodwall project designed to the 1977 flood elevation in Paintsville are not catastrophic, then the District is under no legal obligation to consider designing to the standard project flood (SPF) level of protection, allowing the District to explore and design to higher elevations, including the 100-year flood elevation, so long as the determination is justified with adequate documentation; 3) the legal analysis proffered for hypothetical Outcome 2.a., which concludes that even if the District's overtopping evaluation determines that the incremental consequences of a levee/floodwall project designed to the 1977 flood elevation are catastrophic, the District may still deviate from the SPF level of protection so long as the determination is justified with adequate documentation.

ISSUE: Must the levee/floodwall project being planned for Paintsville, KY be designed to the SPF elevation?

BACKGROUND: On August 9, 2018, the Assistant Secretary of the Army identified the ongoing Johnson County, KY project as meeting the requirements to receive Supplemental Construction funding[1] made available through the Bipartisan Budget Act of 2018.[2] A Detailed Project Report (DPR) is being developed by the District that will explore nonstructural solutions for Johnson County and structural solutions for Paintsville, KY to address flooding in those areas (Project). This memorandum is concerned with the level of protection that must be provided by

[1] Memorandum from R. D. James, Assistant Secretary of the Army, to Deputy Commanding General for Civil and Emergency Operations, at 6, 7, and Enclosure 5 (Aug. 9, 2018).
[2] Bipartisan Budget Act of 2018, Pub. L. No. 115-123, Div. B, Subdiv. 1, tit. IV (2018).

the levee/floodwall alternatives being considered for Paintsville, KY, which is located at the confluence of Paint Creek and the Levisa Fork.

The Project was initiated under Section 202, which authorizes the design and construction of flood control measures to "a level of protection against flooding at least sufficient to prevent any future losses to these communities from the likelihood of flooding such as occurred in April 1977."[3] Contemporaneous communications between the Director of Civil Works (Director) and Assistant Secretary of the Army (ASA) reveal that the Department of the Army initially struggled with determining the appropriate level of flood protection required by Section 202. The ASA instructed the Director to proceed only with planning technically and economically sound flood control measures[4] designed to the 1977 flood elevations.[5] However, flood elevations during the 1977 event varied significantly throughout the area; therefore, the U.S. Army Corps of Engineers (USACE) expressed concerned that use of the 1977 flood levels for design would create: 1) inequitable flood protection between communities, and 2) potentially a dangerous level of protection for some communities.[6] Thus, the Director requested the ASA reconsider its prior instruction, and recommended use of the SPF level of protection to afford uniform protection from catastrophic flooding.[7] The SPF[8] flood protection estimation methodology was developed by the USACE in 1942 and was last updated in 1965. It differs from and predates the National Flood Insurance Program (NFIP) 1% annual chance base flood standard (100-year flood), which was established following enactment of the National Flood Insurance Act of 1968.[9]

The ASA denied the request, finding the 1977 flood elevations to be actual and consequently a more appropriate standard than a theoretical SPF elevation. However, the ASA advised that designs above the 1977 flood elevation might be appropriate if justified by a detailed analysis that compares hazards at various protection levels above the "legal minimum."[10]

---

[3] Energy and Water Development Appropriation Act, 1981, Pub. L. No. 96-367, § 202(a), 94 Stat. 1331, 1339 (1980).

[4] Memorandum from William Gianelli, Assistant Secretary of the Army, to E. R. Heiberg III, Director of Civil Works (Dec. 18, 1981) ("I am very concerned that we proceed with only those flood damage reduction features which are engineeringly and economically sound.").

[5] Memorandum from William Gianelli, Assistant Secretary of the Army, to E. R. Heiberg III, Acting Director of Civil Works (July 12, 1982) ("I have strong reservations concerning the proposed level of protection"…"I do not concur with the proposal to provide SPF protection at those locations where the April 1977 flood produced stages lower than those predicted for the SPF. Design flows should not exceed the minimum levels specified in section 202 (April 1977 levels) at the locations being considered for protection.")

[6] Memorandum from R. S. Kem, Brigadier General, to CDR USACE (DAEN-CWZ-A), at 2 (July 19, 1982).

[7] Memorandum from Forrest T. Gay III, Acting Director of Civil Works, to William Gianelli, Assistant Secretary of the Army, at 3 (Aug. 6, 1982).

[8] Standard Project Flood Determination, EM 1110-2-1411, at 4 (Mar. 1, 1965) (defining SPF as the flood "that may be expected from the most severe combination of meteorologic and hydrologic conditions that are considered reasonably characteristic of the geographical region involved, excluding extremely rare conditions.")

[9] National Flood Insurance Act of 1968, Pub. L. No. 90-448, 82 Stat. 572, 42 U.S.C. §§ 4001-4026 (1968); White, Gilbert F., Reducing Flood Losses: Is the 1% Chance (100-year) Flood Standard Sufficient? (2004).

[10] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Aug. 12, 1982) ("It seems to me that Section 202, by identifying a level of protection has established a standard for design of structural works which should be followed. The 1977 flood represents a situation that has actually occurred and is a more appropriate standard than the theoretical SPF utilized by USACE for projects which have net economic

On September 10, 1982, Congress enacted the Supplemental Appropriations Act, 1982, which modified Section 202 by stating that the flood control measures "involving high levees and floodwalls in urban areas should provide for a [SPF] level of protection where the consequences from overtopping caused by large floods would be catastrophic."[11] On October 4, 1982, the ASA sent the Director implementing guidance, which notably states that Congress "suggests" use of SPF protection based on overtopping consequences, not natural flooding. To determine whether overtopping is catastrophic, the guidance requires every Section 202 project involving a levee/floodwall to undergo an overtopping evaluation that assumes a design based on the 1977 flood elevation incorporating appropriate flood warnings and evacuation measures. And consequences are to be measured "in terms of any sudden and unique impacts expected from overtopping and will not include impacts that would be expected from flooding caused by the same frequency events occurring without the project."[12] In subsequent correspondence, the ASA explicitly rejected overtopping evaluations that simply found that: 1) overtopping of a project designed to the 1977 elevation by an SPF flood event would be catastrophic; 2) without protection, large floods of SPF elevation produce catastrophic consequences; and/or 3) the consequences from an overtopped project designed to an SPF elevation would be less severe than an overtopped project designed to a lower 100-year flood elevation. Rather, the intent was for a "with" and "without" evaluation to determine the impacts associated with construction of the levee/floodwall.[13]

On January 3, 2019, the District prepared and sent to Division a draft memorandum for record that documents preliminary analysis and design considerations for the Project. The District determined[14] the SPF elevation to be 617.4 ft. NAVD88.[15] The 100-year flood elevation was calculated to be 612.8 ft. NAVD88, though any levee/floodwall would require an additional 3.6 ft. in elevation to meet a 90% assurance that the levee/floodwall will not be overtopped (616.4 ft. NAVD88 in total).[16] The District preliminarily recommended against designing to the SPF level of protection in favor of the 100-year flood elevation, because a design in excess of 617.3 ft. NAVD88 could potentially restrict evacuation routes, consequently increasing the chance for loss of life.[17]

---

benefits. Absent a detailed analysis and comparison of the hazards resulting from various levels of protection above the legal minimum, I cannot see any basis for using anything other than the April 1977 event as a standard.")

[11] Supplemental Appropriations Act, 1982, Pub. L. No. 97-257, Ch. V, 96 Stat. 818, 832 (1982).

[12] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Oct. 4, 1982).

[13] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works, at 1 (Nov. 24, 1982).

[14] Please note that the draft memorandum for record inaccurately states that "the PDT… [recommends]… the SPF level of protection of 618 should not be considered as the appropriate level of protection" because District OC has not yet concurred with this recommendation. Draft Memorandum from Amy Babey, Chief, Civil Works, Louisville District, to Record, at 1 (Jan. 3, 2019).

[15] This paragraph provides slightly revised and updated elevations.

[16] S*ee* Risk Assessment For Flood Risk Management Studies, EM 1105-2-101, at 9 (July 17, 2017) ("The Assurance is based on the uncertainty in the actual stage associated with a given exceedance probability event, as well as the geotechnical performance of the project.").

[17] Draft Memorandum from Amy Babey, Chief, Civil Works, Louisville District, to Record (Jan. 3, 2019).

The District has not yet performed an overtopping evaluation, as documented in the ASA's 1982 guidance; but will do so as it continues to evaluate various design elevations, including the 100-year flood elevation.

ANALYSIS: Because the District has not yet completed an overtopping evaluation, the first subsection below provides the decision making framework for structural Section 202 projects that the District must still undergo for the Project. The last two subsections discuss two different hypothetical outcomes, with associated legal considerations and risks.

Decision Making Framework for Structural Section 202 projects.

The Supplemental Appropriations Act, 1982 did not amend or edit Section 202; rather, the Act created a condition that, if satisfied, requires the USACE to consider the SPF level of protection for levee/floodwall projects. The condition is more apparent if the sentence is rearranged such that the condition is stated first, that is: when "consequences from overtopping caused by large floods would be catastrophic," USACE "should provide for a [SPF] level of protection"[18] On its face, the conditional language is ambiguous – it is not clear what is being overtopped (e.g. the existing embankment, a levee/floodwall designed to the SPF elevation, or a levee/floodwall designed to the 1977 elevation) nor is "catastrophic" defined. Therefore, the ASA's 1982 guidance is critical in resolving these ambiguities, and it establishes a reasonable contemporaneous interpretation of the Act.

Thus, the District must evaluate whether overtopping of a levee/floodwall project designed to the 1977 flood elevation in Paintsville would be catastrophic (i.e., whether an overtopping event itself would cause catastrophic consequences beyond those that would occur under the same magnitude flood event without the proposed Project). First, the District must develop a design to the 1977 flood elevation of 608.4 ft. NAVD88, which is considerably lower than the 100-year elevation.[19] The ASA's guidance does not appear to restrict consideration of various designs nor does the guidance specify the degree of detail, though it must be comprehensive enough to consider flood warning and evacuation measures.[20] Second, once the levee/floodwall is designed to the 1977 flood elevation, the District must select a theoretical flood that would overtop the levee/floodwall. The ASA did not specify a flood elevation that must be selected, however, given the ASA's preference towards considering actual floods as opposed to theoretical SPF floods, it may be prudent to select a historical Paintsville flood that would have overtopped the 1977 elevation, such as the floods that occurred in 1963 (610.4 ft. NAVD88), 1957 (612.1 ft.

[18] Supplemental Appropriations Act, 1982, Pub. L. No. 97-257, Ch. V, 96 Stat. 818, 832 (1982). The Act includes other conditions that have been satisfied and are not at issue – alternatives for the Project currently envision construction of "high levees and floodwalls" and Paintsville was listed by the U.S. Census Bureau as an urban area for the 2010 Census. *See* 2010 Census Urban Area Facts, https://www2.census.gov/geo/docs/reference/ua/ua_list_all.txt (last visited Jan. 8, 2019).

[19] It is worth noting that if the 1977 elevation was higher than the 100-year elevation, the District would be precluded from designing to the 100-year elevation because Section 202 establishes the 1977 flood as the "minimum" design elevation. *See* Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Aug. 12, 1982).

[20] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Oct. 4, 1982).

NAVD88), or 1862 (612.8 ft. NAVD88). Selection and consideration of one of these actual floods could help with the overtopping evaluation because it establishes a baseline amount of loss that was caused by a known flood event. Third, the District must calculate the loss that Paintsville would experience from the selected flood with and without the levee/floodwall built to the 1977 flood elevation. Particular attention should be given to determining loss created by any sudden and unique impacts expected from overtopping, though appropriate flood warning and evacuation measures must be considered.[21] For example, the analysis cannot assume that Paintsville residents would not receive notice of an impending overtop, preventing evacuation and consequently increasing loss of life. Finally, the District must compare and calculate anticipated losses incurred by Paintsville with and without the levee/floodwall to determine if there are any incremental losses that would be deemed catastrophic. In either scenario, general losses will surely be catastrophic; however for purposes of satisfying the conditional language in the Supplemental Appropriations Act, 1982, only incremental losses attributable to overtopping of the levee/floodwall,[22] not the flood generally, are evaluated for catastrophic consequences. If losses with and without the levee/floodwall are approximately equal (i.e., the consequences of overtopping would still have occurred from the same magnitude flood had the project not been constructed), then there would be no catastrophic overtopping consequences that require consideration of the SPF flood protection level. Moreover, typical flood damages, such as the destruction of crops and property damage from prolonged inundation, must be excluded from the overtopping evaluation because the damage is neither sudden nor unique to overtopping of a levee/floodwall. In other words, any identified incremental damage must be tied directly to the overtopping event, not the flood generally. The incremental damage must also be significant (e.g. increase in loss of life, substantial increase in property damage, extensively prolonged loss of governmental services, etc.) to be deemed catastrophic. Minor increases in damage must not be considered catastrophic.

The ASA does not prescribe the documentation requirements for the overtopping evaluation, however, this could occur in the forthcoming DPR.

Outcome 1: Overtopping of a levee/floodwall project designed to the 1977 flood elevation is not catastrophic.

If the District's overtopping evaluation determines that the consequences related to overtopping of a levee/floodwall project designed to the 1977 flood elevation in Paintsville are not catastrophic, then the conditional language within the Supplemental Appropriations Act, 1982 is not triggered and the District is under no legal obligation to consider designing to the SPF level of protection.[23] Instead, the District must revert to and comply with the language contained in

[21] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Oct. 4, 1982).
[22] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works, at 1 (Nov. 24, 1982).
[23] *See e.g.* Draft Detailed Project Report, Prestonburg and Lower Levisa Fork and Environmental Impact Statement, Section 202 Flood Damage Reduction Floyd County, Kentucky, at 4-15 (Jan. 2006) (determining not to carry the SPF level of protection forward for additional analysis because the consequences of overtopping were not found to be catastrophic; however, this analysis does not comply fully with the ASA's 1982 guidance because the

Section 202 regarding the appropriate level of protection, which is a level at "least sufficient to prevent any future losses to these communities from the likelihood of flooding such as occurred in April 1977."[24] Section 202 does not mandate a level of protection based on its plain meaning.[25] The placement of the idiom "such as," connotes that the 1977 flood elevation should be viewed only as an example[26] level of protection that could be deemed sufficient to prevent future losses. Thus, the ASA's determination that the 1977 flood elevation is a "minimum," allowing for a higher elevation if justified by a detailed analysis that compares hazards at various protection levels, is an acceptable interpretation of Section 202.[27]

If the overtopping analysis finds no catastrophic incremental losses, the District is free to explore higher elevations, including the 100-year flood level, as the appropriate level of protection because it is above the 1977 flood elevation. An analysis justifying use of the 100-year flood elevation as the design elevation, as opposed to others, has not yet been performed. If the District selects this level of protection, a detailed analysis that compares hazards at various protection levels must be documented. This could occur in the forthcoming DPR.

If the District's evaluations arrive at this outcome, risk of a successful lawsuit would be low because any decision made in accordance with the ASA's 1982 guidance, and appropriately documented, would be afforded deference by a reviewing court.[28] The 1982 guidance establishes a reasonable contemporaneous interpretation of Section 202 and the Supplemental Appropriations Act, 1982 that resolved apparent ambiguities. Moreover, the ASA's correspondence maintained a consistent interpretation and explicitly rejected overly simplified interpretations (i.e. the Director's interpretation of the overtopping evaluation) that would have impermissibly rendered the conditional language superfluous.[29] Legal risks are also low because the project is not controversial nor are significant impacts to natural resources anticipated. Risks to the project delivery timeframe would be minimal, though additional time and resources would be necessary to perform an overtopping evaluation and an analysis that compares hazards at various protection levels.

---

overtopping evaluation was based on the SPF level of protection, not a 1977 level of protection as specified in the guidance.).

[24] Energy and Water Development Appropriation Act, 1981, Pub. L. No. 96-367, § 202(a), 94 Stat. 1331, 1339 (1980).

[25] Harbison v. Bell, 556 U.S. 180, 198 (2009) ("Congress' intent is found in the words it has chosen to use.").

[26] Webster's II New Riverside University Dictionary (1984) (defining "such as" to mean "for example").

[27] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Aug. 12, 1982).

[28] The ASA's guidance was made without the benefit of formal public notice and comment; therefore, the principles of deference described in Skidmore v. Swift & Co., 323 U.S. 134 (1944), are applicable rather than the deference established by Chevron U.S.A. v. Natural Resources Defense Council, 467 U.S. 837 (1984). *See* United States v. Mead Corp., 533 U.S. 218, 241 (2001) ("the Court now resurrects, in full force, the pre-Chevron doctrine of Skidmore deference") (Scalia, J., dissenting). Skidmore deference considers, among other factors, "the thoroughness evident in its consideration, the validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade, if lacking power to control." Skidmore v. Swift & Co., 323 U.S. 134, 140 (1944). Contemporaneity also affords a degree of deference. *See, e.g.*, National Muffler Dealers Ass'n v. U.S., 440 U.S. 479 (1979).

[29] Hibbs v. Winn, 542 U.S. 88, 101 (2004) ("A statute should be construed so that effect is given to all its provisions, so that no part will be inoperative or superfluous, void or insignificant...." (quoting Corley v. United States, 556 U.S. 303, 314 (2009)).

Outcome 2: Overtopping of a levee/floodwall project designed to the 1977 flood elevation is catastrophic.

If the District's overtopping evaluation determines that the incremental consequences of a levee/floodwall project designed to the 1977 flood elevation are catastrophic, then the conditional language in the Supplemental Appropriations Act, 1982 is triggered, and the District must consider designing the Project to the SPF level of protection. In doing so, the District would have to prepare a second overtopping evaluation that considers the consequences of overtopping from a flood larger than the SPF event.[30] Both overtopping evaluations could be documented in the forthcoming DPR.

If this point in the process is reached and the District desires to design the Project below the SPF level of protection, the approach will be controlled by how the Supplemental Appropriations Act, 1982 is interpreted. The following subsections discuss the two potential interpretations. The first interpretation would allow the District to design the Project to a lower elevation if it adequately documents in a detailed analysis that the SPF level of protection is not appropriate; while the second interpretation would prohibit design of the Project below the SPF level of protection and require USACE to pursue a legislative amendment.

a) The Supplemental Appropriations Act, 1982 contains permissive language that allows for deviation from the SPF level of protection if justified.

The Supplemental Appropriations Act, 1982 states that levees/floodwalls constructed pursuant to Section 202 "should" provide for a SPF level of protection.[31] Principles of statutory construction dictate that "where the language of an enactment is clear and construction according to its terms does not lead to absurd or impracticable consequences, the words employed are to be taken as the final expression of the meaning intended. And in such cases legislative history may not be used to support a construction that adds to or takes from the significance of the words employed."[32] Similarly, the Supreme Court has "often stated that '[absent] a clearly expressed legislative intention to the contrary, [statutory] language must ordinarily be regarded as conclusive.' "[33] In this instance, Congress used the non-mandatory[34] word "should" in describing the appropriate level of flood protection for Section 202 projects. Accordingly, the plain meaning of Congress was to suggest that USACE may design Section 202 projects to the SPF elevation when the criteria specified in the Supplemental Appropriations Act, 1982 are met.

---

[30] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works, at 2 (Oct. 4, 1982).
[31] Supplemental Appropriations Act, 1982, Pub. L. No. 97-257, Ch. V, 96 Stat. 818, 832 (1982).
[32] United States v. Missouri Pac. R.R. Co., 278 U.S. 269, 278 (1929) (citations omitted).
[33] Escondido Mut. Water Co. v. La Jolla Band of Mission Indians, 466 U.S. 765, 772 (1984) (quoting North Dakota v. United States, 460 U.S. 300, 312 (1983) (citations omitted)).
[34] Union Elec. Co. v. Consolidation Coal Co., 188 F.3d 998, 1001 (8th Cir. 1999) (" 'Should' sometimes is substituted for 'may' as a permissive word."); Dept. of Def. Standard Practice, Defense Standards Format and Content, at 9 (Aug. 1, 2003)("Use 'should' and 'may' to express nonmandatory provisions."); Merriam-Webster, https://www.merriam-webster.com/dictionary/should (last visited Dec. 28, 2018) ("used in auxiliary function to express obligation, propriety, or expediency,…used in auxiliary function to express a request in a polite manner or to soften direct statement"); Twin Falls County v. Idaho Comm'n on Redistricting, 152 Idaho 346, 349 (2012) ("The words 'must' and 'shall' in a statute are mandatory, and the word 'should' is not.").

This is supported by the fact that the ASA contemporaneously derived the same interpretation that "should" means "suggests" in 1982.[35] From a practical perspective, such permissive language is appropriate because SPF elevation determinations are site specific and unknown until calculated. Congress could not have fully appreciated the consequences of establishing a strict SPF requirement for all Section 202 projects at the time of enactment. Therefore the suggestive "should" language affords USACE an appropriate degree of discretion in navigating the complexities of constructing flood control measures. Interpreting "should" as creating a mandatory requirement is contrary to its plain meaning and could create absurd or impracticable consequences, such as mandating undesirable design elevations that could increase losses. Nevertheless, designs that deviate from the suggested SPF level of protection must be technically and economically sound[36] and justified with adequate documentation containing a detailed analysis that compares hazards at various protection levels.[37]

Even when considering legislative history, none of the Congressional reports in support of the Supplemental Appropriations Act, 1982 illuminate the intent of Congress with regard to the meaning of "should."[38] Thus, the plain language interpretation articulated in the prior paragraph is appropriate given the overarching goal of Section 202 to reduce "losses."[39]

Under this legal interpretation, if the District finds that hazards created by designing to the SPF level of protection outweigh benefits as compared to a lower elevation design, the District may design to a lower elevation. However, the District should not automatically design to the 100-year flood elevation level if it finds the SPF to be inappropriate. Rather, to maximize consistency with the intent of Congress, the District should consider designs below the SPF level of protection, but above the 1977 flood elevation, that avoid the hazards that initially made the SPF level of protection unacceptable. The justification for selection of the final level of protection should be fully documented.

So long as the decision is adequately justified and documented, there is minimal litigation risk in designing below the SPF level of protection. As compared to the ASA's description of the overtopping evaluation, there is less explicit instruction from the ASA about USACE's discretion at this stage of the decision-making process. However, a reviewing court would still afford deference[40] because the plain language of the Supplemental Appropriations Act, 1982 is permissive, not mandatory; and the ASA contemporaneously interpreted the word "should" to mean "suggest."[41] Legal risks are also low because the project is not controversial nor are

---

[35] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Oct. 4, 1982).
[36] Memorandum from William Gianelli, Assistant Secretary of the Army, to E. R. Heiberg III, Director of Civil Works (Dec. 18, 1981).
[37] This analysis is required by the ASA when deviating from the minimum level of protection, i.e. the 1977 flood elevation; however, it seems relevant if also deviating from the SPF level of protection, which is also suggested by legislation. *See* Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Aug. 12, 1982).
[38] H.R. REP. NO. 97-673 (1982); S. REP. NO. 97-516 (1982); CONF. RPT. NO. 97-747 (1982).
[39] Energy and Water Development Appropriation Act, 1981, Pub. L. No. 96-367, § 202(a), 94 Stat. 1331, 1339 (1980).
[40] *See supra* note 27.
[41] Memorandum from William Gianelli, Assistant Secretary of the Army, to Acting Director of Civil Works (Oct. 4, 1982).

significant impacts to natural resources anticipated. Risks to the project delivery timeframe would be modest because additional time and resources would be necessary to perform two overtopping evaluations and an analysis that compares hazards at various protection levels.

b) The Supplemental Appropriations Act, 1982 creates a mandatory requirement to design to the SPF level of protection for all Section 202 projects.

