COMMISSION ON STORM WATER ISSUES
VIA VIDEOCONFERENCE
Tuesday, September 1, 2020
6:30 p.m.

IMPORTANT NOTICE REGARDING PUBLIC ACCESS & PARTICIPATION

On March 20, 2020, City Manager Gregory Rose declared a State of Emergency for the City of University City due to the COVID-19 Pandemic. Due to the ongoing efforts to limit the spread of the COVID-19 virus, the September 1, 2020 meeting will be conducted via videoconference.

Observe and/or Listen to the Meeting (your options to join the meeting are below):

Webinar via the link below:

https://us02web.zoom.us/j/87941258159?pwd=MGVrdkptRE9Ua0d6dW5JekFMUFF4UT09

Password: 989598

Audio Only Call

iPhone one-tap :
US: +13126266799,,87941258159# or +19292056099,,87941258159#

Or Telephone:
US: +1 312 626 6799 or +1 929 205 6099 or +1 301 715 8592 or +1 346 248 7799 or +1 669 900 6833 or +1 253 215 8782 or 888 788 0099 (Toll Free) or 877 853 5247 (Toll Free)
Webinar ID: 879 4125 8159

Citizen Participation and Public Hearing Comments:
Those who wish to provide a comment during the "Citizen Participation" portion as indicated on the agenda; may provide written comments to Sinan Alpaslan ahead of the meeting.

ALL written comments must be received **no later than 12:00 p.m. the day of the meeting.** Comments may be sent via email to: salpaslan@ucitymo.org, or mailed to the City Hall – 6801 Delmar Blvd. – Attention: Sinan Alpaslan. Such comments will be provided to Board/Commission member prior to the meeting. Comments will be made a part of the official record and made accessible to the public online following the meeting.

Please note, when submitting your comments, a **name and address must be provided.** Please also note if your comment is on an agenda or non-agenda item. If a name and address are not provided, the provided comment will not be recorded in the official record.

The City apologizes for any inconvenience the meeting format change may pose to individuals, but it is extremely important that extra measures be taken to protect employees, residents, and elected officials during these challenging times.

A G E N D A

COMMISSION ON STORM WATER ISSUES MEETING

September 1, 2020 at 6:30 p.m.
Via Zoom

1. **MEETING CALLED TO ORDER**
2. **ROLL CALL**
3. **APPROVAL OF AGENDA**
4. **APPROVAL OF MINUTES**
5. **CITIZEN PARTICIPATION**

Procedures for submitting comments for Citizen Participation and Public Hearings:
ALL written comments must be received **no later than 12:00 p.m. the day of the meeting**. Comments may be sent via email to: salpaslan@ucitymo.org, or mailed to the City Hall – 6801 Delmar Blvd. – Attention: Sinan Alpaslan. Such comments will be provided to the Commission on Storm Water Issues members prior to the meeting. Comments will be made a part of the official record and made accessible to the public online following the meeting *Please note, when submitting your comments, a **name and address must be provided**. Please also not if your comment is on an agenda or non-agenda item. If a name and address are not provided, the provided comment will not be recorded in the official record.*

6. **NEW BUSINESS**
    a. August 9 rain event and resulting flooding – Update and discussion
    b. Grant funding availability (see attachments): - Information
        i. FEMA Flood Mitigation programs (Building Resilient Infrastructure and Communities BRIC and Flood Mitigation Assistance FMA)
        ii. MSD Project Clear Rainscaping Large Grants
    c. Upper River Des Peres Flood Risk Reduction Study by Army Corps – Update (see attachment)
    d. Saint Louis University Water Institute Flood Mitigation and Response in the St. Louis Region – Virtual Discussion of August 26, 2020 Recap

7. **OLD BUSINESS**
    a. Bylaws – Discussion
    b. Flooding Early Warning System - Update

8. **MISCELLANEOUS BUSINESS**
9. **COUNCIL LIAISON COMMENTS**
10. **ADJOURNMENT**

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

6-11-2020

Notice of Interest (NOI) Instructions

Documents to accompany NOI's:

All NOIs MUST include:

- FIRM with location of project marked
- The County Local Hazard Mitigation Plan Adoption Resolution
- Complete Line Item Budget
- **Clear explanation of the work
- Address including Latitude & Longitude
- ***Must have a current local hazard mitigation plan*** - Jurisdiction must have this project's action item for this project and Jurisdiction must have adopted the plan. The project will not be eligible if the action item is not with the County's Hazard Mitigation Plan. Please contact your Regional Planning Commission or Council of Governments to amend plan.
- Buyouts do not need a FEMA Benefit Cost Analysis if the property/acquisition is below $276,000.00. (See FEMA Memorandum: Cost Effectiveness Determination for Acquisition and Elevations in Special Flood Hazard Areas.) **Note:** Missouri will not do elevation projects. This is a preventative measure to keep all structures out of the floodplain.
- Keep in mind, the budget you enter will be the budget SEMA will need to adhere to for FEMA funding. There is a set budget amount in the HMGP funding source. **If budgets come in higher during application development (if chosen) then this can cause a problem.**
- **Site grading, Landscaping/site restoration, demo & clearing** all require a FEMA Benefit Cost Analysis (BCA) 1.0 or greater to be turned in with NOI. These types of projects are hard to get the BCA to come out to a 1.0 or greater and we will need to justify the rating selection and consideration.
- **LWC, Culverts**, etc. - BCA, H & H Study (at least an analysis)

Note: Award consideration will be based on compliance of target population vs. of the safe room. Safe room size must be in accordance to FEMA 361 Guidance.

NOT AUTHORIZED:

- BRIDGE REPLACMENTS OR BRIDGE REPAIRS for State or Federal roads.
- CONSTRUCTION OF A LEVEE OR REPAIRS
- ELEVATIONS
- RESIDENTIAL SAFE ROOMS

6-11-2020

BRIC-NOTICE OF INTEREST (NOI)

(This is NOT an Application - An NOI is considered valid for two years from date of submission.)

Interested Subapplicant Information
Date: **County:**
Name of Interested Subapplicant:
Congressional District:
Type of Interested Subapplicant:
State Tax Number:
Federal Tax Number:
Federal Employer Identification Number (EIN):
DUNS Number:
NFIP Member Currently in Good Standing?
Years in NFIP:
NFIP Identification Number:
Delinquent on any Federal debt?
Small, impoverished community?
Point of Contact Information
Title
First-Last Name
Agency/Organization
Address 1
Address 2
City/State & ZIP
Phone
Email
Alternate Point of Contact Information
Title
First-Last Name
Agency/Organization
Address 1
Address 2
City/State & ZIP
Phone
Email
Mitigation Plan Information
Has your community adopted a FEMA-approved local hazard mitigation plan (HMP)?
What is the name of the plan?
***The proposed project type must be addressed in local hazard mitigation plan in order to be eligible.*
Where in the plan is this mitigation goal/action project type located (section/page)?
What date was the mitigation plan approved by FEMA?

Mitigation Project/Plan Information
What type of project/plan are you proposing?
What is the community/jurisdiction population (optional)? Does your community/jurisdiction have a project manager or will the service be contracted?
Please describe the proposed project/plan below. Address who benefits, why, what is the project, be specific. • Please provide a cost estimate and details of the estimate. • If the proposed project is an Earthquake Seismic Retrofit, please provide the estimated target population of building, who it will protect. Include the usable square footage/gross square footage. • Must include a FIRM to confirm project is not in a flood zone.

Project/Plan Cost Estimate & Match		
Total Project/Plan Cost Estimate	$	
Federal Share Percentage	75.0% - $	
Non-Federal Share Percentage	25.0% - $	
Only If Small Impoverished Community:	Dollars	Percentage
Proposed Federal Share	$	90%
Proposed Non-Federal Share	$	10%

Matching Funds		
Name of Source of Non-Federal Match	Funding Type	Amount ($)

Estimated Summary History of Past Damages Project Will Prevent in the Future			
*Date	*Event	*Description of Damage	*Amount of Damage
		***Total Amount of Damage**	$

Completed NOI can be submitted via e-mail to Heidi Carver, State Hazard Mitigation Officer, Heidi.carver@sema.dps.mo.gov or to Mary Smith, State Hazard Mitigation Specialist, Mary.smith@sema.dps.mo.gov

6-11-2020

Notice of Interest (NOI) Instructions

Documents to accompany NOI's:

All NOIs MUST include:

