



AGENDA

COMMISSION ON STORM WATER ISSUES MEETING

January 4, 2022 at 6:30 p.m.

Heman Park Community Center

975 Pennsylvania Ave., University City, Missouri 63130

- 1. MEETING CALLED TO ORDER**
- 2. ROLL CALL**
- 3. APPROVAL OF AGENDA**
- 4. APPROVAL OF MINUTES**
- 5. CITIZEN PARTICIPATION**
- 6. NEW BUSINESS**
 - a. Agenda format revision for meetings – Dr. Criss
- 7. OLD BUSINESS**
 - a. US Army Corps of Engineers Upper River Des Peres Flood Risk Management Draft General Reevaluation Report – Discussion and Direction (please see Attachment)
 - b. Response from SEMA office for flood insurance training-education
- 8. SUBCOMMITTEE REPORTS**
 - a. Flood Early Warning System
 - b. Communications
- 9. MISCELLANEOUS BUSINESS**
- 10. COUNCIL LIAISON COMMENTS**
- 11. ADJOURNMENT**

Please call (314) 505-8572 or email salpaslan@ucitymo.org to confirm your attendance.

MEMORANDUM
DEPARTMENT OF PUBLIC WORKS

TO: Todd Thompson, Chairman – Commission on Storm Water Issues
FROM: Sinan Alpaslan, Director of Public Works, Staff Liaison to Commission
DATE: December 29, 2021 AA
RE: US Army Corps General Reevaluation Report Tentatively Selected Plan

As discussed at our last regular monthly meeting, the Army Corps Study has produced a Tentatively Selected Plan (TSP) for an approval evaluation and consideration by City Council. If the Commission provides a recommendation to Council at this time, the possible meeting dates for an approval action by the City Council are the following:

- 1) January 10, 2022
- 2) January 24, 2022
- 3) February 14, 2022

According to a time extension granted by the Army Corps for the study to reach an Agency Decision Milestone (ADM), a Council decision is advised to be formulated the latest in February 2022.

The Army Corps has additionally requested that in order to process a probable Locally Preferred Plan (LPP) for University City, a Council decision would be beneficial to render for it by the end of January 2022. An earlier deadline for an LPP decision is due to the additional items needed for its approval on the Corps' part.

Please advise of any comments and questions as you deem necessary for action on this item.

Sinan Alpaslan

From: Eric Karch <ekar76@hotmail.com>
Sent: Monday, December 27, 2021 9:15 AM
To: Bob Criss; Tim Cusick; garonberg@sbcglobal.net; John F Mulligan; Mark Holly; Sinan Alpaslan; Todd Thompson
Subject: Fw: RDP Meeting Follow-up

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Please see the email below from the Corps. I don't think this adds any new info, but does confirm some of what we reported from our 12/20 meeting and provides their advice to us on next steps (pursue LPP).

Talk to you in the new year,
Eric K

From: Jones, Matthew A CIV USARMY CEMVS (USA) <Matthew.A.Jones@usace.army.mil>
Sent: Tuesday, December 21, 2021 3:29 PM
To: Todd Thompson <ucity7024@gmail.com>; Eric Karch <ekar76@hotmail.com>; Sinan Alpaslan <salpaslan@ucitymo.org>
Cc: Buchanan, Janet I CIV USARMY CEMVP (USA) <Janet.I.Buchanan@usace.army.mil>
Subject: RDP Meeting Follow-up

Good afternoon Eric, Todd, and Sinan:

It was very good speaking with you yesterday and discussing the potential paths forward with you for the study. After our meeting, Janet and I talked with several senior planners, and we received concurrence with our general feelings about the path forward. I wanted to summarize our thoughts below.

We (USACE) understand that the City of University City and the Stormwater Commission want to be a voice in the room when it comes to selecting a plan for the city, including the selection of specific structures for nonstructural measures (floodproofing, elevation, acquisitions). As partners in the study, we wouldn't have it any other way; we value the expertise that your commissioners and council members have and bring to the table.

As we understand it, the general sentiment of the Commission is that it will not recommend proceeding with nonstructural measures if the Commission/Council cannot be a decision-maker on which structures are included/excluded in the final plan. We do believe that there is flexibility, especially as we proceed into Pre-Construction, Engineering, and Design (PED) after the study is complete, on what criteria are used to select structures for nonstructural treatment or acquisition. However, it is not compliant with USACE policy to guarantee that the Commission or Council will have the authority to include/exclude specific structures for this federal project, in either the NED Plan or a Locally Preferred Plan (LPP).