Interpreting "should" within the Supplemental Appropriations Act, 1982 to mean USACE "must" provide for a SPF level of protection would prohibit design of the Project to the 100-year flood elevation. A legislative amendment would be necessary to permit the District to deviate from the SPF methodology. Such an interpretation would set aside the permissive meaning of "should;" but, Congress has taken actions following enactment of the Supplemental Appropriations Act, 1982 that could be viewed as a post hoc interpretive gloss lending support to this interpretation.

For example, the Senate report prepared in furtherance of the Department of Defense Appropriations Act, 1983, directed USACE to proceed with structural and nonstructural measures provided in the original authorization at the SPF level of protection.[42] The House report also directed USACE to proceed with study and design of SPF level of protection for projects listed in the Supplemental Appropriations Act, 1982.[43] Notably, neither report included the "should" qualifier that was part of the law itself. This report language could be viewed as an indication that Congress intended for the Supplemental Appropriations Act, 1982 to create a mandatory requirement that Section 202 projects be built to the SPF flood elevation. However, this interpretation appears to conflict with the language Congress used in the Supplemental Appropriations Act, 1982, and the plain meaning of the legislative text controls over potentially conflicting statements of intent in legislative history.[44] The fact that the language appears in Congressional reports for a later appropriation further attenuates the weight of this interpretation.[45]

More significantly, following enactment of the Supplemental Appropriations Act, 1982, Congress modified the SPF level of protection for specific Section 202 projects to the 100-year flood elevation. In 1996, Congress required Section 202 non-structural flood control projects to protect to the greater of the 1977 flood elevation or the 100-year flood elevation.[46] In 2000, Congress set the 100-year flood elevation as the appropriate level of protection for the Section

[42] S. REP. NO. 97-673 (1982).
[43] H.R. REP. NO. 97-850 (1982).
[44] Darby v. Cisneros, 509 U.S. 137, 147 (1993) ("Recourse to the legislative history… is unnecessary in light of the plain meaning of the statutory text.").
[45] Sullivan v. Finkelstein, 496 U.S. 617, 631 (1990) ("The legislative history of a statute is the history of its consideration and enactment. 'Subsequent legislative history' -- which presumably means the post-enactment history of a statute's consideration and enactment -- is a contradiction in terms. The phrase is used to smuggle into judicial consideration legislators' expressions not of what a bill currently under consideration means (which, the theory goes, reflects what their colleagues understood they were voting for), but of what a law previously enacted means.").
[46] Energy and Water Development Appropriations Act, 1997, 104 Pub. L. No. 206, 110 Stat. 2984, 2990 (1996) ("From the date of enactment of this Act, non-structural flood control measures implemented under section 202(a) of Public Law 96-367 shall prevent future losses that would occur from a flood equal in magnitude to the April 1977 level by providing protection from the April 1977 level or the 100-year frequency event, whichever is greater.").

202 project planned in the City of Cumberland, KY.[47] Again in 2007, Congress specified the 100-year flood elevation, without mention of the SPF methodology, as the level of protection for the Section 202 project planned in Prestonsburg, KY.[48] And for a nonstructural Section 202 project planned for McDowell County, WV, Congress established the level of protection as the greater of three flood events or the 100-year flood elevation.[49] Unfortunately the legislation and Congressional reports for each of these Acts lack explanation for why the level of protection was modified and the SPF methodology omitted for these specific projects. Regardless, what it demonstrates is that Congress has on several occasions found it necessary to modify the level or protection from that stated in Section 202 and the Supplemental Appropriations Act, 1982. Thus, it would be reasonable to infer from these actions that Congress has interpreted the Supplemental Appropriations Act, 1982 as mandating design to the SPF elevation.[50] That said, such an interpretation would contradict the plain meaning of the legislative text and the ASA's contemporaneous guidance.[51] With regard to language contained in a subsequent appropriation, a reviewing court would likely not heed the language significant weight in interpreting prior substantive legislation.[52] Also, it is questionable the amount of interpretive weight a court would afford to the other subsequent legislation, seeing that it does not explicitly restate the intent of Section 202 or the Supplemental Appropriations Act, 1982.[53]

Nevertheless, obtaining a legislative fix will remove any perceived ambiguity created by the Supplemental Appropriations Act, 1982, and eliminate any possible challenge on the grounds that the District's actions are arbitrary, capricious or contrary to law, should the District decide to deviate from the SPF methodology.[54] Risks to the project delivery timeframe, however, will be heightened. USACE review and concurrence of proposed legislative language will require a substantial amount of time, not to mention the additional time in seeking action and enactment

[47] Water Resources Development Act of 2000, 106 Pub. L. No. 541, § 314, 114 Stat. 2572, 2603 (2000) ("The Secretary shall initiate construction, using continuing contracts, of the city of Cumberland, Kentucky, flood control project, authorized by section 202(a) of the Energy and Water Development Appropriation Act, 1981 (94 Stat. 1339), in accordance with option 4 in the detailed project report, dated September 1998, as modified, to prevent losses from a flood equal in magnitude to the April 1977 level by providing protection from the 100-year frequency event and to share all costs in accordance with section 103 of Public Law 99-662, as amended.").

[48] Water Resources Development Act of 2007, 110 Pub. L. No. 114, § 3073, 121 Stat. 1041, 1124 (2007) ("The Prestonsburg, Kentucky, element of the project for flood control, Levisa and Tug Fork of the Big Sandy and Cumberland Rivers, West Virginia, Virginia, and Kentucky, authorized by section 202(a) of the Energy and Water Development Appropriations Act, 1981 (94 Stat. 1339), is modified to direct the Secretary to take measures to provide a 100-year level of flood protection for the city of Prestonsburg.").

[49] Water Resources Development Act of 2007, 110 Pub. L. No. 114, § 3171, 121 Stat. 1041, 1154 (2007) ("The McDowell County nonstructural component of the project for flood control, Levisa and Tug Fork of the Big Sandy and Cumberland Rivers, West Virginia, Virginia, and Kentucky, authorized by section 202(a) of the Energy and Water Development Appropriation Act, 1981 (94 Stat. 1339), is modified to direct the Secretary to take measures to provide protection, throughout McDowell County, West Virginia, from the reoccurrence of the greater of— (1) the April 1977 flood; (2) the July 2001 flood; (3) the May 2002 flood; or (4) the 100-year frequency event.").

[50] In researching this memorandum of law, a USACE legal opinion on this matter was not found.

[51] Escondido Mut. Water Co. v. La Jolla Band of Mission Indians, 466 U.S. 765, 772 (1984) (quoting North Dakota v. United States, 460 U.S. 300, 312 (1983) (citations omitted)).

[52] Tenn. Valley Auth. v. Hill, 437 U.S. 153, 209 (1978).

[53] *Contra* Red Lion Broadcasting Co. v. FCC, 395 U.S. 367, 380-381, (1969) ("Subsequent legislation declaring the intent of an earlier statute is entitled to great weight in statutory construction.").

[54] 5 U.S.C. § 706(2)(a).

by Congress. A legislative amendment could take months to years to secure, an outcome that is likely incongruous with the District's short timeframe.

RECOMMENDATION: District Counsel requests and recommends Division Counsel concur with the following:

1) Concurrence with the decision making framework for structural Section 202 projects.

2) Concurrence with the legal analysis proffered for Outcome 1, which concludes that if the District's overtopping evaluation determines that the consequences related to overtopping of a levee/floodwall project designed to the 1977 flood elevation in Paintsville are not catastrophic, then the conditional language within the Supplemental Appropriations Act, 1982 is not triggered and the District is under no legal obligation to consider designing to the SPF level of protection, allowing the District to explore higher elevations, including the 100-year flood level, as the appropriate level of protection through a detailed analysis that compares hazards at various protection levels must be documented.

3) Concurrence with the legal analysis proffered for Outcome 2.a., which concludes that even if the District's overtopping evaluation determines that the incremental consequences of a levee/floodwall project designed to the 1977 flood elevation are catastrophic (triggering the conditional language in the Supplemental Appropriations Act, 1982 that requires consideration of the Project to the SPF level of protection), the District may still deviate from the SPF level of protection so long as the determination is justified with adequate documentation containing a detailed analysis that compares hazards at various protection levels.

3 MEMORANDUM FOR RECORD

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059

REPLY TO
ATTENTION OF:

CELRL-ED 16 January 2019

MEMORANDUM THRU CELRD Business Technical Division (Mr. Ryan Jeffries, Chief)

FOR CELRD Regional Programs Director, LSO & DSO (Mr. Stephen Durrett, P.E, SES)

SUBJECT: Johnson County, KY Section 202, Level of Flood Protection for Structural Measures

1. Reference enclosed CELRL-OC Memorandum of Law (MOL), dated 15 January 2019.

2. The Louisville District (LRL) is conducting the feasibility study and preparing a Detailed Project Report (DPR) for the Johnson Co, KY Section 202 Supplemental FRM project. The study will encompass non-structural measures for the greater Johnson County area as well as structural measures for the City of Paintsville within Johnson County.

3. When determining the appropriate level of flood protection for structural measures in Paintsville, KY, both the project authorization language and the USACE risk informed design methodology will apply. In accordance with the authorization language, LRL will perform an overtopping analysis for the two alternatives approved at the Focused Alternative Array Milestone (FAAM) meeting assuming an initial minimum level of protection equal to the 1977 flood elevation in Paintsville, KY (608.4 feet, NAVD88 datum).

a. If it is determined that the incremental consequences related to overtopping are not catastrophic, then the conditional language within the Supplemental Appropriations Act 1982 that suggests consideration of the Standard Project Flood (SPF) level of protection is not triggered. Instead, LRL will determine the level of protection through a risk informed design methodology which analyzes the benefits and risks of various levels of protection sufficient to prevent future flooding losses.

b. If the overtopping analysis determines that incremental consequences are catastrophic, then the conditional authorization language would be triggered and LRL will evaluate a level of protection equivalent to the SPF. If analysis demonstrates the SPF level of protection induces additional risk (such as ingress and egress issues for example), then the risk informed design process will be used to compare the hazards and benefits of the SPF level of protection to those hazards and benefits of alternate levels of protection. LRL may select another level of protection if it determines that the SPF level of protection is not appropriate. Justification for choosing a level of protection other than the SPF would be fully documented with detailed engineering analysis.

CELRL-ED
SUBJECT: Johnson County, KY Section 202, Level of Flood Protection for Structural Measures

4. For plan formulation purposes, LRL has assumed a design elevation for the alternatives approved at the FAAM based upon preliminary survey and mapping information. Final design elevations will be determined when updated surveying and mapping information is acquired, and after the overtopping and risk informed design analysis has been completed.

John R. Bock, P.E.
Chief, Engineering Division
Louisville District

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059

REPLY TO
ATTENTION OF:

CELRL-PMC-PL

MEMORANDUM FOR RECORD

SUBJECT: Johnson Co., KY Section 202 Supplemental– Focused Alternatives Array Milestone

1. The Louisville District (LRL) conducted a Focused Alternatives Array Meeting (FAAM) Briefing with the Great Lakes and Ohio River Division (LRD) and vertical team on 19DEC18.

2. A read ahead package was provided to the Great Lakes and Ohio River Division (LRD) on 12DEC18.

3. Participants in the meeting included the following individuals:
    a. LRD –Hank Jarboe (PL), Ryan Albrecht (OC), Zafar Hyder (WM), Phil Tilly (DSPM), Tonya Harrington (DSPM), Don Johantges (PG). Phil Johnson (PG), Jacob Nienaber IED), Ron Sadri (PL), Mark Hammond (PL), Mike Saffran
    b. LRL – Amy Babey (PL), Michael Moore (PM), Ken Meffert (PL), Kyle Lewis (OC), Sarah Mattingly (PL), Richard Pruitt (ED), Paul Deatrick (ED), Roger Setters (PL), Jacob Sinkhorn (ED), Matt Schueler (PM), Jennifer Guffey (PL), Dan Vogler (PL), Megan Jones (ED), Steve Shifflett (ED), Eric Allen (ED), Jason Meyer (RE), Sumer al Rawi (ED), Tommy Williamson (OC), Eric Springston (ED), Benjamin Janocik (ED), Steven Hite (ED), Mike Braden (ED)
    c. LRH – Rebecca Albert (PL), Jami Buchanan (PL)
    d. LRN – Chip Hall (PL)
    e. LRB – Nate Pfisterer (PL)
    f. FRM PCX -Karen Miller, Eric Thaut, Nick Applegate
    g. HQS – Janet Cote (RIT), Evie Haberer (OWPR), Amy Frantz (PL)
    h. Sponsor – Mayor Runyon (City of Paintsville)

4. LRL welcomed group and stated intent of meeting was to seek concurrence on alternatives array.

5. LRL PM, PE, and lead planner provided a summary of the project site description and history including history of flood conditions. The presenters mentioned that data in the presentation is currently in NGVD29 vertical datum. All of the survey and design work will be completed in NAVD88, including a conversion of existing data. The difference in datums is +0.66 feet. The presenters provided information on critical resources in the City of Paintsville and Johnson County, Kentucky as well as discussed problems, opportunities, objectives, and constraints for the project area.

6. LRL PDT discussed the nine structural measures considered during initial formulation for the City of Paintsville. Five measures were screened out of further consideration based a failure to meet project objectives including dry bed detention basins, paint creek channel widening, a diversion channel along Levisa Fork DS and US of Paintsville, and operational changes to four existing flood control dams upstream of the project. LRL PDT discussed the four criteria for evaluating the measures that were initially carried forward. These criteria screened out additional measures including a dam structure on the Levisa Fork of the Big Sandy River and a realignment of the Levisa Fork of the Big Sandy River. Two measures were carried forward as a result: floodwalls along Paint Creek and a closure structure at the Paint Creek and Levisa Fork confluence.

7. LRL PDT described how these two structural measures were combined to formulate three structural alternatives (alts). They included 3.5 miles of floodwall on both sides of Paint Creek extending upstream from its confluence with Levisa Fork and nonstructural measures (Alt 1), a closure structure at the Paint Creek and Levisa Fork confluence with a large pump station and nonstructural measures (Alt 2), and a closure structure at the Paint Creek and Levisa Fork confluence with 8000 linear feet of floodwalls on both sides of Paint Creek, a pump station and nonstructural measures. Additionally, a no action and a stand-alone non-structural alternative for the entirety of Johnson County, designated as Alt 4 and involving buy-out, flood-proofing, elevation, public education, and a new flood warning system, was presented. Based on preliminary parametric costs, Alt 1 is highest cost alternative, approximately 30-40% higher than Alts 2 and 3. Alts 2 and 3 are similar in cost. Alt 4 will be a separable element for the current project.

8. The non-federal sponsor representative, Mayor Runyon, stated that he wanted to thank all of us for our desire to help his community. The local sponsor is more supportive of Alt 2 and 3 over Alt 1. The local sponsor is supportive of the team and progress to date.

9. LRL PDT recommended approval of the FAAM (moving forward with the structural Alts - 2 and 3 - and the nonstructural Alt 4) and continuation of the feasibility study, pending receipt of the MFR and concurrence by the vertical team on the appropriate level of protection.

10. LRD approved the FAAM and authorized continuation of the feasibility study.

Any questions regarding this submittal should be directed to Michael Moore, Project Manager at 502.315.6794 and michael.moore17@usace.army.mil

AMY S. BABEY
Chief, Civil Works -
Planning, Programs, and Project Management Branch

HANK JARBOE
Deputy Chief, Planning and Policy
Great Lakes and Ohio River Division

Encl: Attachment 1

Attachment 1

Johnson County FAAM MFR : Notes and Q&A

- FEMA model includes the Paintsville Lake. City of Paintsville and Johnson County compiled the Flood Plain management plan together.
- The PDT described the flood elevations, SPF, 1%, etc. Zafar – 1% 614 elevation is based on 4-5 different rating curves – the curves converged at this frequency flood elevation. 614 is based on FEMA report of 614.3, The Haysi Dam Report was around 614 also. Is the 617.6 the statistical number based upon what? We responded that based on FDA, this elevation is based on 90% certainty. Based on calibrated RAS model from LRH, discharge supported the elevation of 614.
- LRD - What are we designing for? The PDT stated that 617.6 is our design elevation.
- LRD requested an updated on the MFR regarding Level Of Protection.. The PDT stated this MFR is forthcoming.
- LRL ED has determined that 618.1 is the SPF elevation. There was limited discussion on whether this includes any standard deviation
- Flooding in Paintsville is primarily due to backwater flooding from Levisa Fork
- The PDT completed a scoping meeting October 9-11, 2018 in Paintsville
- Objectives – how will formulation go (max NED benefits or performance level) – we will formulate to the least cost - it is level or protection and then least cost
- What is the authorized level or protection? Team discussed the level of protection associated With the Sec. 202 authority and SPF additional language – it is the 1% level plus 90% confidence.
- Phil Johnson needs to staff the Level of Protection MFR through the vertical team for concurrence
- The PDT will place the proper focus on life safety in future reports and documentation
- Note that the PDT considered Flood Control Dams on slide 26 – not just one dam
- A comment was made to not screen measures because they do not meet all objectives; if it substantially meets at least one objective it could be carried forward – the PDT clarified by responding this is not the actual case; if an alternative does not substantially meet even one objective, and it would need additional measures to meet the objectives such as cost for example, then the alternative should be screened.
- A comment was made to combine measures in report to evaluate the objectives in a better way – maybe add scoring in the report
- How did we apply completeness? Make sure we interpreted this correctly. Rationale makes sense. We need to discuss how completeness is applied correctly. The PDT will follow up with Eric Thaut on the definition of completeness

Attachment 1 - Continued

Johnson County FAAM MFR : Notes and Q&A

- Non-structural – make sure we consider the new NS Planning Bulletin 2019-03
- Would alternative 2 allow for flooding of high school, etc? No – all schools would be out of the floodplain
- Alt 3 – inundation of the railroad is still evident – this is a key economic driver – most of rail lines are at 618 elevation - some tracks would be within and some would be out of the flood elevation – RR is outside the level or protection – maybe look at photo in slide 39 – maybe a small levee to protect the railroad would be included in the solution.
- What duration would the 1% flood be on Alt 3 (relating to the RR area) – Levisa would have the longer duration. Peak flows could be up to 2 days. On Paint Creek, the duration would be a day or less
- A comment was made whether USACE has eminent domain on RR property; LRL RE team member Jason Meyer responded that the US Government can condemn railroad property if the acquisition is made in conjunction with a Congressionally authorized project.
- Costs – a Parametric Cost Estimate was discussed in terms of percentages comparing each alternative. Alt 1 was clearly a higher cost that all other alternatives.
- Alternative 4 is a common measure for all 3 – Make sure we clarify this in the final report and MDM
- A comment was made to maybe consider an aqueduct as a measure
- Will we assess and consider impacts to flooding in cities/areas east of Paintsville – Approximately 36 homes are in that floodplain; the PDT will look at these for non-structural measures
- Eric Thaut commented that the PDT needs to coordinate schedules for review –such as Type I
- Evie Haberer commented that if there are any policies that cumber forward progress that the PDT should elevate the situation to the vertical team to request potential waivers.
- The PDT will continue to update the Risk register during the life of this project
- Chip Hall commented on conducting concurrent ATR reviews

4 PLANNING DOCUMENTS

4.1 PROJECT MANAGEMENT PLAN

4.2 REVIEW PLAN

4.3 RISK REGISTER

5 PAINTSVILLE FLOOD MANAGEMENT PLAN

2018

City of Paintsville: Floodplain Management Plan

City of Paintsville Floodplain Management Planning Committee
City of Paintsville
6/1/2018

Executive Summary

The Floodplain Management Plan (FMP) for the City of Paintsville (City) serves as a framework, in conjunction with the Big Sandy Hazard Mitigation Plan, which involves the public, City officials and other agencies in assessing flood hazards and making short and long-term plans to address these risks.

CRS credit is provided for preparing, adopting, implementing, evaluating and updating a comprehensive floodplain management plan. The creation of the comprehensive floodplain management plan must be prepared and updated according to the standard 10-step process shown in Figure 1 (FEMA 2017). The functionality of this document is set up to follow the 10 steps outlined in Figure 1, each section corresponds with the appropriate step. The CRS cross walk (Appendix A) outlines the points obtained under each of these 10 steps. The CRS activity 510, Floodplain Management Plan, is the process of creating an overall strategy of programs, projects, and measures that will reduce the impact of hazard on the community and help meet the community's needs.

Many agencies at the local, state and federal level are involved in the mitigation of hazards. It was important for the City of Paintsville to review existing plans and studies while coordinating with relevant agencies to fully develop the floodplain management plan.

The city of Paintsville experiences two primary types of flooding: riverine and localized. Riverine flooding is associated with water overflowing the stream banks onto adjacent areas, while localized flooding is often due to the capacity of the storm sewer system, especially in low-lying areas. Riverine flooding is more widespread while localized flooding is contained to a smaller area. The NWS has specific parameters for the definition of flash flood; but these events are generally characterized by a rapid rise in water, high velocities and large amounts of debris.

The City of Paintsville lies within the Lower Levisa Watershed. The City has a community land area of 6.2 square miles. Of the 6.2 square miles, 0.8 sq mi is in the Special Flood Hazard Area, while 0.3 sq mi is in the Floodway. The terrain in Paintsville is mainly flat near the center of town with hilly areas being located near the northern and southern corporate limits. Approximately 80 percent of all commercial and residential development lies within the Lower Levisa Fork and Paint Creek floodplains. Floods can happen during any season, as a result from periods of general rainfall over the entire area to short intense periods of localized storms common to the region. The City of Paintsville has also been prone to surface flooding as well. The City has embarked on project to address flooding issues such as acquisition of flood prone areas and community outreach. The following Floodplain Management Plan evaluates the potential impact of flooding in Paintsville with respect to:

- Impact of Flood Hazard
    - Life, Safety and Health
    - Critical Facilities and Infrastructure
    - Economy and Tax Base
- Building Subject to the Flood Hazard
- Insurance Claims Review
- Natural and Beneficial Function

The Floodplain Management Plan Committee discussed setting long range goals to address the flood-related problems identified in Step 5. Committee members were asked to think about goals for the plan prior to the meeting. Several committee members reported using the internet to look at Flood Mitigation Plans in other communities, as well as studying the Huntsville, AL plan. After a detailed discussion, the committee agreed on five overall goals.