- FIRM with location of project marked
- The County Local Hazard Mitigation Plan Adoption Resolution
- Complete Line Item Budget
- **Clear explanation of the work
- Address including Latitude & Longitude
- ***Must have a current local hazard mitigation plan*** - Jurisdiction must have this project's action item for this project and Jurisdiction must have adopted the plan. The project will not be eligible if the action item is not with the County's Hazard Mitigation Plan. Please contact your Regional Planning Commission or Council of Governments to amend plan.
- Buyouts do not need a FEMA Benefit Cost Analysis if the property/acquisition is below $276,000.00. (See FEMA Memorandum: Cost Effectiveness Determination for Acquisition and Elevations in Special Flood Hazard Areas.) **Note:** Missouri will not do elevation projects. This is a preventative measure to keep all structures out of the floodplain.
- Keep in mind, the budget you enter will be the budget SEMA will need to adhere to for FEMA funding. There is a set budget amount in the HMGP funding source. **If budgets come in higher during application development (if chosen) then this can cause a problem.**
- **Site grading, landscaping/site restoration, demo & clearing** all require a FEMA Benefit Cost Analysis (BCA) 1.0 or greater to be turned in with NOI. These types of projects are hard to get the BCA to come out to a 1.0 or greater and we will need to justify the rating selection and consideration.
- **LWC, Culverts**, etc. - BCA, H & H Study (at least an analysis)
- **Buyouts:** Be sure the person claiming to own the home can actually sell it. If it is in a trust we will need an attorney's written formal legal opinion that the property can be sold. Ask if the property has had a lien put on structure/property due to a lawsuit. Also ask about SBA and duplication of benefits on the property. This has been a big issue and causes many problems if not addressed or caught beforehand.
    - Note: FEMA will not pay for hazardous materials to be removed. Only asbestos.
    - If commercial or residential please state.
    - If NFIP insured and will the property owner keep insurance until demolition.

Note: Award consideration will be based on compliance of target population vs. of the safe room. Safe room size must be in accordance to FEMA 361 Guidance.

NOT AUTHORIZED:

- BRIDGE REPLACMENTS OR BRIDGE REPAIRS for State or Federal roads.
- CONSTRUCTION OF A LEVEE OR REPAIRS
- ELEVATIONS
- RESIDENTIAL SAFE ROOMS

6-11-2020

Flood Mitigation Assistance (FMA)
NOTICE OF INTEREST (NOI)

(This is not an Application – An NOI is considered valid for two year from date of submission.)

Interested Subapplicant Information	
Date:	**County:**
Name of Interested Subapplicant:	
Congressional District:	
Type of Interested Subapplicant:	
State Tax Number:	
Federal Tax Number:	
Federal Employer Identification Number (EIN):	
DUNS Number:	
Currently Not Mapped for NFIP?	
NFIP Member Currently in Good Standing?	
Years in NFIP:	
NFIP Identification Number:	
Delinquent on any Federal debt?	
Point of Contact Information	
Title	
First-Last Name	
Agency/Organization	
Address 1	
Address 2	
City/State & ZIP	
Phone	
E-mail	
Alternate Point of Contact Information	
Title	
First-Last Name	
Agency/Organization	
Address 1	
Address 2	
City/State & ZIP	
Phone	
E-mail	
Mitigation Plan Information	
Has your community adopted a FEMA-approved local hazard mitigation plan (HMP)?	
What is the name of the plan?	
****The proposed project type must be addressed in local hazard mitigation plan in order to be eligible.*	
Where in the plan is this mitigation goal/action project type located (section/page)?	
What date was the mitigation plan approved by FEMA?	

Mitigation Project/Plan Information
What type of project are you proposing?
Title of your proposed project:
What is the community/jurisdiction population (optional)? Does your community/jurisdiction have a project manager or will the service be contracted?
Please describe the proposed project below. Please address who benefits, why, where, & what is the project, be specific. • If the proposed project is a flood buyout, attach a listing of properties with property owner's name, property address, estimated fair market value (e.g., Assessor's appraisal), and indication of whether or not the properties in question will be declared substantially damaged (50% or more of FMV lost in flood). Attach a separate budget that includes all eligible costs (e.g. demolition, closing costs, appraisal, title, etc.). • Property will need to on the **FEMA SRL/RL list**. Property will need to be NFIP insured and/or protect NFIP properties. • A FIRM will be required.

Estimated Summary History of Past Damages Project Will Prevent in the Future			
*Date	*Event	*Description of Damage	*Amount of Damage

Please refer to the FY2015 Hazard Mitigation Assistance (HMA) Unified Guidance for criteria regarding FMA flood mitigation activities, Repetitive Loss Properties (RLPs) and Severe Repetitive Loss Properties (SRLs). This document can be found on the SEMA webpage here: http://sema.dps.mo.gov/programs/mitigation_management.php. For questions, please contact Heidi Carver, State Hazard Mitigation Officer, at (573) 526-9116, heidi.carver@sema.dps.mo.gov

Property Site Inventory
Please group properties together based upon their designation (e.g. FMA, RLP, or SRLP)

Property Owner	NFIP Insured? Y or N	Property Address	Type of Property (FMA, RLP, or SRLP)	Estimated Cost of Acquisition

FMA Non-buyout Flood Mitigation Activities (e.g. low water crossings, road elevations, etc.)

Project Type and Location	Estimated Cost

Total Estimated Cost of Acquisition	
FMA	$
Repetitive Loss Properties	$
Severe Repetitive Loss Properties	$

Project/Plan Cost Estimate & Match

The percentage Federal/Non-Federal Split depends upon their designation (FMA, RLP, or SRLP). Place the total estimated cost of acquisition for each type in the total boxes below and calculate the federal and non-federal shares within each type based off the percentages listed:

FMA	Repetitive Loss Properties	Severe Repetitive Loss Properties
Total Cost:$	Total Cost: $	Total Cost: $
Federal(75%):$	Federal(90%):$	Federal(100%): $
Non-Federal(25%):$	Non-Federal(10%):$	Non-Federal(0%): $0.00

Once these figures have been calculated, please add up across the rows to get the total federal and non-federal cost estimates for the entire grant and insert into the table below:

Total Estimated Project Cost:	$
Total Estimated Federal Share:	$
Total Estimated Non-Federal Share:	$

***Matching Funds**

*Name of Source of Non-Federal Match	*Funding Type	*Amount ($)

Completed NOI can be submitted via e-mail to Heidi Carver, State Hazard Mitigation Officer, Heidi.carver@sema.dps.mo.gov or to Mary Smith, State Hazard Mitigation Specialist. Mary.smith@sema.dps.mo.gov

MSD Project Clear Rainscaping Large Grants Program: Annual Call for Applications

Introduction and Background Information

MSD's Long Term Control Plan (LTCP) outlines a Rainscaping Program, sometimes called Green Infrastructure, as part of the selected, long-term Combined Sewer Overflow (CSO) controls. The overall goal of this rainscaping program is to identify and implement projects and programs that will significantly reduce the number and volume of CSOs into the Mississippi River and provide additional environmental benefit. Rainscaping projects will redirect stormwater from reaching the combined sewer system by capturing and diverting it to locations where it is detained, infiltrated into the ground, evaporated, taken up by plants, or reused.

MSD Project Clear, the initiative to plan, design, and build system-wide improvements to address water quality and alleviate many wastewater concerns in the St. Louis region, includes $120 million in rainscaping investments. Specifically, MSD is making this investment within the Mississippi River CSO regions to reduce CSO runoff volume to the Mississippi River. MSD has developed a full implementation plan outlining how MSD will implement rainscaping with the focus of reducing CSO discharge volume to the Mississippi River. MSD finds that establishing partnerships and providing reimbursement for rainscaping is an effective way to meet CSO volume reduction goals.

MSD will continue to build partnerships with municipalities, schools, community development organizations, and private developers in order to identify joint opportunities to incorporate rainscaping into ongoing programs and future redevelopment projects.

Potential Eligible Project Elements

The following list shows eligible project elements. Other elements related to the rainscaping program may be eligible if they are in accordance with the program objectives.

- Impervious area reduction
- Porous pavement
- Reinforced turf
- Amended soils
- Planter boxes
- Bioretention/Rain gardens
- Impervious area sheet flow to buffer
- Rooftop disconnection to rain barrel
- Rooftop disconnection to cistern: irrigation reuse
- Rooftop disconnection (splash to grade)
- Green roofs
- Blue roofs
- Green streets
- Curb extensions/Street bump-outs
- Educational signage for rainscaping
- Other techniques as approved by MSD

Eligible Recipients

The following entities are eligible for financial partnering:

- Municipalities and local government agencies
- Schools
- Non-profit organizations
- Community development organizations
- Business owners
- Private developers

Funding Considerations

This is a reimbursement program. Grantees must have adequate funding available to cover all aspects of their rainscaping project up front. MSD Construction Approval of the rainscaping feature, including stabilization of the tributary area upstream of the rainscaping feature, is required prior to reimbursement. MSD plans to spend approximately $5 million per year on the rainscaping program. Allocations will be based on a priority ranking system. Projects that provide a funding match will receive a higher priority ranking. However, providing a match is not required.