Considering our discussion yesterday and further conversations with our Planning team, we believe that the City may more effectively meet its flood risk management goals by proposing an LPP to include only Detention Basin 4 moving forward. Based on the current costs and economics developed thus far, it appears that DB4 would be justified economically as a standalone feature and would provide the highest Benefit-to-Cost Ratio of any of the alternatives identified. If this is the path that the City prefers, we will develop the LPP waiver request which routes through our Division, HQ, and to the Assistant Secretary of the Army for Civil Works (ASA-CW) for approval. For full transparency, this waiver approval is not guaranteed, but our team will continue to work to include everything we can for a positive outcome.

An LPP may also be proposed that includes DB4 and nonstructural features, which could use criteria developed by the Commission or Council in order to include certain structures and exclude acquisitions. However, we anticipate that unless the Commission's criteria align closely with USACE flood risk management nonstructural criteria, it would be very difficult (or impossible) to secure USACE approval for the LPP that includes nonstructural features. Furthermore, as we have previously discussed, an LPP that requires significant additional analysis is likely to cost more money and extend the project schedule beyond the work currently scoped for the study. If the Commission and the City would like to continue developing an LPP that includes DB4 and nonstructural features, we will request coordination meetings to discuss potential criteria and how they align with USACE nonstructural policy (for example, as mentioned on the call, criteria such as neighborhood cohesion and environmental justice are justified under our "Other Social Effects" account).

Please let us know what kind of future engagement you would like for our team. We can attend Commission or Council meetings as presenters or attendees, or we can be "in the wings" and wait for word from the City about an LPP of DB4 only (or another LPP). That will allow us to move forward with the LPP waiver package and move forward toward the Agency Decision Milestone (ADM). The ADM is currently scheduled for the end of February 2022 but may be pushed depending on the waiver and other review requirements.

Thanks much and Happy Holidays to you all,

Matt & Janet

Matthew A. Jones

Project Manager / CAP Program Manager
President, Civilian Activities Council (CAC)
U.S. Army Corps of Engineers-St. Louis District (MVS-PM-N)
Office: (314) 331-8293

Sinan Alpaslan

From: Eric Karch <ekar76@hotmail.com>
Sent: Tuesday, December 21, 2021 6:47 AM
To: Bob Criss; Tim Cusick; Mark Holly; Garry Aronberg; Eric Stein; Todd Thompson
Cc: John F Mulligan; Sinan Alpaslan
Subject: USACE mtg minutes 12/20/2021
Attachments: 20211220_Commission_Minutes_USACE_TechnicalMeeting.docx

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Commissioners,

Attached are minutes from the 12/20/2021 USACE meeting. The short version is that the meeting went about as well as we expected, which is to say the Corps' NED plan will not meet our conditions developed at our December meeting. At our January meeting, I suggest we consider adding the following agenda items, with a goal to spend no more than 30 minutes on the subject to allow time for other topics.

1. Will we recommend the NED plan, as we currently understand it to be?
2. Do we want to pursue an LPP?
 - a. Corps said an LPP could require additional time & fee to be paid to the Corps, depending what the LPP is.
 - b. A couple of possible options for an LPP might be:
 - i. No LPP. We will reject all Corps recommendations and pursue flood mitigation without the Corps.
 - ii. DB4 only.
 - iii. Similar to NED, but with conditions of City control over the list of structures and removing mandatory requirement for acquisition.
 - iv. Other option not yet discussed.
3. Do we want to recommend that the City Manager/Council contact the Corps upper management to express (as Garry eloquently and concisely stated):
 - a. Corps report [NED plan] fails the common sense test, fairness test, and neighborhood cohesion tests that are crucial to us
 - b. Concern that if the current [NED plan] recommendations are implemented, City officials and our Congressional delegation will look foolish
 - c. Two points that would help persuade us to recommend the NED plan to the council have been rejected by the Corps (removal of mandatory requirement for acquisitions, and City control of final list of structures based on intimate in-depth knowledge of our community and engagement with impacted property owners)
 - d. We will/will not pursue LPP
4. Do we want to entertain the Corps' offer to meet with us again?