1. Protect life and health from flooding
2. Mitigate the effects of flooding on new and existing development.
3. Improve the quality of life in the city
4. Secure the resources needed to implement the Flood Mitigation Plan
5. Improve flood response and recovery

Using knowledge gained by assessing flood hazards, the established goals and the recommendations as a result of reviewing the possible activities, the Floodplain Management Committee developed an Action Plan. The City of Paintsville is small, so the majority of the tasks listed will be the responsibility of the City. They action items are ranked, with one being the activity in each subsection with the highest priority.

Action Plan

Preventive Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	The City will work towards reducing flooding hazards through development of engineering studies.	Mayor/Floodplain Coordinator	2-3 years	Outside Source (such as grants)
2	Higher regulatory standards credited by CRS should be used as a checklist to determine where floodplain regulation could be strengthened.	Mayor/Floodplain Coordinator	1 year	City
3	The City will review the Zoning Ordinance's flood protection standards to ensure appropriate protection is afforded to floodplain properties.	Mayor/Floodplain Coordinator	Currently in place but will be an ongoing activity	City
4	The City will look for ways to improve storm water drainage.	Mayor/Floodplain Coordinator	3-5 years	Outside funding (such as grants)
Property Protection Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	Property owners should be advised of property protection	Mayor/Floodplain Coordinator	1 year	City

	measures that can help them reduce flood losses.			
2	The City will publicize projects that have been implemented by property owners in the past.	Mayor/Floodplain Coordinator	1-2 years	City
3	The City will pursue the following activities to encourage and support measures taken by property owners. A. Public Information B. Outside funding sources that can help property owners in funding property protection measures.	Emergency Manager	Yearly / As needed	City / Outside funding (such as grants)
Natural Resourced Protection Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	The City will review current procedures to close any gaps in enforcement of existing ordinances.	Mayor/Floodplain Coordinator	1 year	City
2	The City will create a cleanup project to clear stream banks.	Mayor/Floodplain Coordinator	1 year and yearly	City
Emergency Service Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	Evacuation Plan will be developed for when Route 40 becomes obstructed.	Emergency Manager	1 year	City
2	Flood stage forecast maps will be prepared for the watersheds.	Emergency Manager	1 year	City
3	The City will research the ability to use existing weather sirens to warn residents in the City of flood related dangers.	Emergency Manager	1 year	City
4	Staff will review other community's post-flood mitigation procedures to determine if the current guidance should be modified.	Emergency Manager	1 year	City
Structural Project Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	The City will conduct a hydrological survey to determine where levees or	Mayor/Floodplain Coordinator	2-3	Outside funding (such as

	floodwalls could be used.			grants)
Public Information Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	The city will implement and publicize mapping and flood hazard services provided.	Floodplain Coordinator	Currently on going	City
2	The City will implement and disseminate messages on flood hazard mitigation.	Emergency Manager	Currently on going	City
3	The City will provide public information on activities that cover: A. City's Strategy on flooding and storm water B. The City's map information services C. Where residents can get help with flooding issues D. Flood safety E. Flood insurance F. The City's flood warning system and signals G. Permit requirements	Emergency Manger/ City Staff	Currently on going	City

Table of Contents

Introduction

The Floodplain Management Plan (FMP) for the City of Paintsville (City) serves as a framework, in conjunction with the Big Sandy Hazard Mitigation Plan, which involves the public, City officials and other agencies in assessing flood hazards and making short and long-term plans to address these risks.

Description of the Community

The City of Paintsville is located at Latitude 37.8145° N, Longitude 82.8071° W. The City is the county seat of Johnson (County), Kentucky. The City of Paintsville is in the eastern part of Kentucky within the Big Sandy Region, and is surrounded entirely by the unincorporated areas of the County. Paintsville was incorporated in 1843. The City was named for Indian drawings found on tree trunks in the area. Currently the population of the City of Paintsville has grown to 3,459, as reported in the 2010 census.

The climate in Paintsville is characterized by four distinct seasons. The summer weather is hot and humid, accompanied by frequent severe storms. Winters are moderately cold, with occasional mild periods. The average annual precipitation is 43 inches. The average high in summer months is 87 degrees, while the low is 23 degrees in the winter months.

The City of Paintsville is located at the bottom of and the confluence of Paint Creek and the Levisa Fork of the Big Sandy River. Paint Creek and the Levisa Fork of the Big Sandy River are the two primary sources of flooding for the City of Paintsville. The Levisa Fork is the controlling flooding source of the 1% annual chance flood event for the City. The 1% annual chance flood event from Levisa Fork creates a backwater effect up Paint Creek that extends beyond the city limits of Paintsville. Paintsville is among the foothills of the Appalachian Mountains in the Cumberland Plateau.

Program Background

The City of Paintsville lies within the Lower Levisa Water shed. The City has a community land area of 6.2 square miles. Of the 6.2 square miles, 0.8 sq. mi. is in the Special Flood Hazard Area, while 0.3 sq. mi. is in the Floodway. Approximately 80 percent of all commercial and residential development lies within the Lower Levisa Fork and Paint Creek floodplains. Floods can happen during any season, as a result from periods of general rainfall over the entire area to short intense periods of localized storms common to the region. The City of Paintsville has also been prone to surface flooding.

Damaging floods occurred in the City of Paintsville in 1862, 1918, 1929, 1932, 1934, 1935, 1939, 1946, 1948, 1950, 1955, 1956, 1957, 1958, 1962, 1963, 1967, 1972, 1974, 1977, 1978, 1984, and 2003. The maximum flood of record on Levisa Fork occurred in 1862 and had a stage of 46 feet. When water reaches 32 feet at the USGS gage in Paintsville, water covers low spots on the underpass of KY RT. 40. At 35 feet, low lying areas flood, the underpass at KY RT. 40 closes causing the city to separate east of the river, allowing flooding to begin on Bridge Street. When the water levels reach 38 feet, moderate flooding occurs, and water begins to enter houses along Bridge Street, Frank Street, and Euclid Avenue.

Major flooding occurs when water reaches the 42 feet mark. The 1957 flood had a stage of 45.92 feet at the USGA gage in Paintsville. When water is above the 45.92 mark approximately 90% of business and 80% of homes will be flooded.

Historically the City has taken measures to improve areas that are prone to flooding. Strategies the City of Paintsville have implemented to protect the city from the likelihood of flooding and protect the residents from financial losses due to flooding include:

- In 1983 Paintsville Damn was constructed as a flood control project by the U.S. Army Corps of Engineers.
- In 1985, the City joined the National Flood Insurance Program (NFIP) so that citizens could purchase flood insurance to protect their properties from losses due to flooding.
- In 1992, the City entered into the National Flood Insurance Program's incentive program, the Community Rating System (CRS), to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management.
- In 2017, the City adopted the Flood Damage Prevention Ordinance to promote public health, safety, general welfare, and to minimize public and private loss due to flooding.

Community Rating System Summary

The City of Paintsville participates in the Federal Emergency Management Agency's (FEMA) NFIP and the Community Rating System (CRS). The City's flood insurance premiums for properties are reduced to reflect the flood protection activities that are being implemented under the CRS incentive program.

A community receives a CRS classification based upon the points it receives for its activities. There are eighteen creditable activities communities can participate in that have a variety of points available depending upon the community's involvement. The eighteen creditable activities fall into four categories that include public information, mapping and regulations, flood damage reduction, and warning and response. Paintsville is currently a class 9, but is striving to improve that rating with a goal of class 7 in the future.

CRS provides incentives to communities that participate in the activities that go beyond the minimum that is required by the NFIP. CRS serves to support the NFIP three main goals of reducing and avoiding flood damage to insurable property, strengthen and support the insurance aspect of the NFIP, and foster comprehensive floodplain management. The CRS provides rewards for communities that are doing more than simply regulating construction of new buildings to the minimum national standards.

Table 1 CRS Class and Insurance Premium Reduction

Table 1 CRS Class and Insurance Premium Reduction			
Credit Points	**Class**	**Premium Reduction SFHA***	**Premium Reduction Non-SFHA****
4,500+	1	45%	10%
4,000 – 4,499	2	40%	10%
3,500 – 3,999	3	35%	10%
3,000 – 3,499	4	30%	10%
2,500 – 2,999	5	25%	10%
2,000 – 2,499	6	20%	10%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0

Paintsville's Current CRS Classification

(Source: FEMA 2011)

*Special Flood Hazard Area

**Preferred Risk Policies are available only in B, C and X Zones for properties that are shown to have a minimal risk of flood damage. The Preferred Risk Policy does not receive premium rate credits under the CRS because it already has a lower premium than other policies. The CRS credit for AR and A99 Zones are based on non-Special Flood Hazard Areas (non-SFHAs) (B, C and X Zones). Credits are: classes 1-6, 10% and classes 7-9, 5%. Premium reductions are subject to change.

The activities credited by the CRS and the maximum amount of points that may be obtained for each one are listed in Table 2. Table 2 also includes statistics for each activity such as the average points awarded, the maximum point available and the percentage of participating communities that are credited for the activity. A detailed explanation of each activity can be found in the CRS Coordinator's Manual.

Table 2 Credit Points Awarded For CRS Activities

Table 2 Credit Points Awarded for CRS Activities*				
Activity	Maximum Possible Points	Maximum Points Awarded	Average Points Awarded	Percentage Communities Credited
300 Public Information Activities				
310 Elevation Certificates	116	116	38	96%
320 Map Information Service	90	90	73	85%
330 Outreach Projects	350	350	87	93%
340 Hazard Disclosure	80	62	14	84%
350 Flood Protection Information	125	125	38	87%
360 Flood Protection Assistance	110	100	55	41%
370 flood Insurance Promotion	110	110	39	4%
400 Mapping & Regulatory Activities				
410 Additional Flood Data	802	576	60	55%
420 Open Space Preservation	2,020	1,603	509	89%
430 Higher Regulatory Standards	2,042	1,335	270	100%
440 Flood Data Maintenance	222	249	115	95%
450 Storm Water Management	755	605	132	87%
500 Flood Damage Reduction Activities				
510 Floodplain Management Planning	622	514	175	64%
520 Acquisition and Relocation	2,250	1,999	195	28%
530 Flood Protection	1,600	541	73	13%
540 Drainage System Maintenance	570	454	218	43%
600 Flood Preparedness Activities				
610 Flood Warning Program	395	365	254	20%
620 Levee Safety	235	207	157	1%
630 Dam Safety	160	99	35	35%

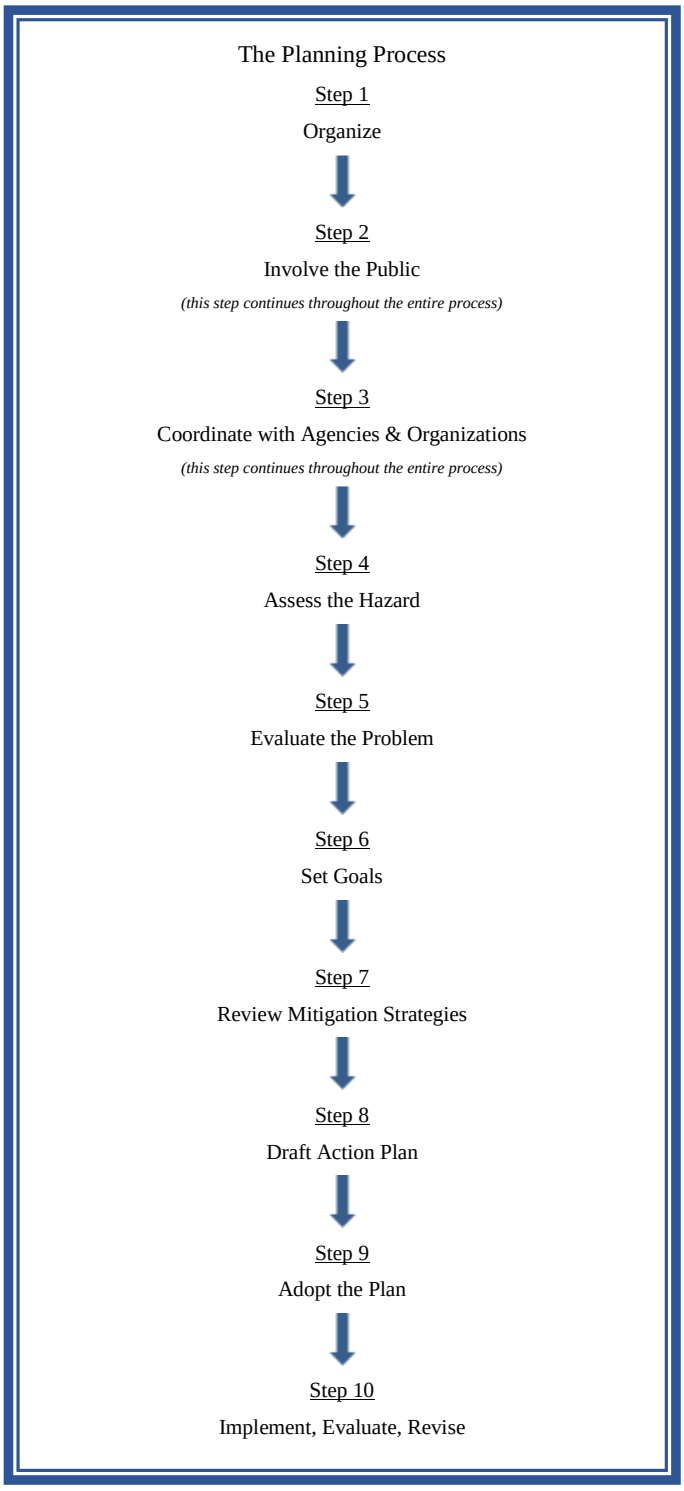
*Figures are based on communities that have received verified credit under the 2013 CRS Coordinator's Manual (about 43% of CRS Communities), as of October 2016. The maximum possible points are based on the 2013 Coordinator's Manual. Growth adjustments are not included.

(Source FEMA 2017)

The Planning Process

CRS credit is provided for preparing, adopting, implementing, evaluating and updating a comprehensive floodplain management plan. The creation of the comprehensive floodplain management plan must be prepared and updated according to the standard 10-step process shown in Figure 1 (FEMA 2017).

Figure 1 The Planning Process



The functionality of this document is set up to follow the 10 steps outlined in Figure 1, each section corresponds with the appropriate step. The CRS cross walk (Appendix A) outlines the points obtained under each of these 10 steps. The CRS activity 510, Floodplain Management Plan, is the process of creating an overall strategy of programs, projects, and measures that will reduce the impact of hazard on the community and help meet the community's needs.

1. Organize to Prepare the Plan

A floodplain management plan is a comprehensive document that reviews and selects options that work best for the community. A well-developed plan will result in reduced flood losses, reduced exposure to other hazards, improved protection of the floodplain' s natural and beneficial functions, efficient use of public and private resources, and a community that supports hazard mitigation activities.

1.1 Floodplain Management Plan Committee

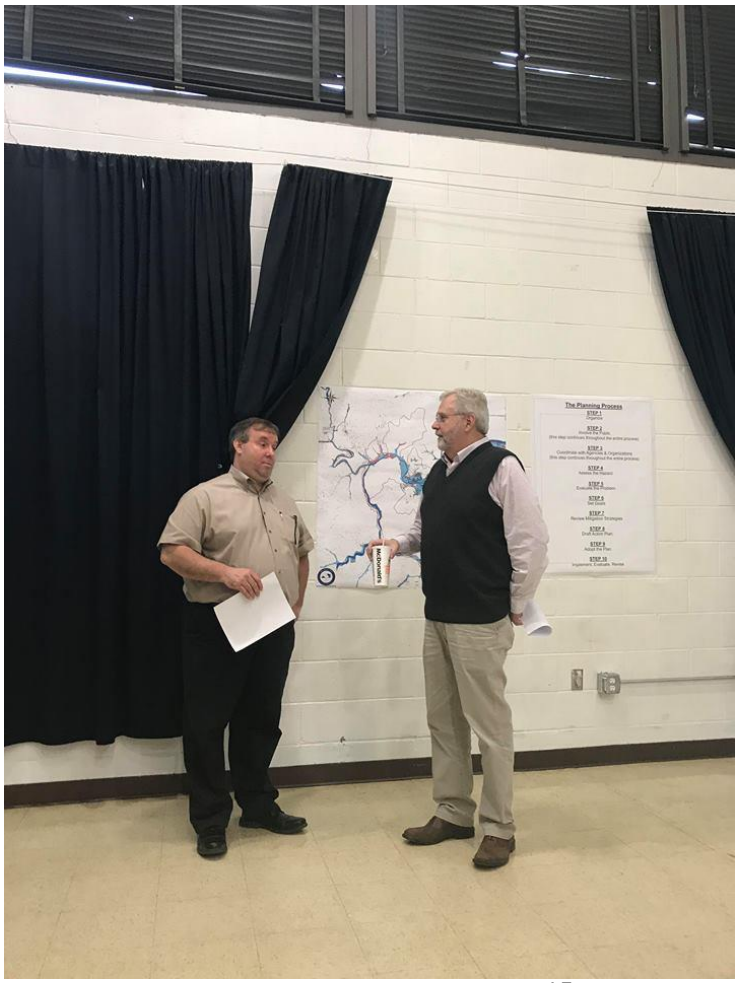
Resolution number: 2018-001

On April 9, 2018 the Paintsville City Council voted to create a Floodplain Management Planning Committee. The purpose and function of the Floodplain Management Planning Committee is to study, plan for, and advise the city council on ways the community can organize and prepare its Floodplain Management Plan. The committee will follow the 10-step process as outline in FEMA's CRS Program. Table 3 is a list of the committee members.

Table 3 Floodplain Management Planning Committee Members

Floodplain Management Planning Committee Members	
Name	**Affiliation**
Gary McClure	Chair Person, Emergency Manager, Floodplain Resident
Bob Stewart	Floodplain Administrator / Code Enforcement Officer, City Employee
Bob Pack	General Manager of Paintsville Utilities , Floodplain Resident
Jimmy Wright	Citizen, Paintsville Utilities Commission Member, Floodplain Resident
Paul David Brown	Business owner in Floodplain
Dewey Bocook	President, Bocook Engineering, Floodplain Resident
Bill M. Runyon	Mayor
Roger Belcher	Councilperson, City of Paintsville
Sara Blair	Councilperson, City of Paintsville
Patricia Nelson	Councilperson, City of Paintsville, Floodplain Resident
Chris Slone	NRCS
Danny Smith	Assistant Chief, Paintsville Police Department
Ed Pack	Assistant Chief, Paintsville Fire Department , Floodplain Resident
Eric Ratliff	Louisa Bank, Loan Officer

The following photos were taking during committee meetings and subcommittee meetings.


The Planning Process

1.2 Preparing the Plan

A total of five committee meetings were held over a course of several months. Each meeting focused on a particular step or steps in the planning process. The first meeting addressed steps four, assessing the hazards. The second meeting focused on step five, evaluating the problems. The third meeting addressed step six of setting goals. The fourth meeting concentrated on reviewing possible activities covered in step seven. The fifth meeting addressed step eight, drafting the action plan. Step eight is where it was important to prioritize action, which is detailed in Section 8. The fifth meeting also covered briefly steps nine and ten, adopting the plan and implementation.

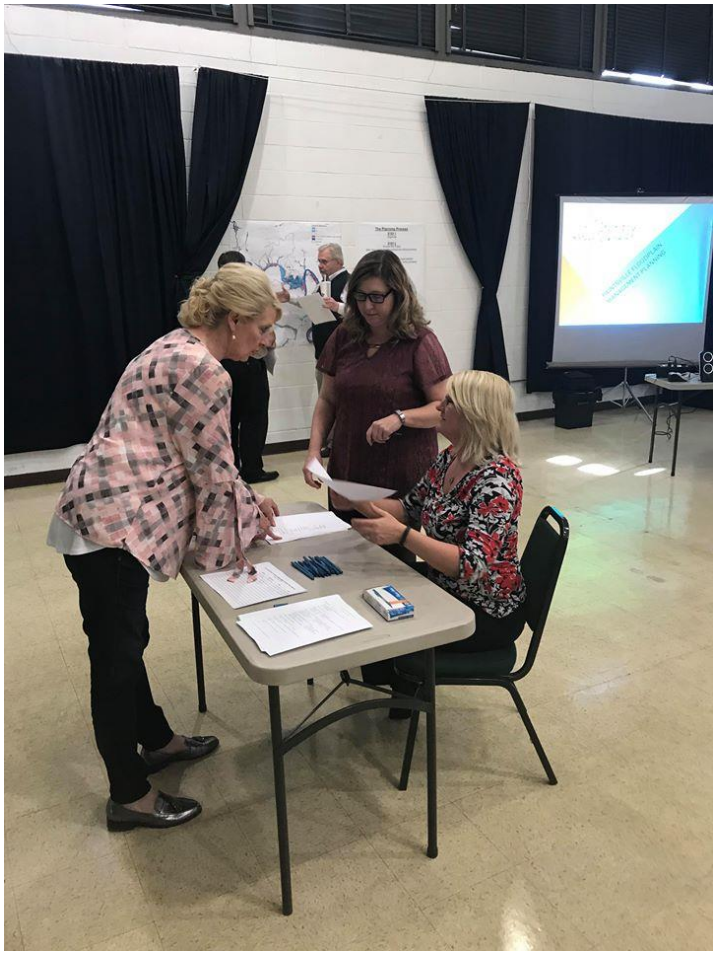
2. Involve the Public

Involving the public is a critical step in the planning process. Three public meetings were held, April 5, May 24, and June 12th, 2018, to allow the adequate public involvement in the planning process. A final draft was posted on Big Sandy Area Development District's website, www.bigsandy.org, while hard copies were made available at City Hall, Emergency Management Office, and the library.

2.1 Public Meetings

The development of the plan solicited public input during three open house meetings. The first meeting was held on April 5, 2018 at 6 p.m. The meeting was held at the Paintsville Recreation Center and had 27 people in attendance. The planning process was explained and the FMP committee members were introduced. On May 24, 2018 a second public meeting was held at the Paintsville Recreation Center. The FMP committee presented a draft covering step seven, on reviewing possible activities to the public to obtain input for writing step 8, and drafting the action plan. The third public meeting was held on June 12, 2018 at the Paintsville Recreation Center at 6 p.m. This was an opportunity for the community to add important input for the plan before taking the plan before City Council for adoption on June 26, 2018. A three of the public meetings were advertised in the local newspaper and through local government's social media. A newspaper article announcing the meetings is included in Appendix B.

The following photos are from the public meeting



2.2 Questionnaires and other Outreach

During the development of the floodplain management plan, a one page questionnaire was distributed at the open house public meetings, made available on the Big Sandy Development District's website, links provided on the City Utility Bills, and distributed at Spring Fling. The questionnaire was designed to find out information about the respondents' flood history, what steps they had taken to protect themselves from flooding, and what suggestions they had for the City's program. Approximately forty-nine people responded to the questionnaire. The questionnaire yielded interesting results. Only twelve of the forty-nine responded that they experienced a problem with flooding. Eight (8) of the residents that responded experienced flooding in 1957, which is historically know as one of the worst floods in the region. There were a few residents that experienced persistent water problems in the yard, and indicated that localized flooding was to blame. Figure 2 is a copy of the questionnaire used to obtain information.