Costs that may be eligible for reimbursement by MSD include the following: civil engineering design, landscape architecture, soils assessment and/or restoration, legal costs associated with deed restrictions and/or easements, demolition, construction of rainscaping features and public participation and education activities. Costs for maintenance of rainscaping features are not eligible. Projects that are completed or have already started construction are not eligible.

Required Activities

Preference shall be given to projects that can manage at least 1.14 inches of stormwater rainfall from the contributing drainage area. A reduction of runoff volume must be demonstrated and supported with calculations. Applicants should reference the Maximum Extent Practicable (MEP) spreadsheet and calculation tool available at the MSD website: https://www.stlmsd.com/what-we-do/stormwater-management/bmp-toolbox/calculation-and-report-preparation-tools Upon approval, all projects chosen for financial assistance shall be submitted for review per the MSD's development review process.

For all work that is contracted and/or subcontracted, the Grantee shall ensure that Prevailing Rates of Pay are paid to all skilled and unskilled labor employees utilized in accordance with Chapter 290, Sections 290.210 through and including 290.340, Revised Statutes of Missouri. The Grantee shall provide an affidavit of compliance prior to final reimbursement. Failure to comply could result in non-payment or return of prior payments to MSD for work found to be in non-compliance.

Evaluation Criteria and Process

General

Evaluators from MSD will score projects based on the application information submitted by the applicants. Project ranking will be primarily based on their potential for anticipated reduction of CSO overflow volume.

Use the following link to determine if the project is within the eligible grant area:
http://stlmsd.maps.arcgis.com/apps/webappviewer/index.html?id=1dc144bdb9b2484b82cfe73cc8a3c8d1
Only projects within the Mississippi CSO Region (dark green area) are eligible for the Annual Call Grant. Eligible projects must be located upstream of a CSO interceptor. Wherever opportunities exist for MSD to make informed choices between different properties available for stormwater retrofitting with rainscaping, MSD will prioritize these projects based on their expected CSO reductions from previous hydrologic modeling.

Project Specific

Benefit points will be awarded for each 100 cubic feet of runoff volume reduced and each 100 square feet of impervious area removed or redirected to a BMP. Projects proposed by municipalities and local governmental agencies will receive more benefit points than non-profit entity projects, which will receive more benefit points than private entity projects. Additional benefit points may be awarded for proposed activities such as:

- public education
- information
- communication
- innovative rainscaping technologies
- stormwater monitoring and analysis program
- location of CSO
- project visibility
- feasibility of future expansion
- maintenance capability
- long term sustainability
- environmental justice considerations

The total benefit points will be divided by MSD's cost (in thousands of dollars) to calculate the priority ranking. This will yield the most benefit points per MSD dollar spent.

Award of Funds

MSD will award funds through a Rainscaping Grant Program Agreement executed by MSD and the Grantee. The Agreement will describe the project, specify the funding amount and outline additional terms and conditions, and will serve as the legal commitment of both parties as to the scope and quality of work and the amount of funds committed. A BMP Expense Form, listing the amount of reimbursement for each BMP, will be attached to the Agreement. The BMP Expense Form must be completed prior to execution of the Agreement.

After receipt of final plan approval, there are additional steps required to secure final authorization of the project and its funding by MSD. The process typically takes two to three months. An ordinance authorizing the District to sign the Program Agreement and to fund the project will be presented for introduction to the Board of Trustees at its monthly meeting. The Ordinance is then presented to the Board for approval at the following meeting. Assuming approval by the Board, the District and the Grantee may then execute the Program Agreement fourteen days after approval by the Board.

Disbursement of Funds

Funds will be disbursed on a cost-incurred basis and supported with original receipts verifying costs. MSD construction approval of the rainscaping elements, including stabilization of the tributary area upstream of the rainscaping elements, is required prior to reimbursement.

Application and Submittal Process

Rolling timeline/schedule for submittal

FY 2020 Applications

- The application period is from August 1, 2019 to October 31, 2019
- Applications are due to MSD by October 31, 2019 at 5:00 p.m.
- MSD will notify the applicants of their decision no later than March 1, 2020
- Construction must begin prior to March 1, 2020.

Please direct all questions and submittals for this grant opportunity to Kaleena Menke of MSD's Program Planning Section. Interested applicants are encouraged to discuss possible proposals with MSD as soon as possible to facilitate good proposals and efficient reviews.

Kaleena Menke, PE
Metropolitan St. Louis Sewer District
2350 Market Street
St. Louis, MO 63103
314.768.6374
kmenke@stlmsd.com

US Army Corps of Engineers®

River Des Peres – University City
2013 Economic Update

Prepared by:
U.S. Army Corps of Engineers
St. Louis District
1222 Spruce St
St. Louis, MO 63103

Executive Summary

The University City, River des Peres General Reevaluation Study focuses on a 2 mile reach of an urban stream that poses a challenging planning situation. A 1988 Feasibility Report recommended a U-Shaped channel for flood control purposes. The project was not implemented due to funding constraints and local sponsor concerns. The St. Louis District Corps of Engineers (MVS) and University City entered into a design agreement in 2004 to reevaluate this branch of the river. Upon new hydraulics and hydrology (H&H) data collection and analysis; it was determined that 1988 plan would induce flooding downstream of the project area, thus making that plan not acceptable. The Product Delivery Team (PDT) then shifted its focus to a non-structural approach that considered flood warning systems, buy-outs and flood proofing. In September 2008 the area experienced an approximately 10-year flood event that resulted in the deaths of two individuals and devastating flood damages. This flood event has acted as a catalyst for a long- flood risk management solution by the sponsor, the USACE and the community. Missouri SEMA has already funded the buy-out of 26 single family homes in the most flood prone areas that also see the highest velocities of water during flash flood episodes. This economic update was performed to ensure that a viable project remained. There are a total of 275 structures in the 100-year floodplain, with expected annualized flood damage being $3.1M. Upon economic and real estate analysis it was determined that flood-proofing was not a viable option. A buy-out of 97 structures in the 5-year floodplain has a BCR of approximately 2.1. A buy-out of 158 structures in the 10-year floodplain has not proved feasible in the past and will be revisited later in the planning process.

Table of Contents

1.0 Study Purpose

The purpose of this current effort is to review and affirm or modify the non-structural alternative previously considered in the General Reevaluation study effort. This was done in recognition of changes which have occurred since the study was suspended.

2.0 Study Background

2.1 Project Authority

Construction or implementation of the River des Peres, Missouri, project was authorized by Section 101(a) (17) of the Water Resources Development Act of 1990 (Public Law 101-640). The authorizing language states:

> *SEC. 101. PROJECT AUTHORIZATIONS.*
>
> *(a) Projects With Report of the Chief of Engineers.--Except as provided in this subsection, the following projects for water resources development and conservation and other purposes are authorized to be carried out by the Secretary substantially in accordance with the plans, and subject to the conditions, recommended in the respective reports designated in this subsection:*
>
> > *(17) River des Peres, Missouri.--The project for flood control, River Des Peres, Missouri: Report of the Chief of Engineers, dated May 23, 1989, at a total cost of $21,318,000, with an estimated first Federal cost of $15,846,000 and an estimated first non-Federal cost of $5,472,000.*

The Report of the Chief of Engineers cited in the project authorization recommended flood damage reduction features for implementation in the University City Branch and the Deer Creek Branch of the River des Peres and the Kirkwood Branch of Gravois Creek (Gravois Creek is a tributary to the River des Peres). The Energy and Water Development Appropriations Act for Fiscal Year 2004 (Public Law 108-137) included funds for the Government to initiate design of the University City Branch features. A Design Agreement between the Government and Non-Federal Sponsor was executed on 30 June, 2004.

2.2 Prior Studies and Reports

1988 Feasibility Study

This study resulted in the following recommended plan, consisting of both flood control measures and a recreation component.

The recommended plan consisted of a channel modification for 2.53 miles of the University City Branch of Upper River des Peres between river miles 0.97 and 3.5. The work would consist of widening the channel and lining the streambank with either riprap or gabions depending upon the amount of top-width available. Riprap would be used where development is not too much of a constraint while gabions will be used where it is. A hiking and biking trail would occupy one side of the channel modification project right-of-way.

3.0 **Hydraulic Modeling of River Des Peres in University City**

3.1 Study Area

The stretch of creek that was modeled is located primarily in University City, Missouri. The computer model begins at the entrance to the large tunnels that carry the water underneath Forest Park in the City of St. Louis, and ends approximately ½ mile upstream of Dielmann Road in Olivette, Missouri. This can be seen in Figure 1 below.