12/20/2021

Attendees:

USACE – Janet Buchanan, Jordan Lucas, Joel Asunskis, Matthew Hartman, Matt Jones

Sinan Alpaslan (University City), Eric Karch (Commission on Storm Water Issues)

1. Cost estimate
 - a. Corps provided a cost estimate breakdown dated 11/22/2021
 - b. Commission had emailed 12/6/2021 to ask
 - i. Assuming the NED plan is still nonstructural plus DB4, is the NED plan now costing about \$34M (\$25M for floodproofing and buyout + \$9.5M for DB4)? Pointed out that floodproofing for a residential structure is now almost same cost as acquisition.
 - ii. Corps replied yes to total cost of \$34. Janet & Matt said they were also shocked that the cost increased so significantly from the October presentation to the City. They said their real estate person is leaving the position, so this has slowed their progress on getting a better understanding of the numbers. They think there was a doubling of contingencies and that the estimates should be lower.
 - c. Commission asked for clarification of what is included in real estate estimate in general, and in the non-residential floodproofing in particular.
 - i. Temporary relocation to move to a different space during installation the floodproofing improvements are installed. Also compensation for lost business during installation, in accordance with the Uniform Relocation Act. There was some question as to whether this also covered Temporary Construction Easements.
 - d. Corps said they'll provide clarification to U City ASAP (likely mid-January).
2. Regarding the Corps' response to our request for NED Plan Inclusions
"Responses to Commission NED Plan Inclusions - 12-17-21.docx"
 - a. Item 1 – "U. City staff, Stormwater Commission, elected officials, and residents have enormous depth of knowledge and expertise about U. City stormwater flooding"
 - i. Corps agreed and said they'll put this in writing.
 - b. On selecting structures
 - i. Commission indicated we want written verification that the City will have authority equal to the Corps to generate the list of structures. We agree that mitigation should include acquisition and floodproofing, but we do not agree with the Corps' draft list of structures. Indicated we understand that the list of structures is subject to chance, but are disappointed in the concept list we were provided. Cited examples inclusion of structures east of Skinker where it's never flooded, and exclusion of Westover Apartments that floods frequently. Indicated community continuity issues on Briar Ct and Mendell Dr. Indicated potential environment justice issues. City should be able to review the list, and

remove/add structures based on our in-depth knowledge, conversations with residents, and considering community continuity.

- ii. Corps replied that
 - 1. Remember that Ike was only a 10-year flood.
 - 2. City can help create the criteria for selecting structures
 - 3. They are very interested in Environmental Justice angle and said that could be included in their “Other Social Effects” (OSE) criteria which is subjective.
 - 4. Said there will be flexibility....opportunity to weigh in...
 - 5. Suggested Corps attend Commission meeting where we can all look at a map together.
 - 6. Once criteria is created, resulting list cannot be changed “willy nilly”. This is not possible for NED. Doing so would be considered an LPP, and would require more fee paid to the Corps to finalize the report.
- iii. Commission replied that we believe the individuals in this meeting have their heart in the right place, but that we respectfully require assurance in writing that we can adjust the list. Essentially veto power on a Corps-generated list. Any adjustments would not be willy nilly and would be based on our in depth knowledge of the community and engagement with impacted property owners.
 - 1. *Karch opinion not expressed in the meeting...it seems they are genuinely open to the Commission working with the Corps to use the OSE criteria to reverse-engineer a list of structures we would approve. However, they also recognize that we cannot simply trust that this will work. Seems we’re at an impasse.*
- c. On mandatory requirement
 - i. Commission pointed out
 - 1. City has experience with buyouts and did not make them mandatory
 - 2. FEMA does not make buyouts mandatory
 - 3. We know this is Corps policy, but it is not palatable. It is especially problematic if the City does not fully agree with the list of structures.
 - ii. Corps said this is not possible for NED. Doing so would be considered an LPP, and would require more fee paid to the Corps to finalize the report.
- d. Corps admitted that their group is new at this, and that the nonstructural / criteria / selection is in somewhat uncharted territory for the Corps. Commission pointed out that this is an opportunity for the Corps to break free from their own policies. Corps seemed to agree to that idea in concept, but did indicate that this would happen in practice.

3. Conclusions and Recommendations

- a. USACE confirmed that the draft list of affected properties is not set and that details would necessarily have to be worked out during the PED phase. They indicated that there would be opportunities for community input, but that those refinements would still be governed by similar processes and criteria, as defined by them. Commission

responded that we are looking for formal assurances that our inputs and recommendations would be given reasonable consideration.