Figure 2 Flood Protection Questionnaire

The City of Paintsville Floodplain Management

Flood Protection Questionnaire

Property address: _____

1. Has your home or property ever been flooded or had a water problem? ( )Yes ( ) No
   If "Yes" complete questions 2-9.
   If "No" complete questions 6-9.

2. In what years did it flood? _____

3. What part of the home got water, and how deep did it get?
   ( ) In basement: ____ deep. ( ) Water kept out of house by sandbagging, sewer valve, or other measures.
   ( ) Over 1st floor: ___ deep. ( ) In yard only.
   ( ) In crawl space: ___deep.

4. What do you feel was the cause of your flooding? Please check all that affect your building.
   ( ) Storm sewer backup
   ( ) Sump pump failure/power failure
   ( ) Standing water next to house
   ( ) Sanitary sewer backup
   ( ) Saturated ground/leaks in basement walls
   ( ) Overbank flooding from _____ waterway
   ( ) Other:_____

5. Have you installed any flood protection measures on your property?
   ( ) Sump pump
   ( ) Overhead sewers or sewer backup valve
   ( ) Waterproofed walls
   ( ) Regraded yard to keep water away from building
   ( ) Backup power system/generator
   ( ) Sewer plug or standpipe
   ( ) Moved things out of the basement
   ( ) Other: _____

6. When did you move into the building? _____

7. What type of foundation does your building have?
   ( ) Slab ( ) Crawlspace ( ) Basement

8. Do you have food insurance or a sewer/basement flood rider to your homeowner's insurance?
   ( ) Yes ( ) No

9. Do you want information on protecting your house from flooding?
   ( ) Yes ( ) No

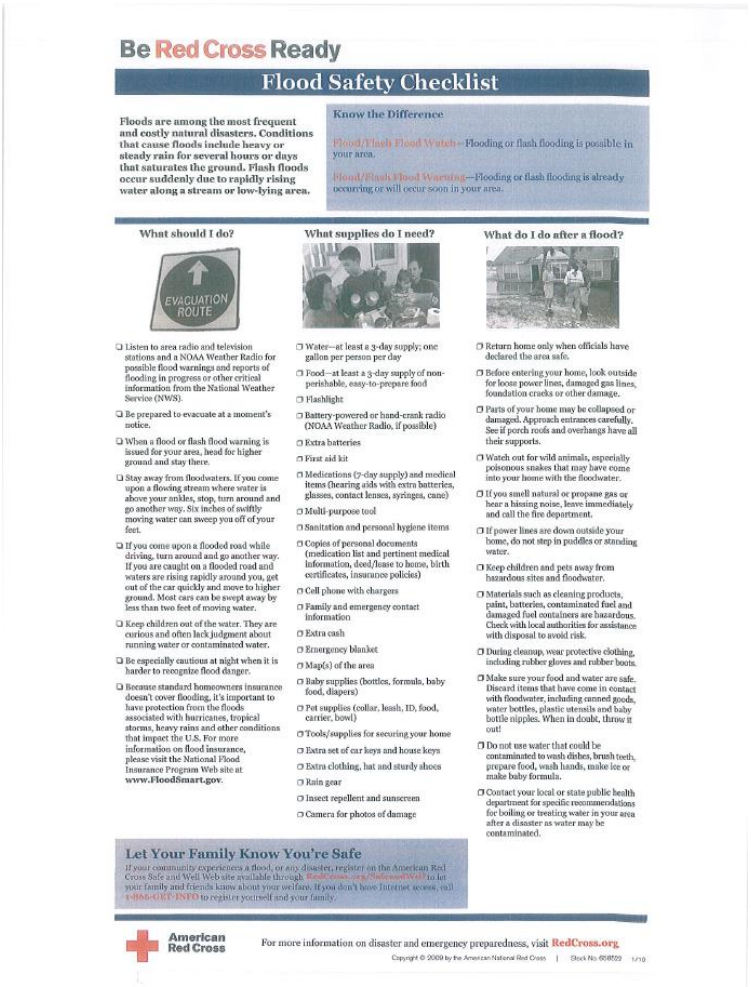
   If yes, please include your full mailing and email address
   Address:_____

   Email: _____

A news release was issued during the planning process. The Paintsville Herald followed the FMP committee's work and covered the public meetings. The added coverage helped to draw the public's attention to the importance of the floodplain management plan.

A booth was set up for the City's Spring Fling. Flooding information was distributed and questionnaires were collected. The information handed out was a Flood Safety Checklist and sign up forms for Community Notification Enrollment. Figure 2 is a copy of the handouts used during the Spring Fling Community outreach project.

Figure 3 Spring Fling Handouts



Be Red Cross Ready

Flood Safety Checklist

Floods are among the most frequent and costly natural disasters. Conditions that cause floods include heavy or steady rain for several hours or days that saturates the ground. Flash floods occur suddenly due to rapidly rising water along a stream or low-lying area.

Know the Difference

Flood/Flash Flood Watch—Flooding or flash flooding is possible in your area.

Flood/Flash Flood Warning—Flooding or flash flooding is already occurring or will occur soon in your area.

What should I do?

EVACUATION ROUTE

- Listen to area radio and television stations and a NOAA Weather Radio for possible flood warnings and reports of flooding in progress or other critical information from the National Weather Service (NWS).
- Be prepared to evacuate at a moment's notice.
- When a flood or flash flood warning is issued for your area, head for higher ground and stay there.
- Stay away from floodwaters. If you come upon a flowing stream where water is above your ankles, stop, turn around and go another way. Six inches of swiftly moving water can sweep you off of your feet.
- If you come upon a flooded road while driving, turn around and go another way. If you are caught on a flooded road and waters are rising rapidly around you, get out of the car quickly and move to higher ground. Most cars can be swept away by less than two feet of moving water.
- Keep children out of the water. They are curious and often lack judgment about running water or contaminated water.
- Be especially cautious at night when it is harder to recognize flood danger.
- Because standard homeowners insurance doesn't cover flooding, it's important to have protection from the floods associated with hurricanes, tropical storms, heavy rains and other conditions that impact the U.S. For more information on flood insurance, please visit the National Flood Insurance Program Web site at www.FloodSmart.gov.

What supplies do I need?

- Water—at least a 3-day supply; one gallon per person per day
- Food—at least a 3-day supply of non-perishable, easy-to-prepare food
- Flashlight
- Battery-powered or hand-crank radio (NOAA Weather Radio, if possible)
- Extra batteries
- First aid kit
- Medications (7-day supply) and medical items (hearing aids with extra batteries, glasses, contact lenses, syringes, cane)
- Multi-purpose tool
- Sanitation and personal hygiene items
- Copies of personal documents (medication list and pertinent medical information, deed/lease to home, birth certificates, insurance policies)
- Cell phone with chargers
- Family and emergency contact information
- Extra cash
- Emergency blanket
- Map(s) of the area
- Baby supplies (bottles, formula, baby food, diapers)
- Pet supplies (collar, leash, ID, food, carrier, bowl)
- Tools/supplies for securing your home
- Extra set of car keys and house keys
- Extra clothing, hat and sturdy shoes
- Rain gear
- Insect repellent and sunscreen
- Camera for photos of damage

What do I do after a flood?

- Return home only when officials have declared the area safe.
- Before entering your home, look outside for loose power lines, damaged gas lines, foundation cracks or other damage.
- Parts of your home may be collapsed or damaged. Approach entrances carefully. See if porch roofs and overhangs have all their supports.
- Watch out for wild animals, especially poisonous snakes that may have come into your home with the floodwater.
- If you smell natural or propane gas or hear a hissing noise, leave immediately and call the fire department.
- If power lines are down outside your home, do not step in puddles or standing water.
- Keep children and pets away from hazardous sites and floodwater.
- Materials such as cleaning products, paint, batteries, contaminated fuel and damaged fuel containers are hazardous. Check with local authorities for assistance with disposal to avoid risk.
- During cleanup, wear protective clothing, including rubber gloves and rubber boots.
- Make sure your food and water are safe. Discard items that have come in contact with floodwater, including canned goods, water bottles, plastic utensils and baby bottle nipples. When in doubt, throw it out!
- Do not use water that could be contaminated to wash dishes, brush teeth, prepare food, wash hands, make ice or make baby formula.
- Contact your local or state public health department for specific recommendations for boiling or treating water in your area after a disaster as water may be contaminated.

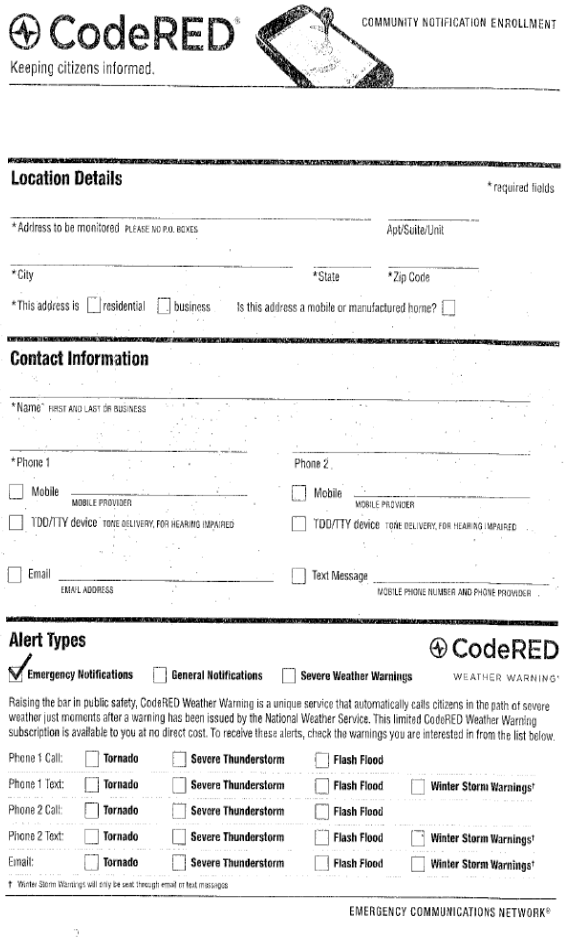
Let Your Family Know You're Safe

If your community experiences a flood, or any disaster, register on the American Red Cross Safe and Well Web site available through RedCross.org/GetInvolved/SafeAndWell to let your family and friends know about your welfare. If you don't have Internet access, call 1-866-GET-INFO to register yourself and your family.

American Red Cross

For more information on disaster and emergency preparedness, visit RedCross.org

Copyright © 2009 by the American National Red Cross | Stock No. 658522 1/10



CodeRED

Keeping citizens informed.

COMMUNITY NOTIFICATION ENROLLMENT

Location Details

*required fields

*Address to be monitored PLEASE NO P.O. BOXES

Apt/Suite/Unit

*City

*State

*Zip Code

*This address is ☐ residential ☐ business Is this address a mobile or manufactured home? ☐

Contact Information

*Name FIRST AND LAST OR BUSINESS

*Phone 1

Phone 2

☐ Mobile MOBILE PROVIDER

☐ TDD/TTY device TONE DELIVERY, FOR HEARING IMPAIRED

☐ Email EMAIL ADDRESS

☐ Text Message MOBILE PHONE NUMBER AND PHONE PROVIDER

Alert Types

CodeRED WEATHER WARNING

☑ Emergency Notifications ☐ General Notifications ☐ Severe Weather Warnings

Raising the bar in public safety, CodeRED Weather Warning is a unique service that automatically calls citizens in the path of severe weather just moments after a warning has been issued by the National Weather Service. This limited CodeRED Weather Warning subscription is available to you at no direct cost. To receive these alerts, check the warnings you are interested in from the list below.

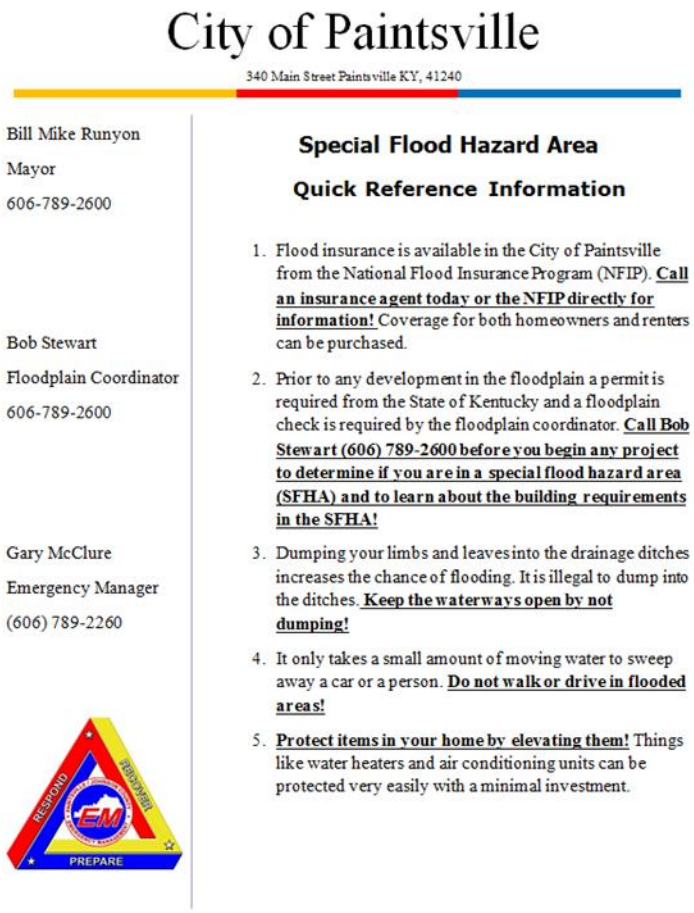
Phone 1 Call:	☐ Tornado	☐ Severe Thunderstorm	☐ Flash Flood	
Phone 1 Text:	☐ Tornado	☐ Severe Thunderstorm	☐ Flash Flood	☐ Winter Storm Warnings†
Phone 2 Call:	☐ Tornado	☐ Severe Thunderstorm	☐ Flash Flood	
Phone 2 Text:	☐ Tornado	☐ Severe Thunderstorm	☐ Flash Flood	☐ Winter Storm Warnings†
Email:	☐ Tornado	☐ Severe Thunderstorm	☐ Flash Flood	☐ Winter Storm Warnings†

† Winter Storm Warnings will only be sent through email or text messages

EMERGENCY COMMUNICATIONS NETWORK®

Flyers have also been created and placed throughout the City to help educate the public on flood related topics. Flyers have been placed at City Hall, Emergency Managers Office, City of Paintsville Recreation Center, Johnson County Extension Office, and Johnson County Health Department. The flood related topics are specific to the Community Rating System, and will help educate the public. Figure 4 is a copy of the flyer at the five locations.

Figure 4 Outreach Flyer



City of Paintsville

340 Main Street Paintsville KY, 41240

Bill Mike Runyon
Mayor
606-789-2600

Bob Stewart
Floodplain Coordinator
606-789-2600

Gary McClure
Emergency Manager
(606) 789-2260

Special Flood Hazard Area

Quick Reference Information

1. Flood insurance is available in the City of Paintsville from the National Flood Insurance Program (NFIP). **Call an insurance agent today or the NFIP directly for information!** Coverage for both homeowners and renters can be purchased.
2. Prior to any development in the floodplain a permit is required from the State of Kentucky and a floodplain check is required by the floodplain coordinator. **Call Bob Stewart (606) 789-2600 before you begin any project to determine if you are in a special flood hazard area (SFHA) and to learn about the building requirements in the SFHA!**
3. Dumping your limbs and leaves into the drainage ditches increases the chance of flooding. It is illegal to dump into the ditches. **Keep the waterways open by not dumping!**
4. It only takes a small amount of moving water to sweep away a car or a person. **Do not walk or drive in flooded areas!**
5. **Protect items in your home by elevating them!** Things like water heaters and air conditioning units can be protected very easily with a minimal investment.

3. Agency Coordination

Many agencies at the local, state and federal level are involved in the mitigation of hazards. It was important for the City of Paintsville to review existing plans and studies while coordinating with relevant agencies to fully develop the floodplain management plan.

3.1 Review of Existing Information

Developing a comprehensive plan required the study of existing reports. This includes reports and plans developed by the City of Paintsville and other agencies that are relevant to floodplain management. The information reviewed includes:

Kentucky State Hazard Mitigation Plan

Big Sandy Regional Hazard Mitigation Plan

City of Paintsville GIS data

FEMA example plans include: Arnold, Missouri; Conway, South Carolina; Gurnee. Illinois; Huntsville, Alabama; Lewes, Delaware; Oregon City, Oregon; Oyster Bay, New York.

1992 Paintsville City Flood Study

Levisa Fork Watershed Risk Report

3.2 Coordination

During the development of the Paintsville FMP the following agencies were contacted to determine how their programs affect or could support the City's Floodplain management efforts. In some cases, agency and organization representatives were/are part of the FMP committee.

Organizations contacted were as follows:

Division of Water

Army Corp of Engineers

Natural Resource Conservation Service

National Weather Service

At the end of the planning process, each of the agencies was sent a copy of the draft FMP and was asked to comment before the June 12, 2018 public meeting.

4. Assess the Hazard

4.1 Flood Hazards

Flooding is one of the most frequent and disruptive hazards that can occur. Flooding happens when water overwhelms its usual boundaries and engulfs normally dry land. Floods result when a channel receives too much water and the excess flows over the banks into the surrounding areas. Historical floods are indications of what can happen in the future, however flood studies and management plans are based on the risk of future flooding.

The recurrence interval is an estimate of the likelihood of an event, such as an earthquake, flood, landslide, or a river discharge flow to occur. For example, the probability of a 50-year storm event has a two percent chance of happening in any given year. The term "50-year flood" is often misunderstood to mean once every fifty years.

The following sections include a discussion and maps of known flood hazards and historical account of flooding in the city.

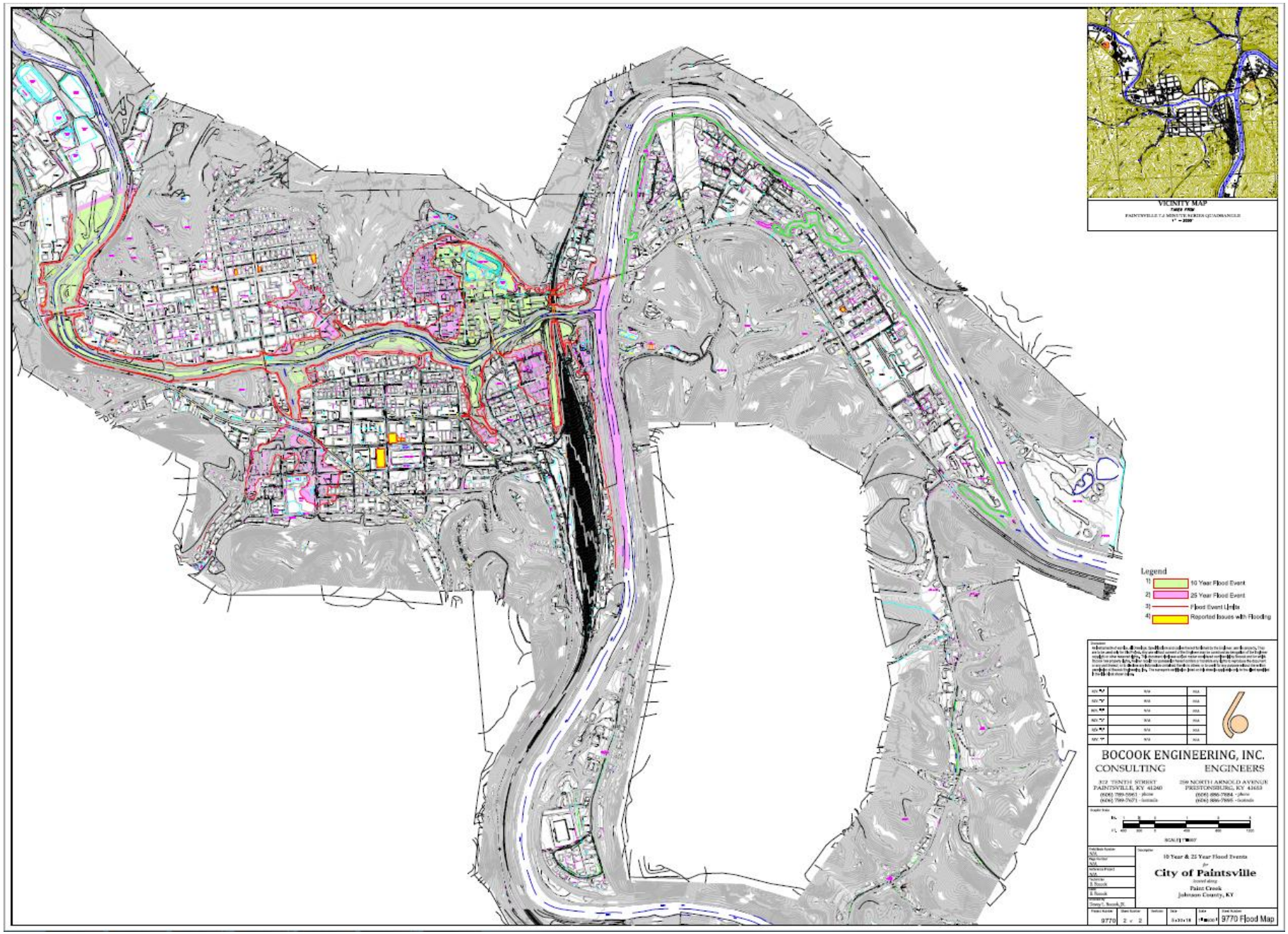
4.1.1 Map of Known Flood Hazards

The city of Paintsville experiences two primary types of flooding: riverine and localized. Riverine flooding is associated with water overflowing the stream banks onto adjacent areas, while localized flooding is often due to the capacity of the storm sewer system, especially in low-lying areas. Riverine flooding is more widespread while localized flooding is contained to a smaller area. The NWS has specific parameters for the definition of flash flood; but these events are generally characterized by a rapid rise in water, high velocities and large amounts of debris.

Two primary factors influence the extent of flooding: rainfall and the condition of the watershed. Rainfall can be widespread and slow moving, or smaller intense systems. Large amounts of perception received over a short period of time result in fast rising waters.

A watershed is an area that drains into a lake, stream or other body of water. The condition of the watershed affects what happens to the rainfall. More water will run off if the terrain is steep, if the ground is fully saturated from previous rains or if the watershed is covered with impervious cover such as roadways, buildings and parking lots. Below is a map of the known flood hazards in Paintsville (Figure 5).

Figure 5 Flood Hazards*Appendix C (ledger size map)



4.1.2 Description of Flood Hazards

This subsection includes a more detailed description of the known flooding locations The City of Paintsville has several areas that have the greatest potential for river flooding throughout the city. The nine streets within the city that are mostly likely to impacted by river flooding include; Rt. 40 (Euclid Ave.), Rail Road Street, Frank Street, Preston Street, Bridge Street, State Street, Maple Street, Boyd Street, and Short Street. Areas in the city impacted by localized flooding are Main Street, Second Street, Fifth Street, Tenth Street, and Jefferson Street.