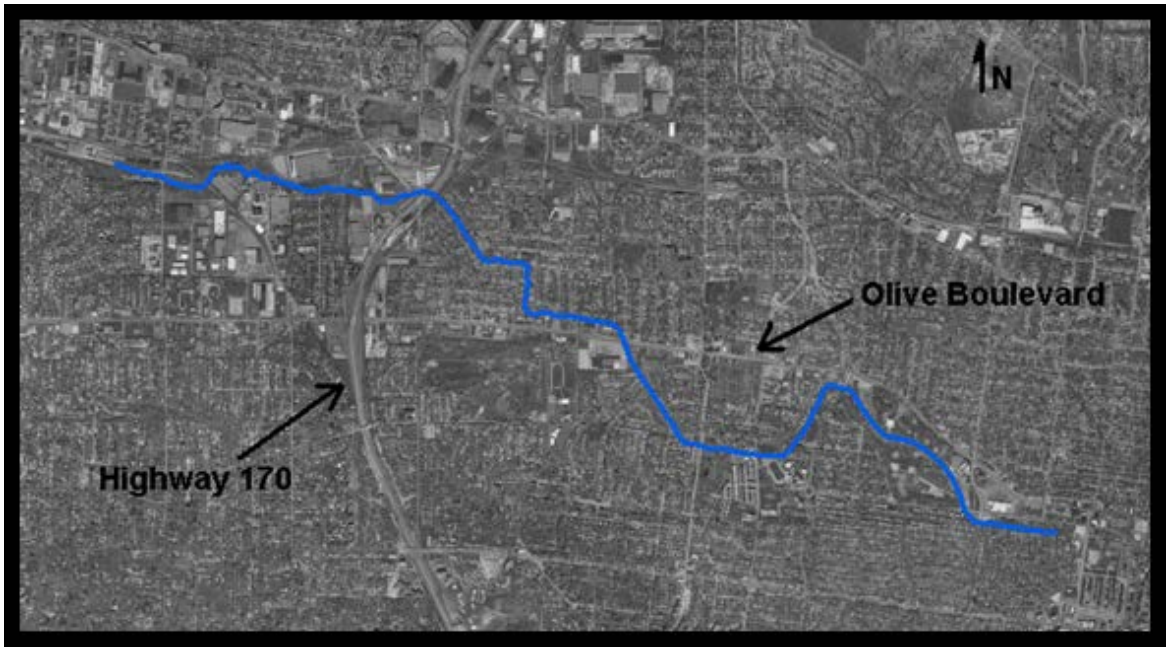


Figure 1 – Location of Study (Upper RDP in Blue)

3.2 Hydraulic Analysis

The old HEC-2 hydraulic model for Upper RDP, developed in the late 1980's and early 1990's, was converted into HEC-RAS version 3.1.2 for this study. To update the model to existing conditions, cross section surveys were taken in 2003 along several reaches that have changed over since the 1988 report. The locations were as follows:

- RM 1.653 – RM 1.853
  - This reach is between Hanley Road and North & South Road.

- RM 2.416 – RM 3.485
  - This reach is between Olive Boulevard and Kempland Avenue.
  - Bridge surveys were also completed in this reach, including Hafner Road, 82nd Boulevard, and the Footbridge at Appleton Drive.

Once the surveys were received by the District Office, the model was updated to reflect the changes that have been made to the channel by the Metropolitan Sewer District (MSD).

Figure 4 – Picture of Channel Improvements between RM 2.828 and RM 3.485

3.3 Results

The hydraulic analysis performed in 2006 year was unchanged for this report. Because the alternative being re-examined does not directly modify any of the existing creek flows, the future with project and future without project hydraulic conditions were assumed to be the same as the existing condition. While the profiles would change in the with-project condition as impervious materials (such as homes

and driveways) were replaced with pervious ones (soils and vegetation), the H&H engineers indicated that the change would not be significant enough to greatly affect the economic analysis for buyouts and relocations.

4.0 Economics

4.1 Economics Reaches

The following reaches (Table 1) were developed to break up the Area of Interest (AOI) into manageable portions. These reaches do not directly correlate to the H&H reaches identified in Section 3. Table 1 provides a description of the reach and corresponding stream stationing (by river mile).

Table 1. Economic Reaches

River Des Peres - University City		
RDP New Reaches	**Upstream**	**Downstream**
Vernon to Kingsland	0.391	0.000
Midland to Vernon	1.151	0.392
Hanley to Midland	1.863	1.152
Olive to Hanley	2.396	1.864
82nd to Olive	2.816	2.397
I-170 to 82nd	3.532	2.817

4.2 Structure Inventory

For this update, AOI was determined in ArcMap by capturing any structure within 50 meters of the 10-year floodplain. This buffer was done in an attempt to ensure any and all structures impacted by flooding on this portion of River Des Peres, were identified. To determine the economic value of the AOI, a structure inventory was completed. The available county assessor information was obtained and accounted for the bulk of the information for the survey.

The data provided by the assessor's office was already classified, valuated, and mapped in GIS. A windshield survey was performed for each of the 820 structures in the AOI. The information collected during the windshield survey was used to identify the first floor elevations, construction materials, and use of each structure. This data was used as input for the Marshall and Swift (M&S) Residential and Commercial Estimator programs. These programs combine the field information with depreciation tables to estimate the depreciated replacement value (DRV) for each structure. The DRV is used to identify the replacement cost for a structure in its current condition, based on the type and quantity of the construction materials. All structure values in this report are expressed as DRVs, except for the costs used for the buyout plan. That estimate was derived using the appraised values provided by the county assessor. Table 2 displays the structure count and average value, by category, for each economic reach.

Table 2. Total Structure Inventory

River Des Peres – University City					
Damage Reach	**Data Category**	**Residential**	**Commercial**	**Public**	**Total**
Vernon to Kingsland	Structures	77	0	0	77
	Average Value	*$124,222*	*$ -*	*$ -*	$9,565,100
Midland to Vernon	Structures	74	9	7	90
	Average Value	*$96,234*	*$51,867*	*$556,786*	$11,485,600
Hanley to Midland	Structures	143	5	3	151
	Average Value	*$128,101*	*$85,340*	*$1,448,400*	$23,090,400
Olive to Hanley	Structures	169	4	2	175
	Average Value	*$ 86,098*	*$761,875*	*$103,900*	$17,805,900
82nd to Olive	Structures	95	13	1	109
	Average Value	*$72,537*	*$137,023*	*$120,400*	$8,792,700
I-170 to 82nd	Structures	217	1	0	218
	Average Value	*$41,569*	*$3,100*	*$ -*	$9,023,500
Total	**Structures**	**775**	**32**	**13**	**820**
	Average Value	***$84,473***	***$178,919***	***$659,300***	**$79,763,200**

**Depreciated Replacement Values calculated by Marshall and Swift Estimator Software*
**October 2013 Price Levels*

The economist assigned structures to the respective reaches, after combining the hydrology and hydraulic data, LiDAR data and first floor elevation (FFE) estimates in HEC-FDA (the Corps' standard flood damage analysis software). A structure was identified as residing within a particular reach if the mean stage for that event was within 3 inches of the mean FFE. The decision to use 3 inches was based on judgment, in an effort to provide additional confidence in the selection of structures recommended for a buyout plan. Of the 98 structures within the 5 year floodplain, 97 structures were considered for a buyout plan. The single structure that was not considered was a public structure that would most likely be addressed through other means.

Table 3. Structure Inventory by Reach

River Des Peres – University City			
Damage Reach	**5 Year**	**10 Year**	**100 Year**
Vernon to Kingsland	0	5	7
Midland to Vernon	2	14	25
Hanley to Midland	19	29	65
Olive to Hanley	73	84	116
82nd to Olive	4	26	49
I-170 to 82nd	0	0	13
Total	98	158	275
**One public structure fell within the 5 year floodplain but was not included in the buyout plan. This structure is located at 975 Pennsylvania Ave. and is a garage unit likely used for maintenance storage.*			