- b. Commission agreed that processes and criteria were an important and necessary part of building the case for the project. However, we believe that flexibility and negotiation among the affected parties is an important part of the detail design and implementation phase. The Commission stated that without formal assurances for UCity input that we would not recommend the plan to UCity Council.
- c. USACE expressed interest in meeting with Commission / UCity Officials after they have had a chance to discuss the results of this meeting with their upper management, prior to ADM. Presumably, this meeting would address items highlighted in today's meeting, including:
 - i. Clarification of cost estimate accounting
 - ii. Results of USACE discussions with their management re: UCity involvement in selection criteria; including
 - iii. How does USACE intend to address subjective issues like: neighborhood cohesion, Environmental Justice, community buy-in (USACE is lumping issues like this under "Other Social Effect" (OSE) criteria which would be addressed during PED
 - iv. Structural mandatory buyout impasse?
 - v. Opportunities "for the Corps to break free from their own policies"
- d. Commission concluded with a general statement: The (Stormwater) Commission will be providing a recommendation to the city council and the city manager based upon what we think is in the best interests of the city of University City, its neighborhoods and residents. It will be up to the council to make a decision about how to proceed. Our assessment is going to be based upon the recommendations from the USACE study, but will also consider the impact upon what's best for the personal and collective interests of our residents and community.

Sinan Alpaslan

From: Eric Karch <ekar76@hotmail.com>
Sent: Sunday, December 19, 2021 6:55 PM
To: Eric Stein
Cc: Bob Criss; Garry Aronberg; Sinan Alpaslan; Todd Thompson; Mark Holly; Tim Cusick; John F Mulligan
Subject: Re: Corps' response & Monday meeting

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Eric S,

Thanks for making time to relay these concerns.

1. I agree that we should ask for clarification including about the total cost, and what all is included in real estate costs.
2. Important point: I do think it would be helpful to try to paint the fuller picture you describe using the Westover Apartments as an example of how their process is patchwork, and leaves out structures with a greater flood risk...not the same flood risk. In the end, as I responded to Bo's comment, what we (the City) really need to even consider the nonstructural concept is a defined and explicit seat at the table when determining the list of structures.
3. Regarding cost-benefit ratio, I think you have valid concerns. That line of thinking will be critical for our group to consider when deciding if we'll entertain the nonstructural part of this plan, or if we'd like to stick with just DB4.

I'll be sure to share the Corps' minutes and my own notes from tomorrow's meeting.

Eric K

From: Eric Stein <emstein1114@yahoo.com>
Sent: Sunday, December 19, 2021 1:51 PM
To: Eric Karch <ekar76@hotmail.com>
Cc: Bob Criss <criss@wustl.edu>; Garry Aronberg <garonberg@sbcglobal.net>; Sinan Alpaslan <salpaslan@ucitymo.org>; Todd Thompson <ucity7024@gmail.com>; Mark Holly <mkholly.mh@gmail.com>; Tim Cusick <cusickward2@gmail.com>; John F. Mulligan <jfmulliganjr@aol.com>
Subject: Corps' response & Monday meeting

Eric K,

This is in response to your email Friday regarding the Corps' response to the Commission's concerns and the upcoming team meeting on Monday. I would like to comment on three things.

Question regarding a breakdown of costs: Unless I have missed something, I believe there is still a question unanswered. At the last meeting, we discussed a table (attached below) they sent in response to our request for a more detailed cost breakdown for the non-structural portion of the new NED.

A question arose in the commission meeting as to whether that included DB4 and why the costs had risen significantly since late October. You posed that question to Matt in an email on Dec 6, which is

near the bottom of the chain on the email you sent yesterday. I do not believe we have received an answer.

Beyond those questions, I have some additional comments regarding the costs shown on the table, which in all instances except the first are followed by a related question:

- An acquisition cost of \$2,357,000 to acquire 7 properties works out to \$336,714 per property. Since this presumably includes legal and demolition costs, it seems reasonable.
- The cost shown for "Residential Floodproofing" is \$2,784,000 and the cost for "Real Estate for Residential Floodproofing" is \$3,939,000. These can only refer to the 22 basement fills, since that is the only residential floodproofing option. Is the real estate cost a reimbursement to owners for degraded real estate values due to loss of the basement (which the Corps said earlier was part of the plan)?
- These figures break down to an average cost per residential property of \$126,545 for the fill itself and \$179,045 for real estate costs, for a total cost per property of \$305,590. This seems pretty high.....it almost acquisition cost. Can they give us an idea of how they arrived at these estimates?
- The table shows \$1,800,000 for "Real Estate for Non-Residential Floodproofing", which at 19 properties, is an average of \$94,737 each. Why are there real estate costs involved in dry floodproofing a commercial building?
- Commercial dry floodproofing typically involves extensive and sometime complex barriers, making it very expensive, especially for a complex the size of Washington university's north campus, which is included in the plan. What assumptions were made regarding the extent / type of dry floodproofing to be employed for the 19 non-residential properties that leads to the cost shown?