When the water reaches 32 feet at the USGS gage in Paintsville, which is located on the KSP Trooper Alex Rubado Memorial Bridge on Euclid Avenue/ Route 40 E, water covers low spots on the underpass of KY RT. 40. At 35 feet low lying areas flood, the underpass at KY RT. 40 closes, separating the town east of the river and allowing flooding to begin on Bridge Street. When the water levels reach 38 feet, moderate flooding occurs and water begins to enter houses along Bridge Street, Frank Street, and Euclid Avenue. Major flooding occurs when water reaches the 42 feet mark, and at the 45.92 flooding will exceed the highest recorded on the gage. Approximately 90% of business and eighty percent of homes will be flooded.

4.1.3 Historical Floods

The City has seen damaging floods in the past. Table 4 gives a brief description of Paintsville's flooding history.

Table 4 Historical Floods

Year	Date	River Crest
1862	February 1	46.60 ft
1918	January 29	42.00 ft
1918	January 18	40.70 ft
1929	March 24	42.00 ft
1932	January 31	37.37 ft
1934	March 4	36.60 ft
1935	March 13	35.14ft
1939	February 4	42.15 ft
1946	January 9	41.06 ft
1948	February 15	39.15 ft
1950	February 3	38.88 ft
1955	March 1	41.36 ft
1955	March 7	36.20 ft
1955	March 17	35.10 ft
1956	April 17	36.81 ft
1957	January 31	45.92 ft

1958	May 9	41.06 ft
1962	February 27	38.57 ft
1963	March 14	44.20 ft
1967	March 3	37.85 ft
1972	March 8	37.85 ft
1972	February 26	37.26 ft
1974	January 12	35.17 ft
1977	April 6	42.19 ft
1978	December 9	34.21 ft
1984	May 9	40.35 ft
2003	December 9	34.21 ft

The flood of 1957 peak stage was about seven-tenths of a foot lower than that of the flood in 1862, but exceeded the previous maximum in 31 years of record by 3.8 feet. Approximately seven hundred (700) residences in Paintsville were flooded. The City received advance warning and was able to evacuate two hundred (200) families. One life was lost during the flood due to exploding gas. The damage to the City of Paintsville totaled 4 million dollars. The flooding events in Paintsville have drastically declined since the construction of the Paintsville damn in 1983. Since 1983, the river has only had flood level crests in 1984 and 2003.

The following are pictures submitted by residents of the City of Paintsville. The City of Paintsville would like thank those residents that submitted pictures for use.

Above: City of Paintsville March of 1955

Below: Copy of the Paintsville Herald Special Edition April 1977.

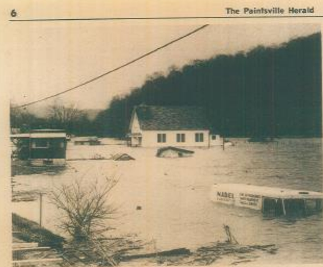

1977 Flood Photos

The Paintsville Herald

SPECIAL EDITION 20c Per Copy

Tuesday, April 12, 1977 — Paintsville, Johnson County, Kentucky


Tuesday, April 12, 1977 The Paintsville Herald 3



AT EAST POINT water covered emergency vehicles and crept to the bottom of the pews in the Church of Christ.

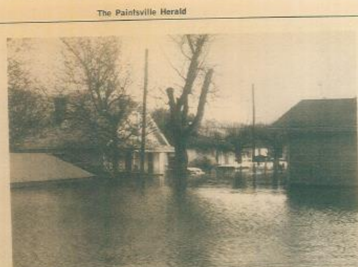
PLENTY OF WATER around the car wash but few takers.

WALKING ALONG EUCLID was possible Thursday if one remembered to wear hip boots. Mark Trimble, left, provides people power for the boat carrying the Herald photographer.

ON STANDBY were boats for use by the Paintsville Fire Department. With water completely covering Euclid Avenue, the boats were also the best means of getting to the Paintsville Hospital.

A TRAILER COURT behind the Paintsville-Prestonsburg airport was nearly covered by the rising waters from the Levisa Fork.

NO CALLS were being made, or accepted, at this phone booth on Euclid Avenue Thursday.



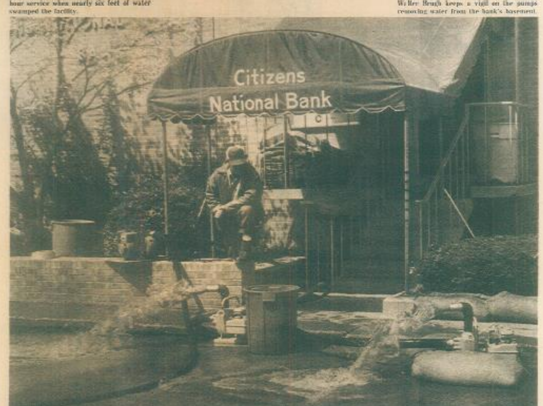
SWAMPED CARS were commonplace around the east side of town. Here, behind Preston Street, the water was nearly five feet deep.

WHEN THE WATER began to recede along West Street, this homeowner took broom in hand to make sure the mud went along with it.

LEFT BEHIND when the tractor pulling this tanker-trailer stalled in the high water at the railroad underpass, this rig was nearly covered in the over eight-foot deep water.

SCOTTIE TOWN on Euclid Avenue at Depot Road, had to break from its traditional 24-hour service when nearly six feet of water swamped the facility.

PUMPING-OUT OPERATIONS were commonplace. At Citizens National Bank, Weller Brugh keeps a vigil on the pumps removing water from the bank's basement.



4.1.4 Other Hazards

Although this particular plan is focused on flooding hazards, other natural hazards threaten the City of Paintsville. Those hazards include: severe thunderstorm, high wind or tornadoes, hurricanes, winter storms, earthquakes, wild fires, and landslides. The city of Paintsville is part of the Big Sandy Reginal Hazard Mitigation Plan that covers all other hazards in more detail. This plan is designed to specifically address flooding issue within the City.

5. Assess the Problem

5.1 Overview of Vulnerability and Impact on Community

The City of Paintsville lies within the Lower Levisa Watershed. The City has a community land area of 6.2 square miles. Of the 6.2 square miles, 0.8 sq mi is in the Special Flood Hazard Area, while 0.3 sq mi is in the Floodway. The terrain in Paintsville is mainly flat near the center of town with hilly areas being located near the northern and southern corporate limits. Approximately 80 percent of all commercial and residential development lies within the Lower Levisa Fork and Paint Creek floodplains. Floods can happen during any season, as a result from periods of general rainfall over the entire area to short intense periods of localized storms common to the region. The City of Paintsville has also been prone to surface flooding as well. The City has embarked on project to address flooding issues such as acquisition of flood prone areas and community outreach. The following section evaluates the potential impact of flooding in Paintsville with respect to:

- Impact of Flood Hazard
    - Life, Safety and Health
    - Critical Facilities and Infrastructure
    - Economy and Tax Base
- Building Subject to the Flood Hazard
- Insurance Claims Review
- Natural and Beneficial Function

5.2 Impact of Flood Hazard

Floods may have a significant impact on the community. Concerns of the impact include the health and safety of the community, critical facilities that provide assistance during an emergency, and how the economy may be affected as a result of a flood.

5.3 Impact on Life, Safety and Health

Hazard Warning

The National Weather Service out of Jackson, Kentucky provides hydrologic products to the City of Paintsville and surrounding areas. Flash flood watches and warnings are issued to inform the public when a threat is possible or imminent. The public would be notified by radio, television, and through the Code Red phone notification system.

Life

Flooding is a leading cause of weather related deaths in the United States. Throughout the flooding events that have affected Paintsville historically, there is only one known fatality that has been reported due to flooding in the City. In 1957 one individual lost their life during the major flood due to exploding gas.

Safety

Floods bring a host of safety concerns. The main concern is direct result of the floodwaters, while other is secondary and results from the damage caused by the flooding. Some primary safety concerns for Paintsville include: people being trapped in homes, or on roofs and cars, and automobiles entering floodwaters that have overtopped roadways and being swept downstream. Secondary concerns include downed power lines and damage to bridges and roadways and landslides.

No areas with moving floodwater can be considered safe and pedestrians and vehicles should exercise extreme caution and not enter moving waters. Moving waters should be considered extremely dangerous and avoided by pedestrians and vehicles.

Electrocution is the second most frequent cause of flood deaths, claiming lives in flooded areas that carry a live current created when electrical components short out or power lines are damaged. Floods also can damage utilities, roadways, and buildings creating secondary hazards such as gas leaks, unsafe structures, and fire, which are particularly damaging in areas made inaccessible to fire-fighting equipment by high water or flood related road or bridge damage.

Health

There are three general types of health problems that accompany floods. Floodwaters carry whatever was on the ground that the upstream runoff picked up, including industrial chemicals, dirt, oil, animal waste, and any chemicals applied to lawns or used on farms. Pastures and areas where cattle and hogs are kept can contribute polluted waters to the flood flow. In addition, the ground becomes statured which leads to infiltration into sanitary sewer lines which place additional strain on wastewater treatment plants. When wastewater treatment plants are flooded or overloaded, there is nowhere for the sewage to flow and it may result in sewer lines backing up into low lying areas and homes. Even though diluted by floodwaters, raw sewage can be breeding ground for bacteria and other disease causing agents.

Stagnant pools become breeding grounds for mosquitoes, and wet areas of a building that have not been cleaned breed mold and mildew. A building that is not thoroughly and properly cleaned becomes a health hazard, especially for small children and the elderly. Another health hazard occurs when heating ducts in a forced-air system are not properly cleaned after inundation. When the furnace or air condition is turned on, the sediments left in the duct are circulated throughout the building and breathed in by the occupants.

The third problem is the long-term psychological impact of having been through a flood and seeing one's home damaged and irreplaceable keepsakes destroyed. The cost and labor needed to repair a flood damaged home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term worry for those who know that their homes can be flooded again.

5.4 Impact on Critical Facilities and Infrastructure

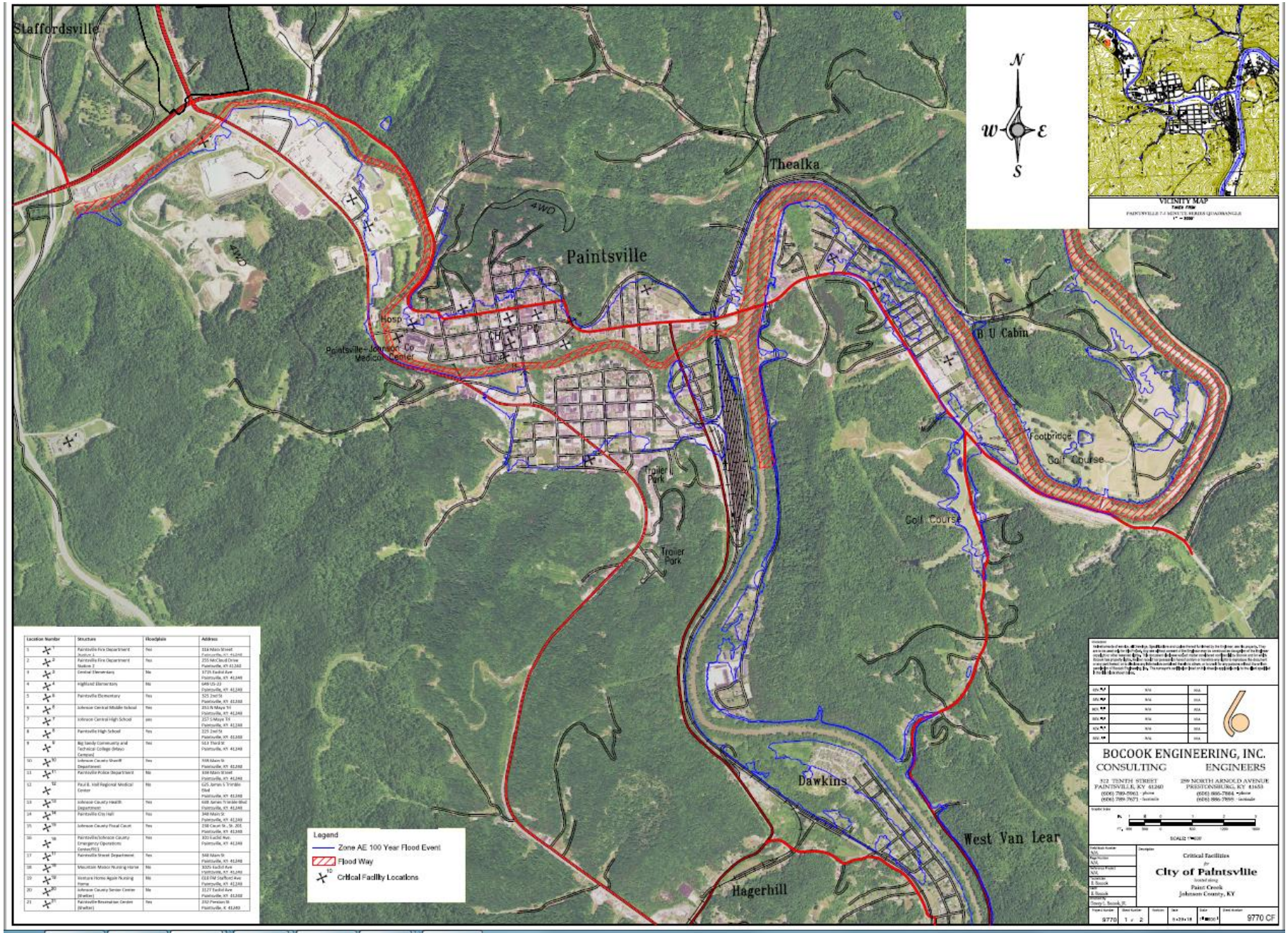
FEMA defines critical facilities as hospitals, fire stations, police stations, storage of critical records, and similar facilities. The Floodplain Management Committee completed a list of structures that are considered critical within the city. Table 5 is a list of critical facilities and if they are located within the floodplain.

Table 5 Critical Facilities

Structure	Floodplain	Floodplain Designation
Paintsville Fire Department Station 1	Yes	100 year Floodplain
Paintsville Fire Department Station 2	No	100 year Floodplain
Central Elementary	No	500 year Floodplain
Highland Elementary	No	N/A
Paintsville Elementary	Yes	100 year Floodplain
Johnson Central Middle School	No	100 year Floodplain
Johnson Central High School	No	500 year Floodplain
Paintsville High School	Yes	100 year Floodplain
Big Sandy Community and Technical College (Mayo Campus)	Yes	100 year Floodplain
Johnson County Sheriff Office	Yes	100 year Floodplain
Paintsville Police Department	No	100 year Floodplain
Paul B. Hall Regional Medical Center	No	500 year Floodplain
Johnson County Health Department	Yes	100 year Floodplain
Paintsville City Hall	Yes	100 year Floodplain
Johnson County Fiscal Court	Yes	100 year Floodplain
Paintsville/Johnson County Emergency Operations Center/911	Yes	100 year Floodplain
Paintsville Street Department	Yes	100 year Floodplain
Mountain Manor Nursing Home	No	N/A
Venture Home Again Nursing Home	No	500 year Floodplain
Johnson County Senior Center (Shelter)	No	500 year Floodplain
Paintsville Recreation Center (Shelter)	Yes	100 year Floodplain

The City of Paintsville has identified twenty-one critical facilities, eleven of which are in the floodplain. The number of critical facilities located in the floodplain makes it especially important for careful planning in the Floodplain Management Plan. Figure 6 is a map of critical facilities in the City of Paintsville.

Figure 6 Critical Facilities *Appendix D (Ledger Size)



5.5 Flood Risk Assessment

City of Paintsville's flood risk analysis used results published in the Lower Levisa Watershed, KY Flood Risk Report, from a FEMA-performed Hazus analysis which accounts for newly modeled areas in the Flood Risk Project and newly modeled depths for certain flood events. The information can be seen below in Figure 7.

Figure 7 Estimated Potential Losses for Flood Events

	City of Paintsville: Estimated Potential Losses for Flood Event Scenarios											
	Total Inventory		10% (10-yr)		2% (50-yr)		1% (100-yr)		0.2% (500-yr)		Annualized ($/yr)	
	Estimated Value	% of Total	Dollar Losses[1]	Loss Ratio[2]	Dollar Losses[1]	Loss Ratio[2]	Dollar Losses[1]	Loss Ratio[2]	Dollar Losses[1]	Loss Ratio[2]	Dollar Losses[1]	Loss Ratio[2]
Residential Building and Contents Losses	$275,649,870	41.6%	$13,100,000	4.7	$26,100,000	9.5	$48,700,000	17.7	$82,500,000	29.9	$1,700,000	0.6
Commercial Building and Contents Losses	$282,543,520	42.6%	$20,700,000	7.3	$48,200,000	17.1	$79,600,000	28.2	$130,000,000	46.0	$2,800,000	1.0
Other Building and Contents Losses	$105,233,780	15.9%	$3,100,000	3.0	$11,000,000	10.4	$24,400,000	23.2	$47,100,000	44.8	$800,000	0.7
Total Building and Contents Losses[3]	$663,427,170	100.0%	$36,900,000	5.6	$85,200,000	12.9	$152,700,000	23.0	$259,600,000	39.1	$5,300,000	0.8
Business Disruption[4]	N/A	N/A	$500,000	N/A	$1,700,000	N/A	$3,300,000	N/A	$5,200,000	N/A	$100,000	N/A
TOTAL[5]	$663,427,170	100.0%	$37,500,000	5.7	$87,000,000	13.1	$156,000,000	23.5	$264,800,000	39.9	$5,400,000	0.8

Source: Hazus analysis results stored as the Flood Risk Assessment Dataset in the Flood Risk Database.
[1]Losses shown are rounded to nearest $10,000 for values under $100,000 and to the nearest $100,000 for values over $100,000.
[2]Loss ratio = Dollar Losses ÷ Estimated Value. Loss Ratios are rounded to the nearest tenth of percent.
[3]Total Building and Contents Losses = Residential Building and Contents Losses + Commercial Building and Contents Losses + Other Building and Contents Losses.
[4]Business Disruption = Inventory Loss + Relocation Cost + Income Loss + Rental Income Loss + Wage Loss + Direct Output Loss.
[5]Total Loss = Total Building and Contents Losses + Business Disruption

The figures in this table only represent information within the City of Paintsville

5.6 Insurance Claims Review

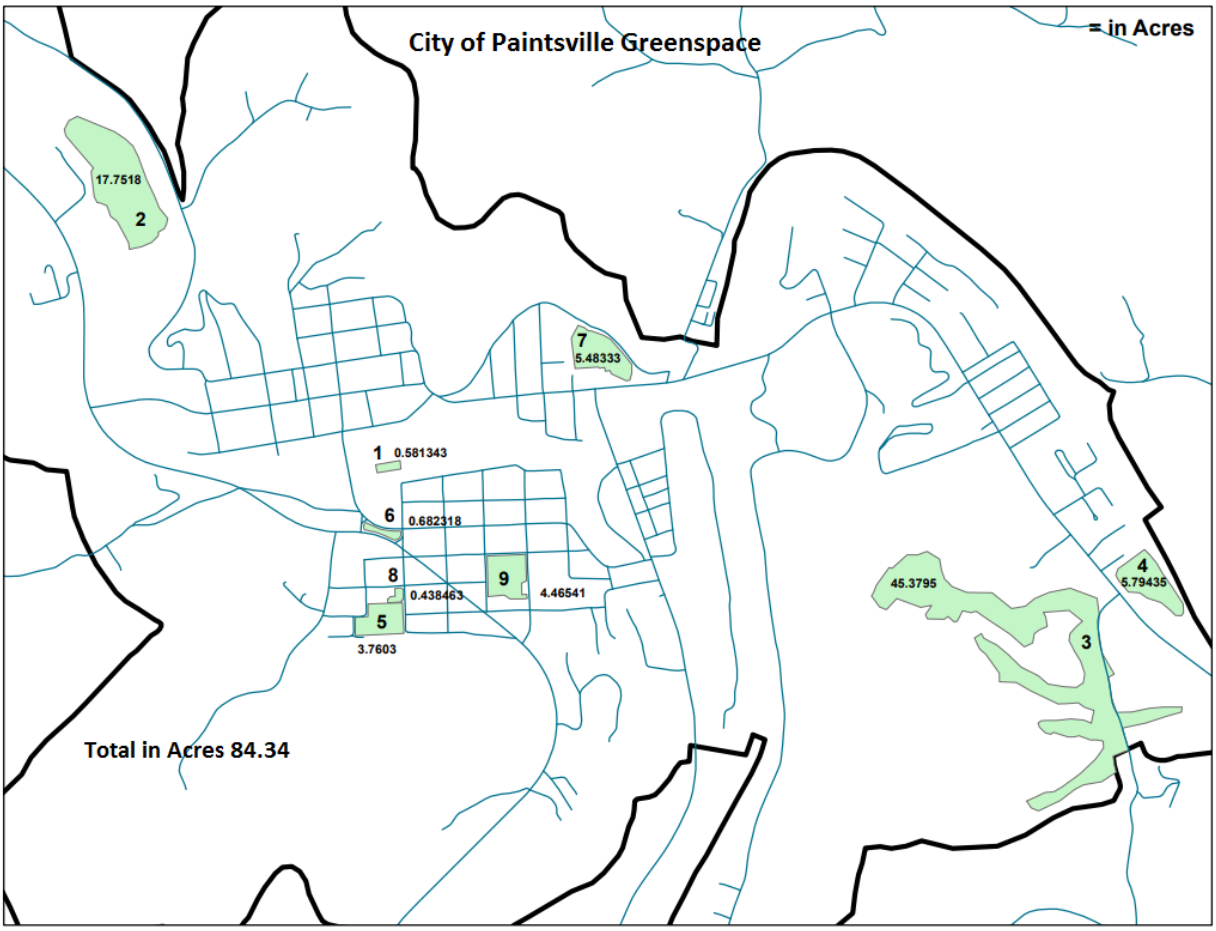
The City of Paintsville participates in the National Flood Insurance Program, and the Community Rating System incentive program. As of May 29, 2018 the City of Paintsville has 183 flood insurance policies. There have been 79 paid claims totaling $743,000+ since 1978.

5.7 Natural and Beneficial Functions

Floodplain areas and adjacent waters combine to form a complex and dynamic physical and biological system found nowhere else. When parts of floodplains are preserved in their natural state, or restored to it, they provide many benefits to natural as well as human systems.

The City of Paintsville currently has no wetlands. The city does have open space that has been acquired in the past. Some areas have been developed into parks. The City of Paintsville has a total of 84.34 acres of open/green space. A map of the greenspace areas can be viewed below.

Figure 8 Greenspace



6. Set Goals

The Floodplain Management Plan Committee discussed setting long range goals to address the flood-related problems identified in Step 5. Committee members were asked to think about goals for the plan prior to the meeting. Several committee members reported using the internet to look at Flood Mitigation Plans in other communities, as well as studying the Huntsville, AL plan. After a detailed discussion, the committee agreed on five overall goals.