4.2.1 Residential Structure Values

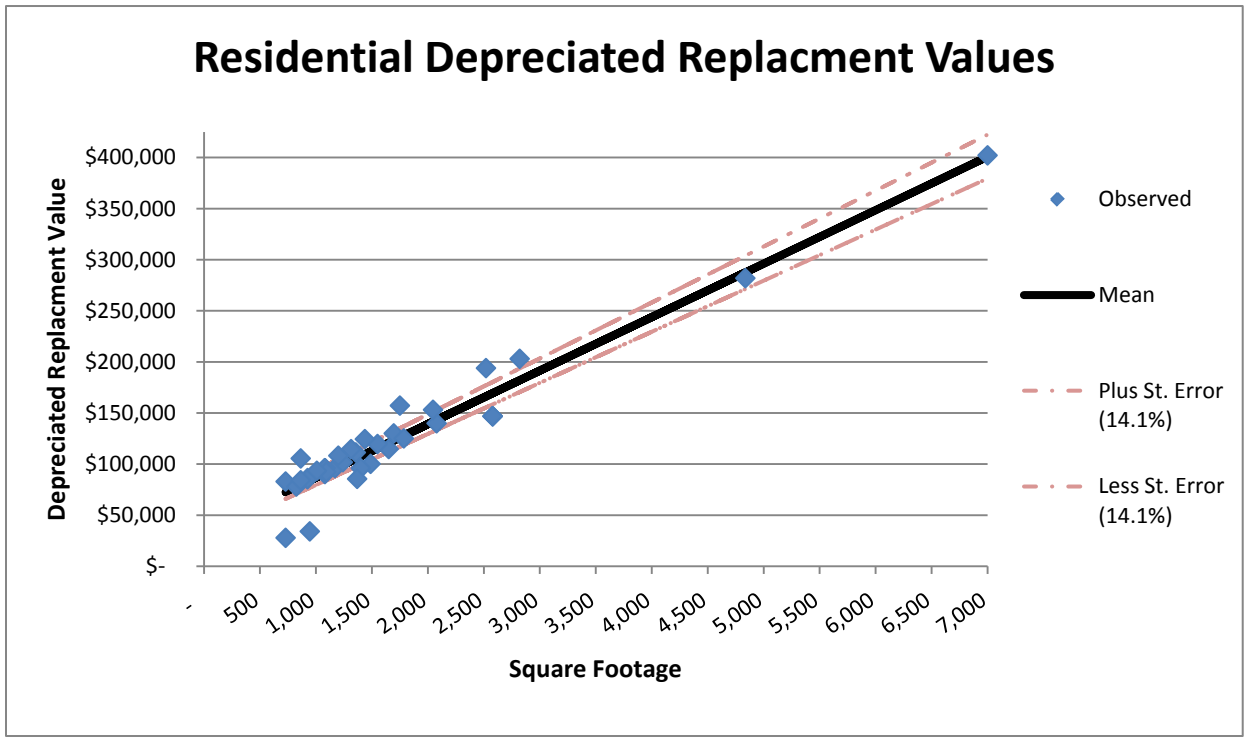
Since the assessor data was almost complete, regression analysis was used to estimate the depreciated replacement values (DRV). This was deemed the most efficient way to estimate DRVs for the entire population. The M&S Residential Estimator was run on a random 5% sample from the residential category. The selection of a sample size this small was confirmed adequate after reviewing the results. For each of the 38 structures, the DRV was calculated based on a combination of field observations and assessor data. After the DRVs were obtained for each structure in the sample, a regression was run with the assessor's square footage for residential structures (SQFT) as the independent variable and the DRV as the dependent variable. This regression resulted in the following equation:

Residential DRV = $34,357.14 + ($52.36 x SQFT)

R^2 = 93%, std. error of intercept = $4,860.41 (p-value = 0.0000), std. error of coefficient = $2.37 (p-value = .0000)

In short, the square footage of the residence accounts for 93% of the variability in the DRV. This equation was then applied to each individual residential structure within the total (assessed structure) population to determine the DRV. The standard error for residential structure values is 14.1%. The regression results are displayed below in Figure 2, as well as the error bounds. On average, the 2013 DRV estimates were 30% higher than the 2012 appraisal estimates from the assessors. A difference of 30% is not uncommon and is often driven by market prices. The majority of the residential construction in this area is older (an average construction year of 1951 for this sample) and it would be cheaper to purchase an existing home than to replace it with like materials.

Figure 2. Regression Analysis for Residential Structures



The above regression methodology was used to estimate the DRV for apartments and homes within the population of assessor provided structures. For more exact results, Marshall and Swift could be run on the entire population, but it was not deemed necessary since the regression performed accounted for 93% of the cost variability.

4.2.2 Commercial, Industrial and Public Structure Values

The regression method utilized for residential structures was not attempted for the commercial, industrial, and public (CIP) categories. With only a single CIP structure in the 5 year floodplain, it was determined that utilizing the Appraised Improvement Value from the assessor would be more than adequate to evaluate the 5 year buyout plan. With more time and funding, more data could be collected and a regression analysis might be possible, but a sensitivity analysis was performed instead.

The sensitivity analysis was completed on these structure values by adjusting the level of depreciation and some of the unknown construction components. This standard error accounts for the risk and uncertainty in the commercial structure values and is estimated at 25%.

4.2.3 Structure Content Values

The residential content damages are provided within the standard curves provided by the Corps' Institute for Water Resources. The CIP content values are estimated to be 100% of the value of the corresponding structure and were developed from fieldwork done for similar regional studies.

4.2.4 Elevation Estimates

During the windshield survey, the first floor elevations were estimated using the stair counting method. On average, each step is about 8 inches high. If there are 3 steps to get into the front door, the first floor elevation is 2 feet. This is a standard method for estimating first floor elevations in the field.

The first floor elevations were then paired with LiDAR elevations using GIS. Vertical accuracy of this data set is about (+/-) 1 foot with a standard deviation of 0.5 feet.

4.3 Benefit Analysis

4.3.1 Stage-Damage Relationships

In order to calculate the damages from the inundation of structures (and associated contents) that would occur at each stage, two relationships were developed: depth-damage relationships and stage-frequency relationships. The depth-damage relationship is the amount of damage that will occur to structures (and associated contents) as the elevation of the water (or stage) rises. The stage frequency relationship is the probability of the water stages reaching various levels for each hydrologic reach.

The uncertainties associated with the development of these relationships are addressed by risk-based analysis. A range of possible values, with a maximum and a minimum value, or a standard deviation, was calculated for each economic variable (structure and content values, first floor elevation, and depth-damage relationships). These statistics were entered into the Hydrologic Engineering Center's Flood Damage Analysis Program (HEC-FDA version 1.2.5a) to calculate the uncertainty or error surrounding the elevation - or stage-damage curves. The program also used the number of years that stages were recorded at a given gage to determine the hydrologic uncertainty surrounding the stage-frequency curves. The possible occurrences of each variable were derived through the use of Monte Carlo simulation, which used randomly selected numbers to simulate the values of the selected variables from within the established ranges and distributions. For each variable, a sample was used from within the range of possible values. Within each sample, or iteration, a different value was selected. The number of iterations performed affects the simulation execution time and the quality and accuracy of the results.

The sum of all sampled values, divided by the number of samples, yielded the expected value, or mean. This process was conducted simultaneously for each economic and hydrologic variable. The resulting mean and probability distributions formed a comprehensive picture of all possible outcomes.

Table 4 displays the stage-damage relationships for the 20%, 10%, 2%, 1% and 0.2% annual chance exceedence events (commonly referred to as the 5-year, 10-year, 50-year, 100-year, and 500-year flood events) for the 6 economic reaches.

Table 4. Without Project Stage-Damage Relationships at October 2013 Price Levels

Stage-Damage Relationships[1] Vernon to Kingsland					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	502.22	$72	$0	$0	$72
0.1	503.59	$369	$0	$0	$369
0.02	505.12	$1,142	$0	$0	$1,142
0.01	505.64	$1,372	$0	$0	$1,372
0.002	508.30	$3,938	$0	$0	$3,938
[1]*HEC-FDA output with uncertainty*					

Stage-Damage Relationships[1] Midland to Vernon					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	509.05	$124	$24	$26	$174
0.1	511.52	$374	$73	$78	$526
0.02	513.83	$1,319	$259	$275	$1,854
0.01	514.35	$2,094	$411	$437	$2,941
0.002	517.04	$3,567	$700	$744	$5,011
[1]*HEC-FDA output with uncertainty*					

Stage-Damage Relationships[1] Hanley to Midland					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	513.08	$791	$11	$2	$803
0.1	515.16	$1,990	$27	$4	$2,021
0.02	518.59	$4,935	$66	$10	$5,010
0.01	520.03	$6,398	$86	$12	$6,496
0.002	522.95	$10,846	$145	$21	$11,012
[1]*HEC-FDA output with uncertainty*					

Table 4. Continued…

Stage-Damage Relationships[1] Olive to Hanley					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	527.52	$3,197	$0	$5	$3,202
0.1	529.40	$5,198	$0	$8	$5,206
0.02	531.82	$8,465	$0	$13	$8,478
0.01	532.52	$9,464	$0	$15	$9,479
0.002	535.22	$12,684	$0	$20	$12,704
[1]*HEC-FDA output with uncertainty*					

Stage-Damage Relationships[1] 82nd street to Olive Blvd					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	530.83	$785	$29	$9	$823
0.1	532.48	$1,759	$66	$20	$1,845
0.02	535.38	$3,554	$133	$41	$3,728
0.01	536.12	$4,112	$154	$47	$4,314
0.002	538.86	$6,079	$228	$70	$6,377
[1]*HEC-FDA output with uncertainty*					

Stage-Damage Relationships[1] I-170 to 82nd street					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	537.03	$2	$0	$0	$2
0.1	538.44	$130	$0	$0	$131
0.02	540.47	$1,431	$1	$0	$1,432
0.01	541.03	$1,983	$1	$0	$1,985
0.002	543.74	$3,899	$3	$0	$3,902
[1]*HEC-FDA output with uncertainty*					

The stage-damage relationships displayed in Table 4 and Table 5 are products of the structure data and stage-frequency analysis for the without and with project conditions respectively. For example, a 20% chance exceedence (5-year) event at the Hanley to Midland reach of University City would be expected to result in $791,000 (Table 4) in structure and content damages, in the without project condition. For the with-project condition, we would expect this same event would be reduced to $365,000 (Table 5) in structure and content damages.

