



# City of New Haven

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New Haven, MO 63068



October 18, 2010

Dawn Kinsey  
Community Outreach Specialist  
FEMA, Region VII  
9221 Ward Parkway, Suite 300  
Kansas City, MO 64114-3372

Dear Ms. Kinsey,

Attached please find the Provisionally Accredited Levee progress report, which is supplemented by the following narrative and other enclosed materials.

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The City of New Haven in October, 2009 entered into a Provisionally Accredited Levee agreement with the Federal Emergency Management Agency.

In January, 2010 the Board of Aldermen engaged the services of consulting firm Buescher Frankenberg Associates to study the issue and prepare a report including recommendations for how to proceed. A draft report was presented at a public meeting in July, 2010 and the final report was presented in September, 2010. A copy of the report is included with this letter.

As noted previously, the City in October, 2009 entered into a PAL agreement with FEMA. To meet the requirements of 44 CFR 65.10, a minimum of three feet of freeboard protection against the 1 percent annual chance flood elevation must be provided. The current FIRM puts the BFE at approximate 502.5 elevation; the proposed new DFIRM as I understand it puts the new BFE at approximate 504 elevation. However as of this date the new BFE has not been finalized and the City of New Haven thus has no clear understanding of what the actual freeboard requirement will be.

The City thus finds itself in an untenable position. Should we build 1.5 feet above the current elevation? Three feet? Unless and until this number is known a hard cost estimate for providing such freeboard protection is impossible to determine. A consultant can't be expected to provide a design contract for a project in which the project requirements are subject to change, nor can the City be expected to enter into such a contract. The City further cannot be expected to ask its citizens to fund a project that is not clearly defined and the costs not definitively known.

In summary it is impractical to expect the City to secure funding, engage in design services, bid and construct the project within a period of one year. The City thus would

request an extension of the existing PAL agreement, the deadline of which should be a minimum of two years following the finalization of the new flood maps.

### **Engineering certifications**

As you know, 44 CFR 65.10 provides that a federal agency with responsibility for levee design may certify that the levee has been adequately designed and constructed. As you also know, the United States Army Corps of Engineers designed and constructed this levee in 1955 and has managed it since that time. It has never been clear to the City why we are being asked to certify a levee with one federal agency, when that same levee has been designed, constructed and managed by another federal agency.

In fact the most recent USACE inspection of our levee includes virtually every requirement listed in 44 CFR 65.10, and the inspection report noted each area as "Acceptable." This includes required Operation and Maintenance Manuals and information on closures, slope stability, erosion / bank caving, settlement, bank protection, seepage, etc. A copy of the 2010 inspection report is included with this letter.

Regarding the requirements as noted in the Progress Report, it is assumed the levee was designed by USACE to meet standards as detailed in 44 CFR 65.10(b)(2, 3, 4 and 5). Given this, as well as the fact that the levee has consistently maintained an excellent inspection record with USACE, it is our expectation that USACE documentation will be sufficient to meet the above requirements. The City thus will request USACE provide original engineering design analyses and any subsequent analyses, as well as the annual inspection records, to FEMA to meet these requirements.

Regarding Requirements 7 & 8 of the progress report, the City has partnered with USACE on operation and maintenance of the levee since 1955, and the City's official "Operation and Maintenance Manual" in fact was developed by USACE. Thus we expect Requirements 7 and 8 can be met by this plan, a copy of which is included with this report.

Regarding Requirement 9, "As-Built Plans," the Operation and Maintenance Manual referred to in the above paragraph includes As-Built Plans. Copies of those are also provided.

Regarding Requirement 10, the levee currently provides protection against the base flood as determined on the FIRM currently in effect. As noted previously, the levee does not provide three feet of freeboard against either the effective FIRM, or the proposed BFE in the new FIRM. We cannot move forward on this issue until the new BFE is finalized.

### **DFIRM considerations**

The City received a copy of the Flood Insurance Study (FIS) for Franklin County, dated November 13, 2009. The FIS includes information on how the 1 percent annual chance flood elevations were determined. Specifically the report cites the Upper Mississippi River System Flow Frequency Study, completed in 2003, as a basis for the DFIRM. The

FIS also cites the UNET program and the HEC-RAS 3.1.3 Program. The FIS references page indicates UNET dates to 1997 and that HEC-RAS 3.1.3 dates to 2005.

The City thus has concerns about the timeliness of the methodology used. A July, 2010 report from FEMA title "*FY10 Flood Mapping Progress Report and Production Plan: Flood Map Modernization and Risk Mapping, Assessment, and Planning*" references Flood Map Modernization (Map Mod) efforts and an updated approach, Risk Mapping, Assessment and Planning (Risk MAP). The report further notes that Map Mod is to be effective for Franklin County in FY 2012.

Neither Map Mod nor Risk MAP is referenced in the Franklin County FIS. This raises concerns about the efficacy of the methodology used in the FIS and the accuracy of the data in relation to Map Mod and / or Risk MAP, and the potential for the data to be revised and / or updated when Map Mod becomes effective in Franklin County. The FEMA July 2010 report notes in the Introduction (page 4) that: "Flood Map Modernization incorporates the latest technology in order to provide flood hazard data in the most usable format with advanced tools and techniques that will enable FEMA and its State and local partners to produce high quality data while managing cost and schedule constraints."