6. Protect life and health from flooding
7. Mitigate the effects of flooding on new and existing development.
8. Improve the quality of life in the city
9. Secure the resources needed to implement the Flood Mitigation Plan
10. Improve flood response and recovery

7. Review Possible Activities

FEMA CRS program classifies floodplain management activities into six categories:

1. Preventive Activities
2. Property Protection Activities
3. Natural Resource Protection Activities
4. Emergency Service Activities
5. Structural Projects
6. Public Information Activities

7.1 Preventive Activities

Preventive measures are designed to keep the problem from occurring or getting worse. The objective is to prevent future development from increasing flood damage. Preventive measures are usually administered by building, zoning, planning, and/or code enforcement offices.

7.1.1 Planning

Comprehensive planning defines how a community should be developed and where development should not occur. Use of land can be defined to match the land's hazards, in this case typically by reserving flood hazard areas for parks, greenways, golf courses, backyards, natural areas, or similar compatible uses.

The City of Paintsville does not have a comprehensive plan in one document. The City does have a number of adopted plans which are specific in nature. Examples of adopted plans are Downtown Streetscape Plan, Tourism Plan, Water Trail Master Plan, and Downtown Development Plan.

7.1.2 Open/Green Space Preservation

Keeping the floodplain free from development is the best approach to preventing flood damage. The adopted Flood Damage Prevention ordinance requires a permit for development in the Special Flood Hazard Areas. The city of Paintsville currently has 84.34 acres of open/green space.

7.1.3 Zoning & Subdivision Regulations

The City of Paintsville has adopted a Zoning Ordinance. The zoning ordinance divides the community into residential districts, business districts, and industrial districts. The developments in these zones are still same in regards to development in the Special Flood Hazard Areas and require permitting. Subdivision Regulation also is also the same requirement in regards to flooding and development of the Special Flood Hazard Areas.

7.1.4 Building Codes & Floodplain Development Regulations

Flood protection standards for all new and improved or repaired buildings can be incorporated into the local building codes. The City of Paintsville has adopted Building Regulations and Flood Damage Prevention that include higher standers, codes and, guidelines. These ordinances require all new construction or substantial improvements to follow strict regulations. Examples of requirements include the construction to be done with materials and utility equipment resistant to flood damage, and the

lowest floor, including basement be elevated one foot above base flood elevation in Special Flood Hazard Areas.

7.1.5 Storm Water Management

Development outside a floodplain can contribute significantly to flooding problems. Runoff is increased when natural ground cover is replaced by urban development. The City of Paintsville Street Department keeps track of issues with storm water. It has been suggested that analyzing this data might be valuable to future projects regarding storm water damage.

7.1.6 Preventive Activities Considered

After evaluating preventive measure activities, the Paintsville Floodplain Management Committee developed the following recommendation for consideration as:

1. The City should reduce flooding hazards through the development of engineering studies.
2. The City should review the Zoning Ordinance's flood protection standards to ensure appropriate protection is afforded floodplain properties. This is a current practice by the City of Paintsville, but important to keep implementing.
3. The higher regulatory standards credited by CRS should be used as a checklist to determine where the floodplain regulations could be strengthened.
4. The City should proceed to prepare storm water management master plans on all watersheds subject to future development. Those plans should set appropriate standards for new developments.
5. Improve storm water drainage in the City. The City of Paintsville should work closely with other agencies to look for ways of funding projects that will improve storm water drainage in the city.

7.2 Property Protection Activities

Property protection measures are used to modify buildings subject to flood damage rather than to keep floodwaters away. A community may find these to be relatively inexpensive measures because often they are implemented by or cost-shared with property owners. The measures include:

1. Relocation
2. Acquisition
3. Building Elevation
4. Local Barriers
5. Sewer Backup Protection
6. Insurance

7.2.1 Relocation

Relocating a structure out of a SFHA preserves the building and removes it from harm's way. Relocation has the added benefit of allowing a portion of the floodplain to return to its natural condition. Relocation can be more expensive than elevation; however, it can provide an additional level of protection not offered by elevation techniques.

7.2.2 Acquisition

Acquisition projects are initiated and paid for by government agencies such that the property can be converted to public use and remain free of structures. Acquisition projects are able to return the natural function of the floodplain to the property. It should be noted that the displacement of communities is a potential social issue associated with large scale acquisition projects.

7.2.3 Building Elevation

Raising a building above the flood level is the best on-site property protection method. Water flows under the building causing little or no damage to the structure or its contents.

Alternatives are to elevate on continuous foundation walls (creating an enclosed space below the building such as a crawlspace or lower level) or piers, or elevation on compacted earthen fill.

New residential buildings have been required to be elevated in Paintsville's floodplains. The City requires that new residential structures be built at a minimum elevation of the BFE plus one foot.

7.2.4 Local Barriers

Barriers keep surface floodwaters from reaching a building. A barrier can be built of soil (berm) or concrete or steel (floodwall). A typical design for earthen berms is three horizontal feet for each vertical foot (3:1 slope). As a result, an area 6 feet wide is the minimum needed for each foot in height. Floodwalls need less room, but are more expensive. Barriers must be placed so as not to create flooding or drainage problems on neighboring properties. Also they cannot be constructed in the floodway. Depending on how porous the ground is, if floodwaters stay up for more than an hour or two, a barrier needs to handle leaks, seepage of water beneath, and rainwater that falls inside its perimeter.

7.2.5 Sewer Backup Protection

Cross connections between sanitary and storm sewer systems and infiltration and inflow can overload the sanitary sewers during a storm. Buildings that have downspouts, footing drain tile, and sump pump connected to the storm sewer service may be flooded inside during heavy local rains. Eliminating such connection and allowing rain and surface water out onto the ground where it will flow away from the building should be considered. Four other approaches may be used to protect a structure against sewer backup: plugs, stand-pipes, overhead sewers, and backflow protection valves.

7.2.6 Insurance

Flood insurance has the advantage that, as long as the policy is in force, the property is protected and no human intervention is needed for the measure to work. Although most homeowner's insurance policies do not cover a property for damage from rising water, an owner can insure a building for such damage through the NFIP. Flood insurance coverage is provided for insurable buildings and their contents damaged by a "general condition of surface flooding" in the areas. It should be noted that residents are required to carry flood insurance on properties in the floodplain for 100% of the mortgage value. Approximately 67% of city residents have a mortgage. There are currently 183 NFIP in the City of Paintsville. The total written premium in-force equals $209,119. The average premium within the City equals $1,142.73.

7.2.7 Property Protection Activities Considered

After evaluating property protection activities, the Paintsville Floodplain Management Committee developed the following recommendation for consideration as:

1. When flood protection alternatives are considered for any particular site, property protection measures should be considered along with the traditional flood control alternatives.
2. Property owners should be advised of the property protection measures that can help them reduce flood losses.
3. The City should pursue the following activities to encourage and support measures taken by property owners:
    a. Public information
    b. Outside funding sources that can assist property owners in funding property protection measures, especially after a disaster declaration.
4. The City should publicize projects that have been implemented by property owners in the past.

7.3 Natural Resource Protection Activities

Natural resource protection activities are generally aimed at preserving or in some cases restoring natural areas. These activities enable the naturally beneficial functions of floodplains and watersheds to be better realized.

7.3.1 Erosion Prevention and Sedimentation Control

Construction sites typically contain large areas of bare exposed soil. Surface water runoff can erode soil from these sites, sending sediment into downstream waterways. Sediment tends to settle where flowing water slows down and loses power. Sedimentation will gradually fill in channel and lakes, reducing their ability to carry or store floodwaters. Slowing surface water runoff on the way to a drainage channel increases infiltration into the soil and reduces the volume of soil eroded from the site. Runoff can be slowed down by terraces, sediment fences, constructed wetlands, and impoundment such as sediment basins.

7.3.2 Stream Restoration

Over the past decade stream restoration has become an established practice across the country. The objective is to return streams, stream banks and adjacent land to a more natural condition. Key components of these efforts include natural channel design and the use of appropriate native plantings along the banks that resist erosion. Studies have shown that after establishing the right vegetation, long-term maintenance costs are lower than if the banks were concrete. The NRCS estimates that over a 10 year period, the combined costs of installation and maintenance of a natural landscape may be a fifth of the cost of conventional landscape maintenance.

7.3.3 Dumping Regulation

Dumping regulations address solid matter like shopping carts, appliances, tires, and landscape waste that can be accidently or intentionally thrown into the waterways. This material can pollute the water and obstruct low flow events. Waterway dumping regulation need to also apply to less objectionable

materials, such as grass clippings or tree branches which can kill ground cover, cause obstructions in waterways, and increase nutrient loadings.

7.3.4 Natural Resource Protection Activities Considered

After evaluating natural resource activities, the Paintsville Floodplain Management Committee developed the following recommendation for consideration as:

1. The City should incorporate stream restoration-type approaches in plans for channel improvement and maintenance.
2. Standards for Dumping regulation should be reviewed to see if they should be expanded or added into existing ordinances.
3. The City should create a cleanup project that would clear the banks of waterways.
4. City procedures should be reviewed to close any gaps in enforcement of existing ordinances.

7.4 Emergency Service Activities

Emergency services measures protect people during and after a flood. These measures are coordinated by the Johnson County/City of Paintsville Emergency Management. The main guidance for population protection measures is the Emergency Operations Plan (EOP). Emergency services measures include the following:

1. Flood Detection
2. Flood Warning
3. Flood Response
4. Critical Facilities Protection
5. Post-Disaster Recovery and Mitigation

7.4.1 Flood Detection

The first step in responding to a flood is to know that one is coming, this means detection is important. Without a proper and timely flood threat detection system, adequate warning by the NWS cannot be disseminated. The NWS is the primary agency responsible for the flood detection. There is a USGS gage located at KSP Trooper Alex Rubado Memorial Bridge on Euclid Avenue/ Route 40 E in the City. This helps to assist the NWS tracking abilities Flood threat predictions are disseminated on National Oceanic and Atmospheric (NOAA) Weather Radio. NOAA Weather Radio is considered by the federal government as the official source for weather information. The NWS issues notices to the public in two levels of notifications. A flood watch is where conditions are right for flooding and a flood warning is where a flood has started or is expected to occur. A flash flood warning can also be issued.

7.4.2 Flood Warning

After the flood threat detection system tells the Emergency Management Coordinator that a flood is coming, the next step is to notify the public and staff of other agencies and critical facilities that a flood is imminent. The earlier and the more specific the warning is the greater the number of people who can implement protection measures. A flood warning may be disseminated in a variety of ways. . The City of

Paintsville also has a unique warning system in place called Code Red. The Code Red system allows for residents to be notified when a threat is possible. The Code Red system can be used for all types of natural disasters. Residents are also alerted via radio, television stations, and social media.

7.4.3 Flood Response

The protection of life and property is the foremost important task of emergency responders. Concurrent with detection and issuing of flood warning by NWS, the community responds with actions that can prevent or reduce injuries and damage. A flood response or emergency action plan ensures that all bases are covered and that the response activities are appropriate for the expected flood threat.

Required drills and exercises should occur between floods to test functional capabilities for handling most emergency and disaster situation. Coordinated efforts are implemented by emergency management and emergency response groups who have experience working together so that available resources can be used more efficiently.

7.4.4 Critical Facilities Protection

Protecting critical facilities during a flood is the responsibility of the facility owner or operator. If a facility is not prepared for a flood, the rest of the community could be impacted. Working with critical facilities is crucial part for the emergency response teams. It is important that the facilities are prepared if disaster strikes, before the event happens.

7.4.5 Post-Disaster Recover and Mitigation

After a disaster, communities should undertake activities to protect public health and safety, and facilitate recovery. Recovery actions include patrolling evacuated areas to prevent looting, providing safe drinking water, monitoring for diseases, vaccinating residents for tetanus, instructing owners of flooded property in safe and healthy cleaning methods, clearing streets, cleaning up debris and garbage, and regulating reconstruction to ensure that it meets all code requirements, including the NFIP's regulation.

7.4.6 Emergency Service Activities Considered

After evaluating emergency service activities, the Paintsville Floodplain Management Committee developed the following recommendation for consideration as:

1. Emergency Management will research the ability to use weather sirens that are already in place to use as a warning system to the City.
2. Flood stage forecast maps should be prepared for the watersheds.
3. Alternative approaches to flood protection should be reviewed. Such approaches could include installing gages on Paint Creek.
4. A pilot flood stage forecast map and watershed-specific flood response plan should be prepared. The plan would include:
    a. Procedures that clarify when and how flood treats are detected
    b. How flood warning are issued
    c. What critical facilities are affected
    d. What support is needed by the critical facilities
    e. A specific list of flood response activities
    f. Resources needed

5. Evacuation Plan should be made for when Route 40 becomes obstructed.
6. Staff should review other community's post-flood mitigation procedures to determine if the current guidance should be modified or expanded.
7. If enough items are competed in regards to flood warning program to warrant a change in CRS class, a modification in the program should be requested.

7.5 Structural Projects

Structural projects have traditionally been used by cities to control flows and water surface elevations. Structural projects keep floodwaters away from an area. They are usually designed by engineers and managed or maintained by public works staff.

7.5.1 Reservoirs

Reservoirs control flooding by holding high flows behind dams or in storage basins. After a flood peaks, water is released or pumped out slowly at a rate that the river can accommodate downstream.

7.5.2 Levees and Floodwalls

The best known structural flood control measure is a barrier of earth known as a levee, or barrier of steel/concrete, referred to as a floodwall, that is erected between the watercourse and the properties to be protected. There are currently no levees or floodwalls in the City of Paintsville.

7.5.3 Structural Project Activities Considered

After evaluating structural project activities, the Paintsville Floodplain Management Committee developed the following recommendation for consideration as:

1. The City should conduct a study to determine where levees or floodwalls could be used.
2. Future flood control projects should incorporate appearance, long-term maintenance, water quality and habitat protection. Design of new projects should be coordinated with parks and landscaping projects.
3. Secured source of funding would help consolidate the City's flood control and maintenance activities and ensure that today's policies and objectives can be implemented over future years.

7.6 Public Information Activities

A successful floodplain management program involves both the public and private sectors. Public information activities advise property owners, renters, business, and local officials about flood hazards and ways to protect people and property from these hazards.

7.6.1 Map Information

Many benefits stem from providing map information to inquiries. The City of Paintsville currently provides these services at City Hall. Residents can contact City Hall for question regarding information on the flood maps.

7.6.2 Library

The local library and websites are another great way to get information to the public. The Public Library currently has documentation on flooding and way that residents can protect themselves. A community website with flood related material is also in the works for the City of Paintsville.

7.6.3 Outreach Projects

Outreach projects are important to let the residents know of the services available to them through City Hall, Library, and community website. It is important to get this information out to the public through flyers, radio announcements, newspaper articles, and social media. Currently flyers are distributed at City events like Spring Fling and Apple Day. Flyers are also available throughout the city at locations such as City Hall, Emergency Manager's Office, Johnson County Health Department, Johnson County Extension Office, and Paintsville Fire Department.

7.6.4 Real Estate Disclosure

Many times after a flood or other natural disaster, people say they would have taken steps to protect themselves if only they had known they had purchased a flood prone property. Federally regulated lending institutions must advise applicants for a mortgage or other secured loan for a building that the property is in a floodplain as shown on the FIRM and that they are required to purchase flood insurance as a condition of the mortgage/loan. In addition, in Kentucky the seller has obligations regarding disclosure of factors which have or may affect property, flooding being one such factor. Remembering, buying flood insurance only has to be completed prior to closing, the applicant should not have already committed to purchasing the property when he or she learns of the flood hazard. If this should happen, the seller of property and or real estate sales person could be responsible and or liable. {Truth in Lending Act (TILA) and the Real Estate Settlement Procedures Act of 1974 (RESPA)}

According to the Truth in Lending Act, the loan estimate from the lender must be delivered no later than three business days after loan application submission. The Loan Estimate is designed to provide disclosures that will be helpful to consumers in understanding the key features, costs, and risks of the mortgage loan for which they are applying. This should disclose potential loan costs including flood insurance. The second form (the Closing Disclosure) is designed to provide disclosures that will be helpful to consumers in understanding all of the costs of the transaction. The Closing Disclosure must be provided to consumers three business days before they close on the loan.

KY State laws and practices by local real estate boards, real estate professionals and responsible sellers should overcome this potential deficiency and advise newcomers about the hazard earlier. KY property owners and Realtors are required to disclose past flooding problems, regardless of whether the property is in a mapped floodplain.

KY Real Estate Law (201 KAR 11:350. SELLER'S DISCLOSURE OF PROPERTY CONDITIONS FORM RELATES TO: KRS 324.360 Section 1) and requires notification to a buyer that a property is in the floodplain. In addition, the same requirement also requires disclosure of any prior flooding of subject property.

Prudent sellers and buyers should know the requirements regarding flood insurance, flood plain, flood elevations, etc. Questions should be directed to the local Flood Plain Coordinator.

7.6.5 Educational Programs

A community's most important asset is its children. Educational programs can be done by schools, parks and recreation, and emergency departments. An activity can be as involved as course curriculum development or as simple as an explanatory sign near a river. The City Police and Fire Department are very interested in educating the youth about the dangers of flooding.

7.6.6 Public Information Activities Considered

After evaluating public information activities, the Paintsville Floodplain Management Committee developed the following recommendation for consideration as:

1. The City should implement and publicize the following services that will inform and assist property owners who want to protect themselves from flooding:
    a. Providing map and flood hazard data to inquiries. The City should pursue making this readily available to anyone via the City web site.
    b. Making sites visits to review problems and providing advice to the owner.
2. The following projects should be implemented to disseminate the message on flood hazard mitigation and City services:
    a. News releases and news articles on flood protection measures and the progress of implementing this FMP should prepared for the local media.
    b. A flood protection page should be developed for the City's website, including links to other sites that would help Paintsville residents.
    c. A homeowner's flood protection manual should be prepared, made available for interested residents and business and given to media that want to cover flood protection.
3. Public Information activities should cover the following topics:
    a. What the City is doing about flooding and storm water.
    b. The City's map information services
    c. Where residents can get help with flooding issues
    d. Flood safety
    e. Flood insurance
    f. The City's flood warning system and signals
    g. Permit requirements

8. Action Plan

Using knowledge gained by assessing flood hazards, the established goals and the recommendations as a result of reviewing the possible activities, the Floodplain Management Committee developed an Action Plan. The City of Paintsville is small, so the majority of the tasks listed will be the responsibility of the City. They action items are ranked, with one being the activity in each subsection with the highest priority.

8.1 Action Items

8.1.1 Preventive Activities

1. The City will work towards reducing flooding hazards through the development of engineering studies. The Mayor and Floodplain Coordinator will be responsible for implementing this action. Funding will need to be secured from an outside source such as a grant. The city has an expectation to complete this activity within two to three years.

2. Higher regulatory standards credited by CRS should be used as a checklist to determine where floodplain regulation could be strengthened. The Mayor and Floodplain Coordinator will be responsible for implementing this action. Funding responsibilities where applicable will be the responsibility of the city. This activity is expected to be completed within one year time frame.

3. The City will review the Zoning Ordinance's flood protection standards to ensure appropriate protection is afforded to floodplain properties. This is a current practice by the City of Paintsville, but it is important to continue implementing. The Mayor and Floodplain Coordinator are responsible for this activity. Funding responsibilities where applicable, will be the responsibility of the city. This activity is an ongoing activity and will be completed each year.

4. The City will look for ways to improve storm water drainage. The Mayor and Floodplain Coordinator will be responsible for this action. Outside funding sources such as grants will need to be explored as ways of improving the storm water drainage system. The City expects this activity to take three to five years.

8.1.2 Property Protection Activities

1. Property owners should be advised of property protection measures that can help them reduce flood losses. The Mayor and Floodplain Coordinator will be responsible for this activity. This will be an activity that should take one year to implement and funding responsibility will fall to the City.
2. The City should publicize projects that have been implemented by property owners in the past. The Mayor and Floodplain Coordinator will be responsible for this task, and funding responsibilities will fall to the City. Time to complete activity should be approximately one year.
3. The City will pursue the following activities to encourage and support measures taken by property owners:
    a. Public Information
    b. Outside funding sources that can assist property owners in funding property protection measures, especially after a disaster declaration

The Emergency Manager is currently implementing these activities but plans to keep them on going. This activity should be done yearly, or on an as needed basis. The funding will vary depending on the activity. Some responsibility will fall to outside sources, some will fall to the home owner, and other funding responsibilities will be to the City.

8.1.3 Natural Resource Protection Activities

1. The City will review current procedures to close any gaps in enforcement of existing ordinances. The Mayor and Floodplain Coordinator will be responsible for this activity. It will be listed as an ongoing activity. It will take one year to complete, but will be reviewed on a yearly basis. Any funding responsibilities will fall to the City.
2. The City will create a cleanup project to clear the stream banks. The City will implement this as an ongoing yearly activity and coordinating with the PRIDE program. The Mayor and Floodplain Coordinator will be responsible for implementing this activity. Funding responsibilities will fall to the City and any outside funding that can be secured.

8.1.4 Emergency Service Activities

1. Evacuation Plan will be developed for when Route 40 becomes obstructed. Responsibility for this activity will be placed with the Emergency Manager. It is expected to take a year to implement, and any funding costs will fall to the City.
2. Flood stage forecast maps will be prepared for the watersheds. The Emergency Manager will oversee this activity and should be implemented in one year. Funding for this activity will be the responsibility of the City.
3. The City will research the ability to use existing weather sirens to warn residents in the City of flood related dangers. The Emergency Manager will be responsible for implementing this activity within a year. Any funding responsibility will fall to the City.
4. Staff will review other community's post-flood mitigation procedures to determine if the current guidance should be modified. The Emergency management department will be responsible for implementing this activity within a year. Any funding responsibilities will fall to the City.

8.1.5 Structural Project Activities

1. The City will conduct a hydrological survey to determine where levee or floodwalls could be used. The responsibility of this action will be the Mayor and Floodplain Coordinator. Funding for this activity will need to be secured through an outside source such as a grant. The time frame for this activity will be two to three years.

8.1.6 Public Information Activities

1. The City will implement and publicize the following services that will inform and assist property owners who want to protect themselves from flooding:
    a. Providing map and flood hazard data to inquiries. This is an action that the City is already participating in, but plans to continue in the future. It is an ongoing activity provided by the Floodplain Coordinator. If funding is needed, the city will provide it.
2. The City will implement and disseminate messages on flood hazard mitigation and City services. The Emergency manager will be responsible for this activity. This activity is currently ongoing but will continue. Within a year the city will:
    a. Create a flood protection page that will include links to other sites that can help Paintsville residents.
    b. Produce a homeowner's flood protection manual, and made available for interested residents.

Funding needed for this project will be the responsibility of the City.

3. The City will provide public information activities that cover the following topics:
    a. City's strategy on flooding and storm water
    b. The City's map information services
    c. Where residents can get help with flooding issues
    d. Flood safety
    e. Flood insurance
    f. The City's flood warning system and signals
    g. Permit requirements

    The City is currently providing information on some topics, but will implement others throughout the year. This will be an ongoing project. The Emergency Manager will be responsible for this action, and funding will be provided by the city.