Table 5. With Project Stage-Damage Relationships at October 2013 Price Levels

Stage-Damage Relationships[1] Vernon to Kingsland					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	502.22	$72	$0	$0	$72
0.1	503.59	$369	$0	$0	$369
0.02	505.12	$1,142	$0	$0	$1,142
0.01	505.64	$1,372	$0	$0	$1,372
0.002	508.30	$3,938	$0	$0	$3,938

[1] *HEC-FDA output with uncertainty*

Stage-Damage Relationships[1] Midland to Vernon					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	509.05	$83	$20	$21	$123
0.1	511.51	$311	$74	$78	$463
0.02	513.83	$1,190	$281	$298	$1,769
0.01	514.35	$1,916	$453	$480	$2,848
0.002	517.04	$3,295	$778	$825	$4,899

[1] *HEC-FDA output with uncertainty*

Stage-Damage Relationships[1] Hanley to Midland					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	513.10	$365	$8	$1	$374
0.1	515.17	$1,063	$25	$4	$1,090
0.02	518.61	$3,436	$76	$11	$3,433
0.01	520.03	$4,518	$103	$15	$4,635
0.002	522.97	$8,385	$189	$27	$8,604

[1] *HEC-FDA output with uncertainty*

Table 5. Continued…

Stage-Damage Relationships[1] Olive to Hanley					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	527.54	$272	$0	$2	$274
0.1	529.41	$1,037	$0	$9	$1,046
0.02	531.83	$2,775	$0	$24	$2,798
0.01	532.52	$3,351	$0	$29	$3,379
0.002	535.23	$5,465	$0	$47	$5,512
[1]*HEC-FDA output with uncertainty*					

Stage-Damage Relationships[1] 82nd street to Olive Blvd					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	530.83	$372	$25	$8	$404
0.1	532.48	$955	$64	$19	$1,038
0.02	535.38	$2,378	$158	$48	$2,585
0.01	536.12	$2,851	$190	$58	$3,098
0.002	538.86	$4,585	$305	$93	$4,983
[1]*HEC-FDA output with uncertainty*					

Stage-Damage Relationships[1] I-170 to 82nd street					
Exceedence		Damage by Category (thousands)			
Probability	Stage	Residential	Commercial	Public	Total
0.2	537.03	$2	$0	$0	$2
0.1	538.44	$130	$0	$0	$131
0.02	540.47	$1,431	$1	$0	$1,432
0.01	541.03	$1,983	$1	$0	$1,985
0.002	543.74	$3,899	$3	$0	$3,902
[1]*HEC-FDA output with uncertainty*					

4.3.2 Depth-Damage Curves

For residential structures, curves developed by the Institute for Water Resources (IWR) were used. These are standardized curves widely used for flood damage analysis. Commercial, Industrial, Public, and Agricultural curves were taken from the Saint Paul District's work done for the Fargo-Moorhead Feasibility Study (2011). Similar structures were identified and depth-damage curves were selected accordingly.

4.3.3 Damage Reduction by Plan

Expected annual inundation damages reduced and distributed for the AOI are presented in Table 6. These damage totals are based on structure and content values alone (as well as an "other" damage category for residential structures accounting for emergency and other costs as presented in the Fargo Moorhead Feasibility Study). The expected annual damage reduced by the completed project is $1,804,800.

The Probability Damage Reduced Exceeds Indicated Values portion of Table 6 is to provide error bounds on the benefit estimates. Given the uncertainty associated with all of the inputs into the HEC-FDA model, we are 75% certain the average annual benefits produced by the proposed 5 year buyout plan will exceed $1,253,400.

Table 6. Expected Annual Damages

Damage Reach	Without Project Damages	With Project Damages	Damages Reduced (Benefits)	Probability Damage Reduced Exceeds Indicated Values		
				0.75	0.5	0.25
Vernon to Kingsland	$ 116,200	$ 116,200	$ -	$ -	$ -	$ -
Midland to Vernon	$ 179,600	$ 157,900	$ 21,600	$ 15,500	$ 20,700	$ 26,700
Hanley to Midland	$ 669,500	$ 386,500	$ 282,900	$ 185,100	$ 270,700	$ 364,800
Olive to Hanley	$ 1,571,500	$ 277,000	$ 1,294,500	$ 926,900	$ 1,259,800	$ 1,631,200
82nd to Olive	$ 493,200	$ 287,400	$ 205,800	$ 125,900	$ 199,100	$ 273,900
I-170 to 82nd	$ 89,800	$ 89,800	$ -	$ -	$ -	$ -
Total	**$ 3,119,700**	**$ 1,317,900**	**$ 1,804,800**	**$ 1,253,400**	**$ 1,750,300**	**$ 2,296,600**
**HEC-FDA Output at October 2013 Price Levels*						

4.4 Cost Analysis

The rough costs for the buyout plan were assembled using appraised values from the county and demolition estimates provided by University City from previous buyout efforts. A 25% contingency was added to this estimate. In addition to the value of the structure and the demolition cost, rough estimates for moving expenses and a replacement housing allowance was included. Of the 97 structures identified as buyout targets, all are residential. The structures included in the buyout plan are included in Attachment 1.

The interest during construction (IDC) was calculated based on a 3 year construction schedule. There are no additional OMRR&R costs associated with this project. The project's current first cost estimate is $19,224,300. With a total IDC of $1,007,300, the average annual cost comes to $870,200 (FDR of 3. 5%).

The original plans were compared to determine which maximized net benefits in 2010. This report was to confirm the viability of the 5 year buyout plan, then chosen as the NED plan. Table 7 displays the

planning level estimate of total costs for the plan, Table 8 displays the planning level average annual cost, and Table 9 displays the planning level average annual net benefits.

Table 7. Preliminary Total Construction Cost Estimate

Total Construction Cost	
River Des Peres	**5 Year Buyout**
Total Project	**$19,403,100**
Vernon to Kingsland	$0
Midland to Vernon	$221,600
Hanley to Midland	$4,451,700
Olive to Hanley	$11,123,600
82nd to Olive	$3,606,200
I-170 to 82nd	$0
October 2013 Price Levels	

Table 8. Preliminary Average Annual Cost Estimate

Average Annual Construction Cost	
River Des Peres	**5 Year Buyout**
Total Project	**$870,200**
Vernon to Kingsland	$0
Midland to Vernon	$9,938
Hanley to Midland	$199,645
Olive to Hanley	$498,860
82nd to Olive	$161,727
I-170 to 82nd	$0
October 2013 Price Levels	

Table 9. Preliminary Average Annual Net Benefits

Average Annual Net Benefits	
River Des Peres	**5 Year Buyout**
Total Project	**$934,600**
Vernon to Kingsland	$0
Midland to Vernon	$11,662
Hanley to Midland	$83,255
Olive to Hanley	$795,640
82nd to Olive	$44,073
I-170 to 82nd	$0
October 2013 Price Levels	

4.5 Benefit Cost Ratios

The average annual benefits listed below are an estimate of the risk reduced from removing the identified structures from the floodplain. These benefits are based solely on damage to structures and the contents. No effort was made to quantify business losses or disruptions caused by flooding.

The average annual benefit for the project is estimated at $1,795,300, with an average annual cost of $870,200 (FDR of 3.5%), resulting in a total BCR of 2.1 (FDR of 3.5%).

Table 10. Benefit to Cost Ratio at the 5-year Buyout Plan at 3.5%

River Des Peres	BCR	AA Benefits	AA Cost
Total Project	**2.1**	**$1,804,800**	**$870,200**
Vernon to Kingsland	-	$0	$0
Midland to Vernon	2.2	$21,600	$9,938
Hanley to Midland	1.4	$282,900	$199,645
Olive to Hanley	2.6	$1,294,500	$498,860
82nd to Olive	1.3	$205,800	$161,727
I-170 to 82nd	-	$0	$0
IDC costs were included			

5.0 Conclusions

This is currently a draft report updating the economic analysis. In any future analyses, the total number of structures to be included in a 5-year buyout plan may fluctuate along with the corresponding costs, benefits and BCRs. Based on this preliminary update, the 5 year buyout remains a feasible plan.