The FIS notes that the UMRSFFS study was based on NGVD29, which was then converted to NAVD88. We would assume this is valid, however the following information taken from the July, 2010 report raises concerns about elevation data: "FEMA has existing elevation standards in place for traditional flood studies. The standards have not been updated since 2003. Due to enhanced technologies in the area of elevation data acquisition, FEMA is reassessing the standards so they are applicable to the enhanced technologies."

Again, this raises concern over the proposed BFE as it applies to New Haven. Is the proposed BFE subject to change? Is the proposed BFE based on the best available data? What effect might Map Mod have on the Franklin County FIS? How may Risk MAP impact our elevation, when and if that goes into effect?

This levee unfortunately has a history of changing data. The levee was constructed in 1955 to provide protection against a 100-year flood. At that time, the 1 percent annual chance flood discharge was computed to be 529,000 cfs. It was later determined that the levee capacity was 510,000 cfs with approximately three feet of freeboard, which was termed a 35-year flood (New Haven Operation and Maintenance Manual, 1979 edition).

The 1 percent annual chance flood discharge in the 2009 FIS is 673,000 cfs (Hermann gage). This represents a 27.2 percent increase over the original design calculation. Setting aside the question of what accounts for such a large increase, the City has serious concerns that the current figure may be revised upward in the future. In fact the FIS itself notes that elevations may change as future data is gathered. What period of time then is an accreditation valid? Does the City have any assurances that the numbers won't change and that future improvements won't be required?

Finally, while much of the focus has been on flow discharge and water surface elevations, the City notes that the methodology for determining stream bed elevations dates to 1997 or later (page 22, 2009 Franklin County FIS). The FIS also notes that additional data from 1995 and 1998 was used to supplement this data. This raises questions then over the accuracy of this data compared to new techniques available in recent years. To what degree were the flooding events of 1993 and '95 and their impact on the stream bed taken into account? Is it possible the stream bed has more capacity than the 1990s data would indicate? What consideration, if any, was given to new surveying techniques as the FIS was being developed?

We are not sure of the answers to these questions. But it is clear that the City of New Haven cannot be expected to fund the single largest infrastructure improvement in City history if the methodology and data used to determine the project requirements is inaccurate, outdated and / or subject to change.

### **USACE considerations**

It is my understanding that FEMA and USACE has partnered in numerous ways in development of NFIP regulations as well as the new DFIRMs. I also understand from past conversations and information obtained from other sources that USACE has no authority nor funding to partner with FEMA and / or local agencies in meeting the requirements of 44 CFR 65.10. This is despite the fact that USACE designed and constructed the levee and that the annual USACE inspection as noted previously covers the same areas listed in 44 CFR 65.10.

This issue then raises serious questions for the City and its ongoing relationship with USACE:

- The City in the original 1955 agreement with USACE agrees to “operate and maintain” the levee. There is no obligation for “improvement” and the City has no authority that we’re aware of to make any improvements or modifications to the levee without USACE approval.
- How then might a private certification / evaluation of the levee conflict with USACE authority? What if USACE, either now or at a later date, objects to or differs from, the evaluation of a privately contracted engineer? Which authority shall govern?
- If a privately contracted engineer determines deficiencies with the levee and recommends improvements to address such deficiencies, will the Corps review this work and / or permit it without its own independent verification? Again, what authority does the City have to make an improvement to a USACE levee?
- It is assumed that the New Haven Levee will have to be raised to some new elevation to meet the freeboard requirement. Will USACE in fact actually permit an increase in levee elevation? How can the City be expected to enter into an

expensive design contract if there is no assurance that USACE would even permit the work?

- Further, if USACE did in fact permit an increase in levee elevation, it is clear that the levee system owner on the opposite side of the river would have cause to challenge such work. Is FEMA and / or USACE prepared to defend the City of New Haven against such a challenge?
- Has the Franklin County FIS considered the impacts of increases in levee elevations in determining the BFE? If in fact USACE begins permitting increases in levee elevations on other areas of the Missouri River, how might this affect river flows and ultimately the BFE at our location?
- Preliminary indications are that the scope of USACE review would require referral to USACE headquarters in Washington, D. C. How long then might the City expect a review to take? If a lengthy Corps review is expected then the City would request consideration of that timeframe in an extension of the PAL agreement.

Ultimately the City cannot act until it knows if in fact an increase in the levee will even be permitted by USACE. I have copied USACE with this letter.

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Thank you for your consideration of this material. Please contact me at 573-237-2349 if you have any questions.

Sincerely,



Steve Roth  
City Administrator

Cc: Mayor and Board of Aldermen  
Scott Vollink, United States Army Corps of Engineers  
Rep. Blaine Luetkemeyer  
Sen. Christopher "Kit" Bond  
Sen. Claire McCaskill

Enclosures