Table 6 Action Plan Activities

Preventive Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	The City will work towards reducing flooding hazards through development of engineering studies.	Mayor/Floodplain Coordinator	2-3 years	Outside Source (such as grants)
2	Higher regulatory standards credited by CRS should be used as a checklist to determine where floodplain regulation could be strengthened.	Mayor/Floodplain Coordinator	1 year	City
3	The City will review the Zoning Ordinance's flood protection standards to ensure appropriate protection is afforded to floodplain properties.	Mayor/Floodplain Coordinator	Currently in place but will be an ongoing activity	City
4	The City will look for ways to improve storm water drainage.	Mayor/Floodplain Coordinator	3-5 years	Outside funding (such as grants)
Property Protection Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	Property owners should be advised of property protection measures that can help them reduce flood losses.	Mayor/Floodplain Coordinator	1 year	City
2	The City will publicize projects that have been implemented by property owners in the past.	Mayor/Floodplain Coordinator	1-2 years	City
3	The City will pursue the following activities to encourage	Emergency Manager	Yearly / As needed	City / Outside

	and support measures taken by property owners. C. Public Information D. Outside funding sources that can help property owners in funding property protection measures.			funding (such as grants)
Natural Resourced Protection Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	The City will review current procedures to close any gaps in enforcement of existing ordinances.	Mayor/Floodplain Coordinator	1 year	City
2	The City will create a cleanup project to clear stream banks.	Mayor/Floodplain Coordinator	1 year and yearly	City
Emergency Service Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	Evacuation Plan will be developed for when Route 40 becomes obstructed.	Emergency Manager	1 year	City
2	Flood stage forecast maps will be prepared for the watersheds.	Emergency Manager	1 year	City
3	The City will research the ability to use existing weather sirens to warn residents in the City of flood related dangers.	Emergency Manager	1 year	City
4	Staff will review other community's post-flood mitigation procedures to determine if the current guidance should be modified.	Emergency Manager	1 year	City
Structural Project Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	The City will conduct a hydrological survey to determine where levees or floodwalls could be used.	Mayor/Floodplain Coordinator	2-3	Outside funding (such as grants)
Public Information Activities Actions				
Priority	**Action**	**Responsible Party**	**Time frame to implement**	**Funding**
1	The city will implement and publicize mapping and flood hazard services provided.	Floodplain Coordinator	Currently on going	City

2	The City will implement and disseminate messages on flood hazard mitigation.	Emergency Manager	Currently on going	City
3	The City will provide public information on activities that cover: A. City's Strategy on flooding and storm water B. The City's map information services C. Where residents can get help with flooding issues D. Flood safety E. Flood insurance F. The City's flood warning system and signals G. Permit requirements	Emergency Manger /City Staff	Currently on going	City

9. Adopt the Plan

On June 26, 2018, by a unanimous vote the Paintsville City Council passed Resolution _____ (included in Appendix E) adopting the 2018 Paintsville Floodplain Management Plan.

10. Implement, Evaluate, and Revise

In order to keep the Flood Management Plan creditable under the CRS program and up-to-date in general, monitoring and follow up are needed to ensure that the activities identified in Step 8 are implemented. The plan will be monitored, evaluated, and revised on an annual basis. The following items are proposed for this process:

1. A resolution will be adopted to outline who is responsible for implementation and monitoring of the action plan activities. The Floodplain Coordinator will oversee implementation and work closely with other City staff members to monitor the action plan activities.

2. A checklist will be developed and maintained by the person designated as responsible for the plan as a monitoring system to track the progress of plan implementation.

3. The planning committee will continue to meet regularly to review progress as reported from those designated to be responsible for implementation and monitoring. When necessary, the planning committee may recommend revisions to the plan.

4. An annual evaluation report will be developed to monitor the implementation of the activities. The evaluation report will be submitted to the CRS and State NFIP Coordinator, the City Council, and made public via the Big Sandy Development District's website. The FMP Committee will be responsible for developing the annual evaluation report. An update of the FMP will be developed every 5 years.

Appendix A: CRS Crosswalk

Show previous page (Left Arrow)

510 FLOODPLAIN MANAGEMENT PLANNING CHECKLIST

Community: Paitnsville

City of Paintsville Floodplain Management Plan

511.a Floodplain Management Planning (FMP)

Credit Points: *Enter the section or page number of the plan where each credited item can be found.*

CRS Step	Section/Page	Item Score	Step Total
1. Organize to prepare the plan. (max:15)			
a. Involvment of Office Responsible for Community Planning (4)	Section 1 / p. 14		
b. Planning committee of department staff (9)	Section 1 / p. 14-16		
c. Process formally created by the community's governing board (2)	Section 1 / p. 14		0
2. Involve the public. (max: 120)			
a. Planning process conducted through a planning committee (60)	Section 1 / p. 14-16		
b. Public meetings held at the beginning of the planning process (15)	Section 2 / p. 16		
c. Public meeting held on draft plan (15)	Section 2 / p. 16		
d. Other public information activities to encourage input (Up to 30)	Section 2 / p. 18-21		0
3. Coordinate with other agencies. (max: 35)			
a. Review of existing studies and plans [REQUIRED] (5)	Section 3 / p. 21		
b. Coordinating with communities and other agencies (Up to 30)	Section 3 / p. 22		0
4. Assess the hazard. (max: 35)			
a. Plan includes an assessment of the flood hazard [REQUIRED] with:			
(1) A map of known flood hazards (5)	Section 4 / p. 24		
(2) A description of known flood hazard (5)	Section 4 / p. 23		
(3) A discussion of past floods (5)	Section 4 / p. 25-28		
b. Plan includes assessment of less frequent floods (10)	Section 4 / p. 25-26		
c. Plan includes assessment of areas likely to flood (5)	Section 4 / p. 22-26		
d. The plan describes other natural hazards [REQUIRED FOR DMA] (5)	Section 4 / p. 29		0
5. Assess the problem. (max: 52)			
a. Summary of each hazard identified in the hazard assessment and their community impact [REQUIRED] (2)	Section 5 / p. 29		
b. Description of the impact of the hazards on: (max: 25)			
(1) Life, safety, health, procedures for warning and evacuation (5)	Section 5 / p. 29-31		

(2) Public health inlcuding health hazards to floodwaters/mold (5)	Section 5 / p. 30		
(3) Critical facilities and infrastructure (5)	Section 5 / p. 30-32		
(4) The community's economy and tax base (5)	Section 5 / p. 33		
(5) Number and type of affected buildings (5)	Section 5 / p. 33		
c. Review of all damaged buildings/flood insurance claims (5)	Section 5 / p. 33		
d. Areas the provide natural floodplain functions (5)	Section 5 / p. 33-34		
e. Development/redevelopment/Population Trends (7)	Section 5 / p. 31-34		
f. Impact of future flooding conditions outline in Step 4, item c (5)	Section 4 / p. 23-26		0
6. Set goals. [REQUIRED] (2)	Section 6 / p. 34		0
7. Review possible activities. (max: 35)			
a. Preventive activities (5)	Section 7 / p. 35-36		
b. Floodplain Management Regulatory/current & future conditions (5)	Section 7 / p. 36-38		
c. Property protection activities (5)	Section 7 / p. 36-38		
d. Natural resource protection activities (5)	Section 7 / p. 38-39		
e. Emergency services activities (5)	Section 7 / p. 39-41		
f. Structural projects (5)	Section 7 / p. 41		
g. Public information activities (5)	Section 7 / p. 41-43		0
8. Draft an action plan. (max: 60)			
a. Actions must be prioritized [REQUIRED]			
(1) Recommendations for activities from two of the six categories (10)	Section 8 / p. 44-48		
(2) Recommendations for activities from three of the six categories (20)	Section 8 / p. 44-48		
(3) Recommendations for activities from four of the six categories (30)	Section 8 / p. 44-48		
(4) Recommendations for activities from five of the six categories (45)	Section 8 / p. 44-48		
b. Post-disaster mitigation policies and procedures (10)	Section 7 / p. 40		
c. Action items for mitigation of other hazards (5)	See Big Sandy Reginal Hazard Mitigation Plan		0
9. Adopt the plan. (2)	Section 9 / p. 48		0
10. Implement, evaluate and revise. (max: 26)			
a. Procedures to monitor and recommend revisions [REQUIRED] (2)	Section 10 / p. 48		
b. Same planning committee or successor committee that qualifies under Section 511.a.2 (a) does the evaluation (24)	Section 10 / p. 48		0
Maximum Credit for 510 FMP = 382		**Plan Total:**	**0**

Appendix B: News Paper Advertisements

Classified Ads

Rates

$8.75 for first 20 words, 15 cents each additional word.
We accept Visa and MasterCard. Each ad placed will run two times (once in each weekly publication) with the exception of legal's.
For Sale Items $150 or Less are listed FREE.
Classifieds are published in the Wednesday and Friday editions of The Paintsville Herald.
Call 789-5315 or fax 789-9717 for quote or more information.
Paintsville Herald, 978 Broadway, Paintsville, Ky. 41240

Please Check Your Ad
Please carefully read your ad the first day it appears and report any errors promptly. Credit for errors is limited to the cost of the first ad only and adjustment is limited to the actual cost of space.

All real estate advertised herein is subject to the Federal Fair Housing Act, which makes it illegal to adv "any preference, limitation, or discrimination because of race, color, religion, sex, handicap, familial status tional origin, or intention to make any such preference, limitation, or discrimination." State law forbids di tination based on these factors. We will not knowingly accept any advertising for real estate which is in tion of the law. All persons are hereby informed that all dwellings advertised are available on an equal o tunity basis.

Policies
•We reserve the right to edit, properly classify, cancel or decline any ad. •We will not knowingly accept advertising that discriminates on the basis of sex, age, religion, race, national origin or physical disability. •No position guarantees can be given.

Confidential Box Responses
Send your reply to the blind box number given in the ad. The Pai Herald cannot disclose the identity of any advertiser using a bli number. We reserve the right to refuse any advertising.

Public Notices

Legals

LEGAL NOTICE INVITATION TO BID

The Johnson County Board of Education will be accepting sealed bids on Student Accident Insurance for the 2018-2019 school year.
Bids will be accepted until April 12, 2018 at 1 p.m. Specifications may be obtained by contacting the Johnson County Schools business office at 253 N. Mayo Trail, Paintsville, KY 41240. Telephone (606) 789-2630.

PUBLIC NOTICE PUBLIC MEETING SCHEDULED FOR REVIEW OF CITY OF PAINTSVILLE FLOOD PLAIN MANAGEMENT PLAN

A public meeting to review the city of Paintsville Floodplain Management Plan, to be used as an attachment to the Big Sandy Regional Hazard Mitigation Plan, is scheduled for Thursday, April 5 at 6 p.m. at the Paintsville Recreation Center located 232 Preston Street, Paintsville, Ky. The public is invited to make comments or suggestions. City and Emergency Management officials will be on hand to answer any questions. All comments received from the public will be documented and considered for inclusion in the Floodplain Management Plan.
For more information please contact Gary McClure at (606) 789-2260 or Bob Stewart at (606) 789-3600.

Legals

OF THE CLASS: UNDER GENERAL DIRECTION OF THE COMMUNICATIONS SPECIALIST, receives, transmits and relays information concerning public safety emergency agencies; and does related work as required.
EXAMPLES OF DUTIES: Receives all incoming communications from citizens walking into department and from telephone, radio, computer and alarm systems. Relays all complaints and information received to the appropriate personnel or agencies; dispatches police and sheriff units, fire departments, rescue squads, emergency management and emergency medical services. Records and maintains accurate communications information to log all units and agencies dispatched and calls received. Monitors various radio frequencies, home and business alarm systems, incoming telephone systems, NCIC-LINK, computer system, and other agency computers. Activates emergency warning system when advised. Monitors and operates all alternate communications systems, and performs routine scheduled maintenance on all equipment. Maintains work area in a neat and clean manner.
MINIMUM QUALIFICATIONS: Training and experience: Graduation from an accredited high school or its equivalent (GED).
Special necessary requirements:
Must be 18 years of

Legals

completed within six (6) months.
Must successfully complete required in-service training in telecommunications and NCIC-LINK Certifications.
Must possess a valid Kentucky driver's license.
Special knowledge, skills and abilities: Working knowledge of Federal Communications Commission (FCCD) rules and regulations governing operations of radio/telephone receiving and transmitting equipment. Working knowledge of police organizations and operations. Working knowledge of the geography of the city and county. Working knowledge of law enforcement computer systems. Ability to act quickly, calmly, and correctly in any emergency situation. Ability to follow oral and written instructions. Ability to speak with clarity. Ability to prepare and maintain accurate records and filing systems. Ability to deal tactfully and courteously with the public. Telecommunicator would establish and maintain effective working relationships with city police officers, deputy sheriffs, emergency medical services, emergency management, and all fire and rescue agencies in Johnson County and Paintsville.
Official application forms are available in the City Clerk's Office, 340 Main Street, Paintsville, KY 41240. Applications will be accepted at the office of the City Clerk until 4 p.m. on April 4, 2018.

Legals

Publisher's Notice:

All real estate advertised herein is subject to the Federal Fair Housing Act, which makes it illegal to advertise "any preference, limitation, or discrimination because of race, color, religion, sex, handicap, familial status or national origin, or intention to make any such preference, limitation, or discrimination." State law forbids discrimination based on these factors. We will not knowingly accept any advertising for real estate which is in violation of the law. All persons are hereby informed that all dwellings advertised are available on an equal opportunity basis.

LEGAL NOTICE PROBATE CASE NO. 17-P-150 FINAL SETTLEMENT

You are hereby notified that Elsie E. Grim, fiduciary for the estate of Elsie E. Grimm Williams, deceased, filed the 23rd day of March, 2018, has tendered final settlement to the Johnson District Court, Probate Division for exceptions. Approval of settlement has been scheduled in the Johnson District Court, Probate Division on the 30th day of April, 2018.

LEGAL NOTICE PROBATE CASE NO. 17-P-215 FINAL SETTLEMENT

You are hereby notified that Willadene Short, fiduciary for the estate of Eugene

Legals

LEGAL NOTICE JOHNSON COUNTY FISCAL COURT INVITATION TO BID

The Johnson County Fiscal Court will be accepting sealed bids for drilled steel rail, cribbing and backfill to be utilized for future projects until Monday, April 9, 2018 at 3:30 p.m.prevailing time at the Johnson County Judge/Executive's Office, 230 Court Street, Suite #201, Paintsville, Kentucky.
TERMS OF BID: Bids must be turned in at the Johnson County Judge/Executive's Office prior to time bids are scheduled to be opened. No bid will be accepted later than 3:30 p.m.
BID SUBMITTAL INFORMATION:
1. The sealed bid sheet must contain the bidder's name, address and phone number.
2. The owner must sign the sealed bid and the signature must be notarized.
3. Bid must be submitted in an itemized format with a breakdown into three expenses. (linear foot for drilled steel and square feet for guardrail panel cribbing and cubic yards for classified backfill). The county retains the right to do backfill with their in force labor per site at their discretion.
4. Bid must be submitted in a sealed envelope addressed as follows:
Johnson County Fiscal Court
P.O. Box 668
Paintsville, KY 41240
5. The envelope must contain the following information on the lower left hand corner

Legals

tract agreeing to abide by all state and county specifications. The contractor must also agree to begin work within 30 days of the signing of the contract.
Additional site information can be obtained by contacting Willard Burton, Manager County Roads & Field Operations at (606) 789-2578 or 789-2577.
The bids will be evaluated on not only job bid, but also job experience and integrity. Unit bid prices will be calculated with estimated quantities to evaluate bids. The Johnson County Fiscal Court retains the right to reject any and all bids and encourages all companies to bid including minority-owned, women-owned, veteran-owned, and small businesses, and labor surplus areas.
R.T. Daniel
Johnson County Judge/Executive

Services

Help Wanted

Need to make money?
Join Avon
Kits start at $25
Go to sellavon.com and enter reference code: jwebb
(606) 793-4661

Office Assistant position available in local physician's office. Submit resume to: Medical Office, P.O. Box 1271, Paintsville, KY 41240.

Welding positions available. Excellent pay. Drug screen

Storage Rentals

ACIA Self-Storage (next to WR Castle). New Customer Special!! Lowest Prices!! High & Dry!! Free Lock! Only current inventory. Sale ends Jan. 31, 2018! (606) 794-2242. Call or text Jim.

Real Estate for Rent

Homes

aclagroup.com
New listing! 3BD home at Lewmansville starting at $795 per month. Optional detached garage available. (606) 794-2242. Call or text Jim.

Mobile Homes

Twin Hills Mobile Home Park. Two and three bedroom mobile homes. Call for availability. (606)789-9783.

Apartments

1BD furnished apt. on Rt. 302 near Davis Market and HRMC. $426 mo., $200 dep. Call (606) 769-5973.

2BD apts. Some utilities paid. 2-1/2 miles from Walmart. Holiday Special. Call (606) 634-2653.

2BD downstairs apt. 350 N. Clay Ave., W. Van Lear. W/D included. No utilities included. No pets. Leave message at (606) 326-6415.

Apartments available 1 & 2BD at Highlands Apartments, located next to City Park. Call (606) 264-5606.

NOTICE OF PUBLIC HEARING
A public hearing will be held on April 10, 2018 at 10:30 a.m. Eastern Da

Apartments

Brookside located at T has 2 & 3BD ments available more informati (606) 264-5606

Duplex

2BD duplex fo Call or text (60 2242 or look us the web at www group.com

Office Space for

Office/retail co cial space now able in Pair area. From 90 to 2,400 sq. ft. Information, 789-9783.

Classified Ads

Phone 606-789-5315

Rates

$8.75 for first 20 words, 15 cents each additional word.
We accept Visa and MasterCard. Each ad placed will run two times (once in each weekly publication) with the exception of legals.
For Sale Items $150 or Less are listed FREE.
Classifieds are published in the Wednesday and Friday editions of The Paintsville Herald.
Call 789-5315 or fax 789-9717 for quote or more information.
Paintsville Herald, 978 Broadway, Paintsville, Ky. 41240

All real estate advertised herein is subject to the Federal Fair Housing Act, which makes it illegal to ... "any preference, limitation, or discrimination because of race, color, religion, sex, handicap, familial sta... tional origin, or intention to make any such preference, limitation, or discrimination." State law forbids ... ination based on these factors. We will not knowingly accept any advertising for real estate which is ... tion of the law. All persons are hereby informed that all dwellings advertised are available on an equ... tunity basis.

Policies
•We reserve the right to edit, properly classify, cancel or decline any ad. •We will not knowingly accept advertising that discriminates on the basis of sex, age, religion, race, national origin or physical disability. •No position guarantees can be given.

Confidential Box Responses
Send your reply to the blind box number given in the ad. The Herald cannot disclose the identity of any advertiser using ... number. We reserve the right to refuse any advertising.

Please Check Your Ad
Please carefully read your ad the first day it appears and report any errors promptly. Credit for errors is limited to the cost of the first ad only and adjustment is limited to the actual cost of space.

DEADLINES

OFFICE HOURS

606-789-5315

Public Notices

Legals

Publisher's Notice:
All real estate advertised herein is subject to the Federal Fair Housing Act, which makes it illegal to advertise "any preference, limitation, or discrimination because of race, color, religion, sex, handicap, familial status or national origin, or intention to make any such preference, limitation, or discrimination." State law forbids discrimination based on these factors. We will not knowingly accept any advertising for real estate which is in violation of the laws. All persons are hereby informed that all dwellings advertised are available on an equal opportunity basis.

LEGAL NOTICE
NOTICE OF INTENTION TO MINE 1
Pursuant to Application Number 836-5341- Renewal No.5
In accordance with the provisions of KRS 350.055, notice is hereby given that Czar Coal Corporation, 81 Enterprise Drive, Debord, KY 41214 has applied for a renewal of a permit for an underground coal mining operation located 2.7 miles south of Odds in Johnson, Floyd and Martin Counties. The

Legals

operation will disturb 42.50 surface acres and will underlie an additional 123.00 acres for a total of 165.50 acres.
The operation is approximately 2.70 miles southwest from Daniel's Branch Road's junction with KY State Route 3 and located 0.1 miles south of Dick's Creek. The nearest stream is Dick's Creek.
The operation is located on the Lancer U.S.G.S. 7-1/2 minute quadrangle map. The surface area to be disturbed is owned by Pocahontas Development Corporation. The operation will underlie land owned by Pocahontas Development Corporation.
The application has been filed for public inspection at the Department for Surface Mining Reclamation and Enforcement's Prestonsburg Regional Office, 3140 South Lake Drive, Suite 6, Prestonsburg, KY 41653. Written comments, objections or requests for a permit conference must be filed with the Director, Division of Permits, 300 Sower Boulevard, Frankfort, KY 40601.
This is the final advertisement of

Legals

this application; all comments, objection or request for a permit conference must be received within 30 days of this date.

PUBLIC NOTICE
PUBLIC MEETING SCHEDULED FOR REVIEW OF CITY OF PAINTSVILLE FLOOD PLAIN MANAGEMENT PLAN
A public meeting to review the city of Paintsville Flood plain Management Plan, to be used as an attachment to the Big Sandy Regional Hazard Mitigation Plan is scheduled for Thursday, May 24 at 6 p.m. at the Paintsville Recreation Center, located at 232 Preston Street, Paintsville, Ky. The public is invited to make comments or suggestions. City and Emergency Management officials will be on hand to answer any questions. All comments received from the public will be documented and considered for inclusion in the Floodplain Management Plan.
For more information, please contact Gary McClure at (606) 789-2260 or Bob Stewart at (606) 789-2600.
The City of Paintsville is an equal opportunity employer.

Thank You For Reading The Paintsville Herald

Legals

PUBLIC NOTICE
NOTICE OF SALE
Notice is hereby given that the undersigned intends to sell the personal property described below to enforce a lien imposed on said property under the Kentucky Self Storage Facility Act Statutes (Section 359.200-359.250) The undersigned will sell at public sale by competitive bidding on Thursday May 23, 2018 at 10 a.m. EST on Lockerfox.com. Said property is stored at: Paintsville Storage Rentals of America, 193 Brooks Conley Road, Staffordsville, KY 41256, Johnson County.
The following:
Name:
Tiona M. Crepimore
Unit# 0773
Contents: Box fan, totes, boxes and bags.
Christopher D. Seiber
Unit #0408
Contents: toys, box fan, floor lamp, bags and boxes
Andrea Gatewood
Unit #0527
Washer & dryer, fireplace insert, totes
Lois Tackett
Unit #80305
Contents: Household items, boxes and bags, tool box .
Purchases must be paid for at the time of purchase by cash only. All purchased items are sold as is, where is, and must be removed at the time of the sale. Sale is subject to cancellation in the event of settle-

Legals

ment between owner and obligated party.
Dated this: May 18, 2018

Yard Sales

Paintsville Band Yard Sale. Located directly across from Mayo Methodist Church on Third Street at Paintsville Elementary School. Begins at 7 a.m., Saturday, May 26.

Services

Home Improvement

HANDY MAN
• Yard work
• Painting
• Decks
• Home Repair
Local
15 yrs. experience
Straight Line Construction & Painting
(606) 416-0160

R & L Paving
Asphalt & Concrete
• Driveways
• Parking lots
• Roads
• Seal Coating
Call 789-3175.