Once University City reviews this document, a meeting will be arranged to discuss the plan presented within this draft report. If additional explanation or clarification is needed, the report will be modified. A final version of this report will be provided to University City.

If University City would like to pursue Corps involvement in a buyout plan (or any other flood risk management plan), the suspended General Reevaluation study will need to be completed. University City would need to provide 25% of the costs to complete the study. Additional information about re-starting the General Reevaluation study can be provided at the City's request.

Attachment 1.

5-Year Floodplain Buyout Addresses

Economic Reach	Address	Street Name	Parcel Locator	Structure Use
Midland to Vernon	1208	Waldron Ave	17J511505	residential
Hanley to Midland	1131	Wilson Ave	17J420052	residential
Hanley to Midland	1135	Wilson Ave	17J420117	residential
Hanley to Midland	1139	Wilson Ave	17J420162	residential
Hanley to Midland	1143	Wilson Ave	17J420205	residential
Hanley to Midland	1149	Wilson Ave	17J420250	residential
Hanley to Midland	1153	Wilson Ave	17J420315	residential
Hanley to Midland	1157	Wilson Ave	17J420337	residential
Hanley to Midland	1163	Wilson Ave	17J421097	residential
Hanley to Midland	7467	Shaftesbury Ave	17J130201	residential
Hanley to Midland	1059	Wilson Ave	17J130256	residential
Hanley to Midland	1063	Wilson Ave	17J130322	residential
Hanley to Midland	1067	Wilson Ave	17J130399	residential
Hanley to Midland	1075	Wilson Ave	17J130498	residential
Hanley to Midland	1079	Wilson Ave	17J130520	residential
Hanley to Midland	1083	Wilson Ave	17J130603	residential
Hanley to Midland	1087	Wilson Ave	17J130652	residential
Hanley to Midland	7471	Shaftesbury Ave	17J130223	residential
Hanley to Midland	1035	N. Hanley Rd	17J130069	residential
Hanley to Midland	1039	N. Hanley Rd	17J131158	residential

Economic Reach	Address	Street Name	Parcel Locator	Structure Use
Olive to Hanley	1050	Mona Drive	17K340421	residential
Olive to Hanley	1054	Mona Drive	17K340476	residential
Olive to Hanley	1058	Mona Drive	17K340511	residential
Olive to Hanley	1062	Mona Drive	17K340603	residential
Olive to Hanley	1066	Mona Drive	17K340713	residential
Olive to Hanley	1070	Mona Drive	17K340751	residential
Olive to Hanley	1074	Mona Drive	17K330923	residential
Olive to Hanley	1078	Mona Drive	17K330994	residential
Olive to Hanley	1086	Mona Drive	17K331159	residential
Olive to Hanley	1090	Mona Drive	17K331214	residential
Olive to Hanley	1096	Mona Drive	17K331236	residential
Olive to Hanley	1100	Mona Drive	17K610043	residential
Olive to Hanley	1106	Mona Drive	17K610098	residential
Olive to Hanley	1110	Mona Drive	17K610142	residential
Olive to Hanley	1114	Mona Drive	17K610241	residential
Olive to Hanley	1118	Mona Drive	17K610285	residential
Olive to Hanley	1124	Mona Drive	17K610328	residential

Economic Reach	Address	Street Name	Parcel Locator	Structure Use
Olive to Hanley	1129	Glenside Lane	17K610438	residential
Olive to Hanley	1133	Glenside Lane	17K610449	residential
Olive to Hanley	1137	Glenside Lane	17K610483	residential
Olive to Hanley	1141	Glenside Lane	17K610548	residential
Olive to Hanley	1145	Glenside Lane	17K610571	residential
Olive to Hanley	1149	Glenside Lane	17K610625	residential
Olive to Hanley	1153	Glenside Lane	17K610681	residential
Olive to Hanley	1142	Glenside Lane	17K610647	residential
Olive to Hanley	1146	Glenside Lane	17K610702	residential
Olive to Hanley	1150	Glenside Lane	17K610746	residential
Olive to Hanley	1074	Groby Road	17K611022	residential
Olive to Hanley	1090	Groby Road	17K610494	residential
Olive to Hanley	1059	Raisher Drive	17K610186	residential
Olive to Hanley	1063	Raisher Drive	17K610263	residential
Olive to Hanley	1067	Raisher Drive	17K610306	residential
Olive to Hanley	1071	Raisher Drive	17K610373	residential
Olive to Hanley	1075	Raisher Drive	17K610362	residential
Olive to Hanley	1050	Raisher Drive	17K331281	residential
Olive to Hanley	1054	Raisher Drive	17K610032	residential
Olive to Hanley	1058	Raisher Drive	17K610076	residential
Olive to Hanley	1062	Raisher Drive	17K610119	residential
Olive to Hanley	1066	Raisher Drive	17K610153	residential
Olive to Hanley	1070	Raisher Drive	17K610218	residential
Olive to Hanley	1066	Groby Road	17K610296	residential
Olive to Hanley	1070	Groby Road	17K610351	residential
Olive to Hanley	1051	Raisher Drive	17K610108	residential
Olive to Hanley	1055	Raisher Drive	17K610131	residential
Olive to Hanley	7835	Ahern Ave	17K331072	residential
Olive to Hanley	7839	Ahern Ave	17K331160	residential
Olive to Hanley	7843	Ahern Ave	17K331203	residential
Olive to Hanley	7847	Ahern Ave	17K331258	residential
Olive to Hanley	7851	Ahern Ave	17K331292	residential
Olive to Hanley	7855	Ahern Ave	17K331247	residential
Olive to Hanley	7744	Ahern Ave	17K341301	residential
Olive to Hanley	7748	Ahern Ave	17K331302	residential
Olive to Hanley	7750	Ahern Ave	17K331313	residential
Olive to Hanley	7720	Drexel Drive	17K340762	residential
Olive to Hanley	7724	Drexel Drive	17K340773	residential
Olive to Hanley	7728	Drexel Drive	17K340805	residential
Olive to Hanley	7732	Drexel Drive	17K340784	residential
Olive to Hanley	7740	Drexel Drive	17K340872	residential
Olive to Hanley	7737	Drexel Drive	17K341103	residential
Olive to Hanley	7741	Drexel Drive	17K341125	residential
Olive to Hanley	7745	Drexel Drive	17K331182	residential
Olive to Hanley	1050	Wilshire Ave	17K340454	residential

Economic Reach	Address	Street Name	Parcel Locator	Structure Use
Olive to Hanley	1054	Wilshire Ave	17K340531	residential
Olive to Hanley	1051	Wilshire Ave	17K340487	residential
Olive to Hanley	1057	Wilshire Ave	17K340564	residential
Olive to Hanley	1061	Wilshire Ave	17K340696	residential
Olive to Hanley	7901	Glenside Place	17K610779	residential
Olive to Hanley	7915	Glenside Place	17K610768	residential
Olive to Hanley	7921	Glenside Place	17K610757	residential
Olive to Hanley	1087	Groby Road	17K610559	residential
Olive to Hanley	1091	Groby Road	17K610614	residential
Olive to Hanley	1095	Groby Road	17K610658	residential
Olive to Hanley	7925	Glenside Place	17K610735	residential

Economic Reach	Address	Street Name	Parcel Locator	Structure Use
82nd to Olive	1215	Westover Court	17K541204	res(Hafner apts) 16 units
82nd to Olive	8082-a.k.a. 8011	Hafner Court	17K541194	res(Hafner apts) 64 units

SAMPLE

RULES OF ORDER AND PROCEDURE OF THE TRAFFIC COMMISSION OF UNIVERSITY CITY

Section I
MISSOURI LAW AND THE CHARTER

1.1 Missouri Law. Rules of the Traffic Commission (the "Commission") must conform to the provisions of Missouri state law.

1.2 The Charter of University City. Rules of the Commission must conform to the provisions of the Charter of University City, Missouri.

1.3 Meetings of the Traffic Commission. Meetings of the Traffic Commission shall be conducted in accordance with, and its proceedings governed by, Roberts Rules of Order and the Sunshine Law of the State of Missouri, unless the by-laws shall otherwise prescribe.