Question #2 in yesterdays response:

Regarding #2, we had expressed concern about mitigations that will appear to those in a particular neighborhood as patchwork. Part of their reply included the following statement:

[We also concur that we do not want to reduce flood risk for one structure on a street while leaving out other homes next door that have the same flood risk.](#)

This mis-states the cause of our concern. It is *not* that those with the *same* flood risk will be treated differently. *It is that the Corps' selection criteria for the type of mitigation offered causes a patchwork approach.* In several neighborhoods, 1-2 houses at the lowest elevation fall into the over 2' category so they are acquired. As one proceeds upslope from those, no mitigation of any kind is performed on the next several houses which are just enough higher to fall into the 0-2' category. But beyond those houses 1-2 houses will get a basement fill because they are far enough upslope to fall into the -1 to 0 category. As examples, see the maps showing affected properties on Briar Ct / Rushmore Dr, Mendell Dr, and Waldron Ave.

Not only does the selection criteria produce this patchwork appearance, it can be dangerous. Main floor flood levels at 1214-18 Westover Ave are predicted to be over 2' that they would be acquired. The first floor of the Westover Apartments just to the west is about 2.5' lower than those properties (actual measurement by myself & Dr. Criss), so that water levels there would be around 4.5' on the first floor and 7-8' in the parking lot, thus preventing escape. Yet these apartments are not scheduled for any kind of mitigation because the Corps' plan only provides for mitigation of commercial properties with water levels less than 3 ft. Yet, while this dangerous property is being

ignored, the large Washington U complex east of Skinker and Vernon in the city of St. Louis, where water levels are only around 1', would be mitigated.

In my opinion, the Corps' selection criteria in the new NED for properties to be mitigated is fatally flawed. It will not make sense to people in the neighborhoods, will not help very many people, and in some cases such as the example above, poorly prioritizes who is helped.

Cost / benefit of the non-structural portion of the plan:

I view U City as a customer and the USACE as a vendor. The cost of the non-structural portion of the plan for mitigating 48 properties is now up to \$25,000,000, per the attached table. This breaks down to about \$521,000 per property. The city's 35% share of total cost would be close to \$9,000,000. For that, we buy mitigation for 48 properties, 29 of which are residential. I do not see how this makes sense from a cost/benefit standpoint. I have heard concerns expressed about "leaving money on the table" should we reject this plan. What good is the money on the table if it buys a very expensive plan that benefits only a few, will not be understood in the neighborhoods, and ignores something as dangerous as the Westover Apartments? It has been discussed at Commission meetings that if we were granted more flexibility / discretion in properties chosen and types of mitigation, it could still be a good deal. I do not see in the Corps' response to #4 that there is the amount of local discretion that we agreed in the last meeting is needed for us to recommend the non-structural portion of this plan.

On the other hand, it appears to me that DB4 has a lot of merit and would be a good investment.

Whether you wish to make these concerns known to the Corps in your Monday meeting is at your discretion. Frankly, it appears to me that they are pretty well locked in on this plan, so I doubt that it will make any difference.

Eric S

River Des Peres

11/22/2021

Non-Structural Solution, NED

ITEM	ESTIMATED AMOUNT
Real Estate for Non-Residential Floodproofing	\$1,800,000
Non-Residential Floodproofing	\$2,670,000
Real Estate for Residential Floodproofing	\$3,939,000
Residential Floodproofing	\$2,784,000
Residential Buyout	\$2,357,000

SUBTOTAL:	\$13,550,000	
E & D :	\$2,439,000	18%
S & A :	\$1,355,000	10%
Contingency:	\$7,617,000	49%
TOTAL COST:	\$24,961,000	

Our Responses to Commission NED Plan Inclusions

1. U. City staff, Stormwater Commission, elected officials, and residents have enormous depth of knowledge and expertise about U. City stormwater flooding.