Services Offered

Top soil
Fill dirt
Backhoe
Dump truck work.
(606) 789-8379
or 793-9052

Subscribe to The Paintsville Herald

Storage Rentals

ACIA Self-Storage (next to WR Castle). New Customer Special!! Lowest Prices!! High & Dry! Free Lock! Only current inventory. Sale ends Jan. 31, 2018! (606) 794-2242. Call or text Jim.

Merchandise for Sale

$150 or Less

Seven men's suits, size 42, pants 36-all for $35; six men's sports coats, size 42-$30 for all; 12 pairs ladies Levi pants, size 10-$25 for all. 789-3218.

Miscellaneous Items

Use Happy Jack ® Skin Balm on dogs and cats to stop scratching, promote healing and hair-growth with steriods! At Tractor Supply. www.kennelvax.com

Real Estate for Rent

Homes

aciagroup.com
New listing! 3BD home at Lowmansville starting at $795 per month. • Optional detached garage available. (606) 794-2242. Call or text Jim.

Two properties for rent. Both 3BD with garage. Johnson County. $895.00 each per month. Call (606) 886-1331.

Mobile Homes

3BD, 2BA 16x80 mobile home, Wittensville, Large/private lot. Safe, quiet area. Appliances and yard work included. $650 mo./$450 dep. Call or text (606) 792-0300.

Twin Hills Mobile Home Park. Two and three bedroom mobile homes. Call for availability, (606)789-9783.

Apartments

2BD apts. Some utilities paid. 2-1/2 miles from Walmart. Holiday Special. Call (606) 634-2653.

Apartments available 1 & 2BD at Highlands Apartments, located next to City Park. Call (606) 264-5906.

Brookside Apts., located at Thelma, has 2 & 3BD apartments available. For more information call (606) 264-5906.

Duplex

2BD duplex for rent. Call or text (606) 794-2242 or look us up on the web at www. acia-group.com

Office Space for Lease

4-6 units available
Centrally located in sought-after part of Paintsville. Abundant parking available - Beauty Shop on upper level as well. Contact (606) 793-8903 for more information.

Office Space

Office/retail ... cial space ... able in ... area. From ... to 2,400 sq. ... information, ... 789-9783.

Comm. Prop.

Two co... buildings ... rent/lease. ... and $895 ... more inform... (606) 886-1...

Classified Ads

Phone 606-789-5315

Rates

$8.75 for first 20 words, 15 cents each additional word.
We accept Visa and MasterCard. Each ad placed will run two times (once in each weekly publication) with the exception of legals.
For Sale Items $150 or Less are listed FREE.
Classifieds are published in the Wednesday and Friday editions of The Paintsville Herald.
Call 789-5315 or fax 789-9717 for quote or more information.
Paintsville Herald, 978 Broadway, Paintsville, Ky. 41240

All real estate advertised herein is subject to the Federal Fair Housing Act, which makes it illegal to ad "any preference, limitation, or discrimination because of race, color, religion, sex, handicap, familial status tional origin, or intention to make any such preference, limitation, or discrimination." State law forbids d ination based on these factors. We will not knowingly accept any advertising for real estate which is in tion of the law. All persons are hereby informed that all dwellings advertised are available on an equal tunity basis.

Policies
-We reserve the right to edit, properly classify, cancel or decline any ad. -We will not knowingly accept advertising that discriminates on the basis of sex, age, religion, race, national origin or physical disability. -No position guarantees can be given.

Confidential Box Responses
Send your reply to the blind box number given in the ad. The Pa Herald cannot disclose the identity of any advertiser using a bl number. We reserve the right to refuse any advertising.

Please Check Your Ad
Please carefully read your ad the first day it appears and report any errors promptly. Credit for errors is limited to the cost of the first ad only and adjustment is limited to the actual cost of space.

DEADLINES
Noon Monday for Wednesday paper
Noon Wednesday for Friday paper

OFFICE HOURS
Monday - Friday, 8:30 a.m. - 5 p.m.
606-789-5315

CHARGE YOUR AD
NOW YOU CAN USE YOUR CHARGE CA
Visa, MasterCard and American Expres
606-789-5315

Public Notices

Legals

LEGAL NOTICE
PROBATE
CASE NO.
18-P-124

You are hereby notified that Victoria Jane Pack has been appointed fiduciary for the estate of Hubert N. Pack, deceased, this the 23rd day of May 2018. Creditors must file all claims within six months after the appointment of fiduciary.
Victoria Jane Pack
412 Saltwell Street
Paintsville, KY 41240

LEGAL NOTICE

Housing Development Alliance, Inc., a 501(c)3 non-profit organization, is issuing a Request for Proposals (RFPs) from qualified accounting firms for an audit of its financial information for fiscal year ending June 30, 2018. H.D.A., Inc. receives state and federal funding as well as foundation grants and private donations. Sealed responses including references must be submitted by 12 p.m. (noon) on June 29, 2018 either by mail to Housing Development Alliance, Inc., Attn: Audit Committee, P.O. Box 7284, Hazard, KY 41702 or by hand delivery to our office

Legals

PUBLIC NOTICE
PUBLIC MEETING SCHEDULED FOR REVIEW OF CITY OF PAINTSVILLE FLOOD PLAIN MANAGEMENT PLAN

A public meeting to review the City of Paintsville Floodplain Management Plan, to be used as an attachment to the big Sandy Regional Hazard Mitigation Plan, is scheduled for Tuesday, June 12, 6 p.m. at the Paintsville Recreation Center located at 232 Preston Street, Paintsville, Ky. The public is invited to make comments or suggestions. City and Emergency Management officials will be on hand to answer any questions. A copy of the Floodplain Management Plan can be viewed at www.bigsandy.org, or hard copies will be available at Paintsville City Hall and the Emergency Management Office for review.
For more information please contact Gary McClure at (606) 789-2260 or Bob Stewart at (606) 789-2600. The City of Paintsville is an equal opportunity employer.

Publishers

Legals

LEGAL NOTICE
PROBATE
CASE NO.
18-P-00119

You are hereby notified that Betty Buskirk or Lorene Johnson have been appointed fiduciaries for the estate of Eddie Butcher, deceased, this the 17th day of May, 2018. Creditors must file all claims within six months after the appointment of fiduciary.
Betty Buskirk
6564 Ky. Hwy. 40E
Williamsport, KY 41271
Lorene Johnson
6586 Ky. Hwy. 40E
Williamsport, KY 41271

LEGAL NOTICE
PROBATE
CASE NO.
15-P-00118
FINAL
SETTLEMENT

You are hereby notified that Paget Johnson, fiduciary for the estate of Pauline Pigmon Sperry, deceased, this the 1st day of June, 2018, has tendered final settlement to the Johnson District Court, Probate Division for exceptions. Approval of settlement has been scheduled in the Johnson District Court, Probate

Legals

LEGAL NOTICE
PROBATE
CASE NO.
17-P-00266
FINAL
SETTLEMENT

You are hereby notified that Terry C. Music, fiduciary for the estate of Mildred Music, deceased, this the 30th day of May, 2018, has tendered final settlement to the Johnson District Court, Probate Division for exceptions. Approval of settlement has been scheduled in the Johnson District Court, Probate Division on the 12th day of July, 2018.

LEGAL NOTICE
PROBATE
CASE NO.
17-P-00214
FINAL
SETTLEMENT

You are hereby notified that Phyllis Jean May, fiduciary for the estate of Maria Ellen May, deceased, this the 31st day of May, 2018, has tendered final settlement to the Johnson District Court, Probate Division for exceptions. Approval of settlement has been scheduled in the Johnson District Court, Probate Division on the 5th day of July, 2018.

Legals

LEGAL NOTICE
PROBATE
CASE NO.
18-P-00121

You are hereby notified that Kenny Collinsworth has been appointed fiduciary for the estate of Betty Joan Collinsworth, deceased, this the 17th day of May, 2018. Creditors must file all claims within six months after the appointment of fiduciary.
Kenny Collinsworth
1222 Casey Drive
Rt. 1107
Van Lear, KY 41265

LEGAL NOTICE
PROBATE
CASE NO.
18-P-00115

You are hereby notified that Roger Ray Mollette has been appointed fiduciary for the estate of Willam Mollette, deceased, this the 31st day of May, 2018. Creditors must file all claims within six months after the appointment of fiduciary.
Roger Ray Mollette
51 Lick Branch Road
Boonescamp, KY 41204

LEGAL NOTICE
PROBATE
CASE NO.
18-P-00122

You are hereby notified that Sharon Sue Williams has been appointed fiduciary for

Legals

LEGAL NOTICE
PROBATE
CASE NO.
18-P-00125

You are hereby notified that Karen L. Smith has been appointed fiduciary for the estate of Judith Sharon Music, deceased, this the 24th day of May, 2018. Creditors must file all claims within six months after the appointment of fiduciary.
Karen L. Smith
P.O. Box 211
Banner, KY 41603

LEGAL NOTICE
PROBATE
CASE NO.
18-P-00128

You are hereby notified that Sharon Hackworth has been appointed fiduciary for the estate of Josephine Little Lyons, deceased, this the 31st day of May, 2018. Creditors must file all claims within six months after the appointment of fiduciary.
Sharon Hackworth
2140 Ky. Rt. 2039
Hagerhill, KY 41222

LEGAL NOTICE
PROBATE
CASE NO.
18-P-109

You are hereby notified that William T.

Legals

LEGAL NOTICE
PROBATE
CASE NO.
18-P-114

You are hereby notified that Vickie Wright has been appointed fiduciary for the estate of William Wright, deceased, this the 9th day of May, 2018. Creditors must file all claims within six months after the appointment of fiduciary.
Vickie Wright
10505 Ky. Rt. 825
Swamp Branch, KY 41240

LEGAL NOTICE
PROBATE
CASE NO.
18-P-126

You are hereby notified that Lisa Diane Howard has been appointed fiduciary for the estate of Gwendolyn L. Bohannan, deceased, this the 31st day of May, 2018. Creditors must file all claims within six months after the appointment of fiduciary.
Lisa Diane Howard
101 Bridge Street
Paintsville, KY 41240

LEGAL NOTICE
PROBATE
CASE NO.
18-P-00118

You are hereby noti-

Legals

LEGAL NO
PROBA
CASE N
18-P-001

You are here
fied that Sa
Blair has
appointed fidu
the estate of T
Blair, decease
the 3rd day
2018. Creditor
file all claims w
months afte
appointment o
ary.
Sandra V. Blai
845 Upper Twi
Hagerhill, KY

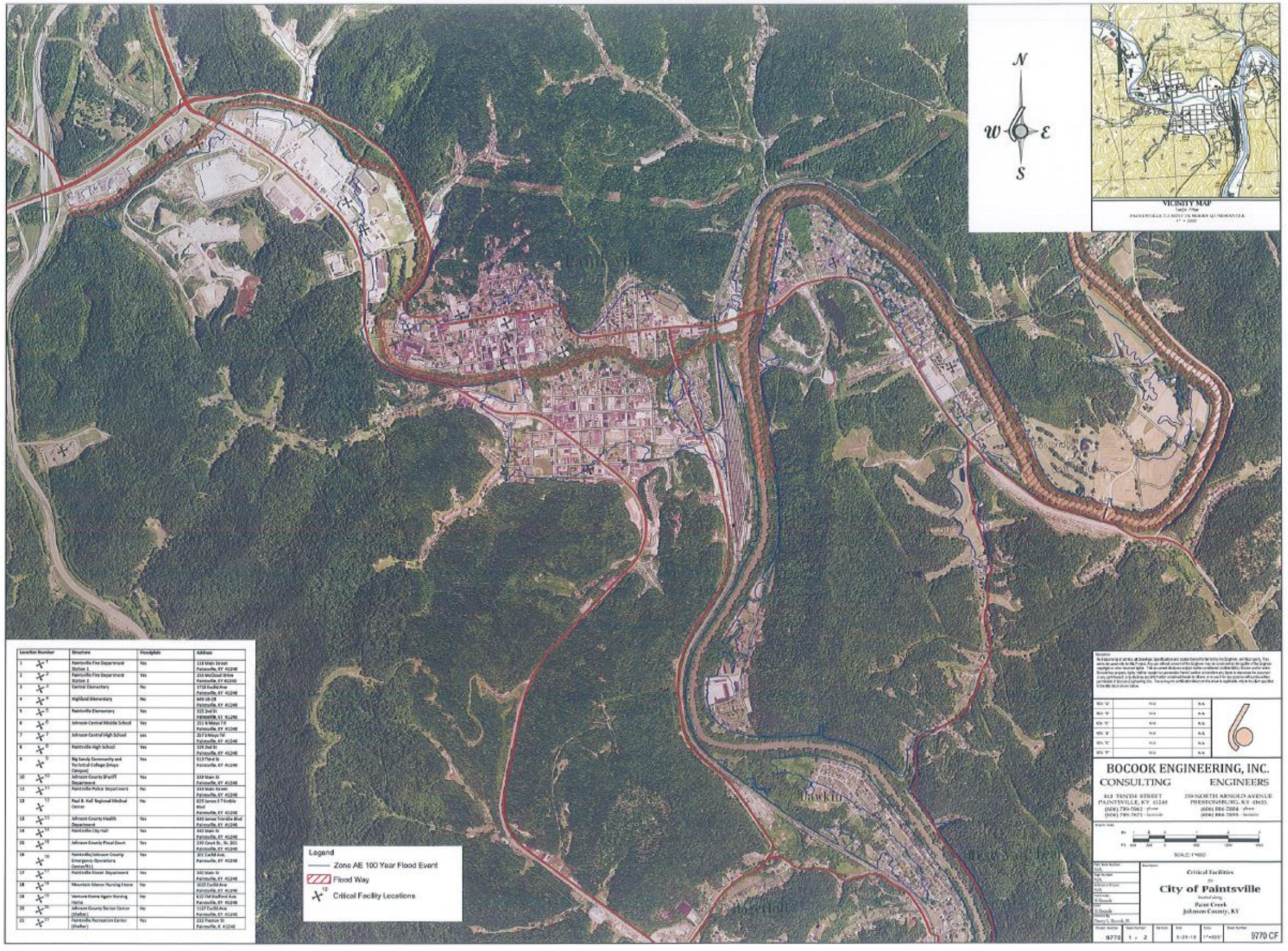
LEGAL NO
PROBA
CASE N
18-P-001

You are here
fied that Julia
has been ap
fiduciary for th
of Bonnie
Sherman, de
this the 10th
May, 2018. C
must file all
within six mont
the appointm
fiduciary.
Julia Knight
406 Euclid Ave
Paintsville, KY

LEGAL NO
PROBA
CASE N
18-P-001

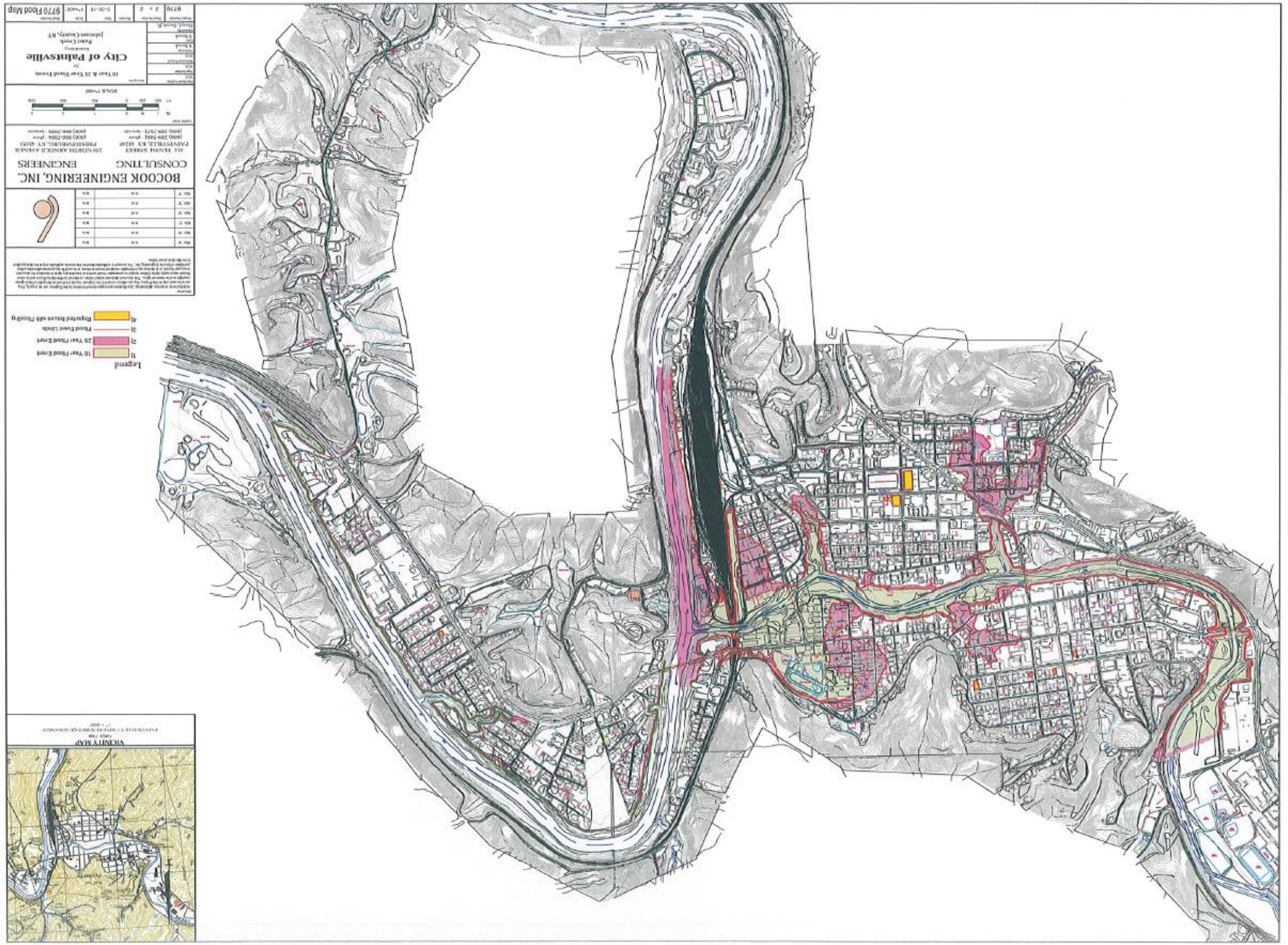
You are here

Appendix C: Ledger Size Hazard Map



Location Number	Structure	Floodplain	Address
1	Paintsville Fire Department Station 1	Yes	116 Main Street Paintsville, KY 41240
2	Paintsville Fire Department Station 2	Yes	233 McCloud Drive Paintsville, KY 41240
3	Central Elementary	No	1710 Euclid Ave Paintsville, KY 41240
4	Highland Elementary	No	649 US-23 Paintsville, KY 41240
5	Paintsville Elementary	Yes	315 2nd St Paintsville, KY 41240
6	Johnson Central Middle School	Yes	251 N Mayo Trl Paintsville, KY 41240
7	Johnson Central High School	yes	2173 Mayo Trl Paintsville, KY 41240
8	Paintsville High School	Yes	125 2nd St Paintsville, KY 41240
9	Big Sandy Community and Technical College (Mayo Campus)	Yes	9137 Ked-b Paintsville, KY 41240
10	Johnson County Sheriff Department	Yes	330 Main St Paintsville, KY 41240
11	Paintsville Police Department	No	344 Main Street Paintsville, KY 41240
12	Paul B. Hall Regional Medical Center	No	625 James B Trimble Blvd Paintsville, KY 41240
13	Johnson County Health Department	Yes	830 James Trimble Blvd Paintsville, KY 41240
14	Paintsville City Hall	Yes	340 Main St Paintsville, KY 41240
15	Johnson County Fiscal Court	Yes	230 Court St., St. 301 Paintsville, KY 41240
16	Paintsville/Johnson County Emergency Operations Center/911	Yes	201 Euclid Ave Paintsville, KY 41240
17	Paintsville Street Department	Yes	340 Main St Paintsville, KY 41240
18	Mountain Manor Nursing Home	No	3525 Euclid Ave Paintsville, KY 41240
19	Ventura Home Again Nursing Home	No	410 Old Stafford Ave Paintsville, KY 41240
20	Johnson County Senior Center (Shelter)	No	1127 Euclid Ave Paintsville, KY 41240
21	Paintsville Recreation Center (Shelter)	Yes	232 Preston St Paintsville, K 41240

Appendix D: Ledger Size Critical Facility Map


9770 Flood Map
City of Paintsville
10 Year & 25 Year Flood Events
Johnson County, KY
BOCOOK ENGINEERING, INC.
CONSULTING ENGINEERS
Legend
10 Year Flood Event
25 Year Flood Event
Flood Event Limits
Reported Issues w/h Flooding
VICINITY MAP

Appendix E: Plan Adoption Resolution

Resolution Number 2018-006

Whereas the City of Paintsville has been faced with overbank flooding and drainage problems over the years that have flooded buildings, closed businesses, disrupted traffic, and presented a general public health and safety hazard; and

Whereas the City's Floodplain Management Planning Committee has prepared and recommended a Floodplain Management Plan that reviews the City's options to reduce damages from flooding and storm water problems; and

Whereas the recommended Floodplain Management Plan has been widely circulated for review by the City's residents, neighborhood groups, and federal, state and regional agencies and has been supported by those reviewers;

Now, therefore, be it resolved that:

1. The Floodplain Management Plan is hereby adopted as an official plan of the City of Paintsville, used an appendix to the Big Sandy Area Development District Multi-Jurisdictional Hazard Mitigation Plan.

2. The Floodplain Management Planning Committee is hereby established as a permanent advisory body.
    a. The Committee members and its Chair shall be appointed by the Mayor.
    b. The schedule of Committee meetings shall be posted in appropriate places. All meetings of the Committee shall be open to the public.

3. The Committee shall meet as often as necessary to prepare or review mitigation activities and progress toward implementing the Floodplain Management Plan. It shall meet at least once a quarter to review the status of ongoing projects.

4. The Plan will be updated every five years. By May 1 each year, the Committee shall prepare an annual evaluation report to the Mayor and City Council on the Floodplain Management Plan. The report will cover the following points:

    -A review of the original plan.
    -A review of any floods that occurred during the previous calendar year.
    -A review of the action items in the original plan, including how much was accomplished during the previous year.
    -A discussion of why action items were not completed or why implementation is behind schedule.
    -Recommendation for new projects or revised action items. Such recommendations shall be subject to approval by this Council as amendments to the adopted plan.

5. The committee should not restrict itself to only flood hazard mitigation. As time and interests become available, it should also investigate mitigation measures appropriate for tornadoes, landslides, sinkholes, and other hazards facing Paintsville.

Done this 26th day of June, 2018 on a Motion made by Councilperson Belcher and seconded by Councilperson Nelson.

Members present voting in favor: 5 Members present voting against: 0

BY: Bill M. Runyon
Mayor

ATTEST: Virgie Castle
Clerk

6 NEPA DOCUMENTATION