Section II
MEETINGS

2.1 Time; Place. The Commission shall meet at City Hall or other designated public meeting places within University City on the second Wednesday of every month, except August, at 6:30 p.m., if there are Requests before the Commission. If there are no Requests before the Commission, the Secretary of the Commission (the "Secretary") may cancel the meeting by notice to the Commission members (by telephone or email) and the general public (by posting at City Hall) no later than five business days prior to the next scheduled meeting. A schedule of meetings will be printed in the City Calendar. In addition, the Commission may hold special meetings from time to time, upon no less than three days' notice in such public meeting place and at such time and date as the notice may specify, if the business of the Commission shall so require.

2.2 Quorum. Four or more Commission members appointed shall constitute a quorum to do business, but a smaller number may adjourn meetings.

2.3 Absences: The Commission may, by majority vote, request the resignation of a member who has 3 unexcused absences in a row or 3 unexcused absences in a calendar year.

2.4 Resignation: A member may resign from the Commission. The seat shall be considered vacant and shall be filled by the Council by appointment for the unexpired term.

2.5 Chairperson. The proceedings of the Commission shall be controlled by the chairperson. A chairperson shall be elected for a term of one year by a majority of the Commission members at each September Commission meeting. If a chairperson resigns prior to completion of such one year term, the Commission members shall elect a new chairperson upon resignation of the current chairperson, which chairperson shall serve until a new chairperson is elected at the following September Commission meeting.

If the chairperson is absent from a Commission meeting, the vice chairperson shall preside over such meeting. In the absence of both the chairperson and the vice chairperson, the Secretary shall appoint a temporary chairperson to preside over such meeting.

2.6 Vice Chairperson: A vice chairperson shall be elected for a term of one year by a majority of the Commission members at each September Commission meeting and will control the commission meetings in the absence of the chairperson. If a vice chairperson resigns prior to completion of his or her one year term, the Commission members shall elect a new vice chairperson upon resignation of the current vice chairperson. The new vice chairperson shall serve until a new vice chairperson is elected at the following September Commission meeting. A vice chairperson may serve more than one term and no more than two terms.

2.7 Leaving Meeting while in Session. No member of the Commission may leave the Commission meeting while in session without permission from the chairperson.

2.8 Order of Business. At the meeting of the Commission, the order of business shall be as follows (this may be changed at the discretion of the chairperson):

1) Call to order
2) Roll call
3) Action on unapproved minutes
4) Agenda items
   a) Introduction by chairperson
   b) Speakers from the public
   c) Commission deliberations
      i. Commission member moves for consideration of the item
      ii. Motion is seconded by another Commission member
      iii. Commission discussion are begun on the motion *(At this point, the motion has been taken "under consideration" by the Commission and no further information may be provided*

by the members of the public, unless specifically requested by a Commission member.)

iv. Commission members vote on motion

5) Council Liaison report
6) Miscellaneous business
7) Adjournment

Section III
REQUESTS; PETITIONS

3.1 Submission of Requests. All requests for consideration (the "Request") by the Commission must be submitted in written form (the "Request") to the Secretary at least three (3) weeks prior to a regularly scheduled meeting for consideration at that meeting. A form of Request can be obtained from the Department of Public Works at City Hall. After submission, the Secretary shall send a copy of such Request to each Commission member prior to the next regularly scheduled meeting. Requests not submitted to the Secretary at least 3 weeks prior to a regularly scheduled meeting will not be placed on the agenda for consideration at the meeting, but will be considered at the second regularly scheduled meeting following submission, unless the Secretary notifies the citizen who submitted the Request (the "Petitioner") otherwise. In addition, if the Secretary determines, in his or her sole discretion, that the Department of Public Works will require more than 3 weeks to complete the study/research required in order for the Commission to consider the Request, the Secretary may postpone consideration of the Request until the next regularly scheduled meeting. In such a case, the Secretary will notify the Petitioner of such postponement at least five (5) business days prior to the scheduled meeting of the Commission.
Notwithstanding the above, in the event of emergency, or upon agreement of three or more Commissioners, a Request may be placed on the agenda for consideration without compliance with the requirement that a Request be submitted to the Secretary at least 3 weeks prior to the next regularly scheduled meeting.

3.2 Petitions. If affirmative action by the Commission on a Request before the Commission would affect, either positively or negatively, other residents, the Commission may request that the Petitioner submit a petition to the Commission, which evidences the support of the Request by such Affected Households (the "Petition"). Those households that shall be considered "Affected Households" for purposes of each Request shall be determined in the sole discretion of the Commission based on the Commission's evaluation of the Request presented. In addition, Petitions may be requested by the Commission upon the vote of a majority of the Commission members. The staff member shall notify Petitioner that the Commission has requested the submission of a Petition prior to its consideration of Petitioner's Request as soon as reasonably practicable after the Commission makes such request. In connection

therewith, the staff member also shall inform the Petitioner which residences are deemed Affected HouseholdsRequests that the Commission determines require submission of a Petition will not be considered until the Petition is received. A Petition will be deemed to be sufficient to support a Request if signed by 75% of the Affected Households, one signature per household. Completed Petitions should be submitted to the Staff Member on the Commission. Upon submission, the Staff Member on the Commission will inform the Petitioner of the date of the Commission meeting at which Petitioner's original Request will be considered.

3.3. Staff Member's Informational Role: Notwithstanding the above, the Staff Member on the Commission may, in his or her discretion, confer with and provide information to residents about the Request and Petition process prior to Commission action on a Request or Commission requirement of a Petition or determination of Affected Households.

Section IV
RIGHTS TO THE FLOOR

4.1 Speakers from the Floor. Any member of the public may speak at a Commission meeting under the following conditions:

1) Speakers must fill out a written form, available at the meeting, listing their name and address, and identifying the Request or issue to which they would like to speak.
2) The chairperson will call on speakers at the appropriate time.
3) Members of the audience may also be called on to answer specific questions at the discretion of the chairperson.
4) All speeches are limited to five (5) minutes or less. It is preferable that members of the audience wishing to support a Request designate a spokesperson to present their views.

After a Request has been taken under consideration by the Commission, no member of the public may speak to the Commission further on that Request.

4.2 Non-Request Issues. Citizens attending a Commission meeting who have issues or questions/comments that are not related to the Requests being heard by the Commission at the Commission meeting will be called upon by the chairperson after the Commission has concluded deliberations on all agenda items. Citizens presenting both Request and non-Request issues are subject to the protocol set forth in Section 4.1 above.

Section V
SECRETARY

5.1 Secretary. The Secretary shall be elected for a term of one year by a majority of the Commission members at each September Commission meeting. If a secretary resigns prior to completion of such one year term, the Commission members

shall elect a new secretary upon resignation of the current secretary, which secretary shall serve until a new secretary is elected at the following September Commission meeting.

In the event that the secretary is not in attendance, the acting chairperson shall designate one member to serve as acting secretary for that meeting. The acting secretary shall provide the record of his or her notes from the meeting including all votes taken to the secretary.

5.2 Minutes. Within a reasonable period after each meeting, but not later than the Saturday immediately preceding the next scheduled meeting, the Secretary shall furnish each Commission member with a copy of the minutes of the preceding meeting. The Secretary shall record the minutes to include a record of what was done as well as a summary of the discussion from all speakers. The Secretary shall provide secretarial services to Commission members specifically necessary for performance of their business as members of the Commission.

5.3 Agenda. In advance of each meeting, the Secretary shall prepare an agenda showing the status of all matters presently pending before the Commission.

Section VI
MISCELLANEOUS

6.1 Non-partisan. Members of the Commission serve in a non-partisan capacity.

6.2 Remuneration. Members of the Commission shall receive no remuneration.

6.3 City Resources. Members of the Commission shall make no personal use of City resources, e.g., supplies, personnel, equipment, facilities. Resources of the City Clerk's office may be used in an official capacity.

6.4 Gratuity. No Commission member should receive any gratuity from anyone doing business with the City.

Adopted this 9th day of September, 2015

Paper Shredding Event

September 12, 2020 | 9am – 12pm

Centennial Commons parking lot at **7210 Olive Blvd.**

YES	NO
Personal/Business documents	Metal Objects ****other than a staple*
Paper, manila folders, checkbooks	Batteries*
Staples, paper clips	Food Waste
File folders & rubber bands	3 Ringed Binders
	Hard back books
	Cardboard boxes
	* *These items are potential fire hazards*

Face mask required during drop-off

City of University City

COVID-19 Precautions | No-Contact Service

Please stay in your vehicle. Please place your boxes/bags in your trunk or an unoccupied rear seat and remain in your vehicle while dropping off items to be shredded. A masked volunteer will take the items and place them in a container to be securely shredded on site.

There is a limit of 5 bankers boxes per car. See you there!

PAPER SHREDDING EVENT – 7210 Olive Blvd. – SEPTEMBER 12, 2020, 9am – noon

DRIVE-THRU DIRECTIONS: Please use directional arrows for proper shred drop-off traffic flow.