Concur, and thank you for contributing your expertise and questions in this planning process.

2. U. City staff, Stormwater Commission, elected officials, and residents desire flexibility and participation in determining which structures will receive acquisition or floodproofing to mitigate life, safety, and economic damage based on our extensive knowledge and experience about U City stormwater flooding, consideration of the continuity of communities after this mitigation would be applied, and engagement with the property owners that would be impacted. The mitigation should be generally applied on a neighborhood basis to preserve neighborhood cohesion and prevent isolated fixes that divide neighbors and isolate houses.

In a general sense, USACE concurs with the Commission's consideration. We intend to continue using Other Social Effects (OSE) criteria to determine the most effective and efficient implementation of the nonstructural measures, which would include community cohesion in decision-making where/when applicable. We also concur that we do not want to reduce flood risk for one structure on a street while leaving out other homes next door that have the same flood risk. This individual structure-by-structure consideration will continue beyond the feasibility phase and into Pre-construction, Engineering, and Design (PED) as it becomes clearer which structures are eligible to participate and which owners decide to participate in the nonstructural measures.

3. None of the mitigation measures should be considered mandatory as the City would be reluctant to use eminent domain to force participation in a program intended to benefit property owners.

This may be a complicated and difficult comment to respond to. For several reasons, it is USACE policy to make acquisitions mandatory, meaning that the Sponsor must be willing to exercise its eminent domain authority. As has been discussed before and in the response to question/comment #4, there is some flexibility in implementation of nonstructural flood risk management measures. For the seven structures identified for acquisition in the revised NED plan, it was found to be more cost-effective to acquire than to elevate the structures. USACE would like to better understand the City's position on acquisitions in order to confirm policy-compliant options for study completion moving forward.

4. Recognizing that some of the owners of structures that are selected for mitigation may choose not to participate, the City should have flexibility to direct remaining budget to mitigate other structures subject to flooding using flood reduction measures proposed by the TSP as well as for other flood reduction measures that are not defined by the TSP. These other measures may include common sense, low-cost improvements to residential structures that are appropriate for the short-duration flashy flooding typical of our urban watershed such as installing glass block windows or barriers around the windows. Also included might be eliminating any walkout stairway by sealing its entrance and filling it in. Also included might be funding City overhead to manage participation in FEMA's Community Rating System that would reduce flood insurance rates community-wide, thereby reducing economic damage to the many structures for which this project would not provide direct mitigation.

USACE has generally addressed this question previously; however, we feel that this would be better addressed verbally and look forward to discussing details with you. In general, the feasibility study (GRR) process that we are currently in results in a Chief's Report to Congress requesting authority to construct a project and an appropriation for design and construction. We intend to describe the nonstructural features and techniques included in the recommended plan as well as the number of structures receiving nonstructural treatments as generally as possible in our final report. This generalization will allow us greater flexibility in the PED stage as we continue to assess which structures to include and which nonstructural treatments to apply.

Regarding the "remaining budget" not spent on participating structures: prior to the execution of a Project Partnership Agreement between USACE and University City, we will agree upon a Total Project Cost (TPC) for constructing the project features outlined in the Chief's Report. This TPC budget cannot be selectively allocated for project features that either the City or USACE wants to implement. If, for example, we agree to a TPC of \$20M, and a few of the structure owners opt to not participate at the last minute (totaling \$5M), we cannot simply re-allocate that \$5M for other flood risk management features or activities. Typically, this unspent amount would simply be reduced from the TPC, reducing the financial obligation of both the City and USACE. However, this is where the concepts of 20% scope change as well as flexibility built into the recommended plan become important factors. If there are still structures at risk of flooding whose inclusion still meets the federal interest and the NED plan would remain generally unchanged (within the 20% scope limit), it is possible that those structures could be included in the project.

We are open to discussing specific nonstructural features you identified in your comment such as glass block window installation, basement stairway removal, and barriers around windows (similar to dry floodproofing). The use or non-use of specific

features such as these will be determined during the final design phase during PED. There is not a situation where funding the City's overhead for CRS participation would or could be part of the Federal project.

5. Mitigation should include the upstream detention DB4. To be effective, that detention must consider timing of flood waves ideally using data from actual flood events collected using instrumentation installed by U. City.

USACE concurs that using existing and past information to influence future simulated events is the best and most accurate way to perform analyses. We support the Commission's request. Gages and instruments installed by U City at or near DB4 may/should be used to inform the flood warning system.