

Appendix H
Cost

DRAFT

Table of Contents

- 1 Cost Estimate Summary..... 3
 - 1.1 General..... 3
 - 1.2 Basis of Cost Estimate 4
 - 1.3 Contingencies..... 4
 - 1.4 Planning, Engineering, and Design (PED)..... 4
 - 1.5 Construction Management 4

DRAFT

Appendix H. Cost

1 COST ESTIMATE SUMMARY

1.1 GENERAL

The scope of this study is to complete a general reevaluation of the University City portion of the authorized project for the River Des Peres river system in University City, Missouri. It is a single-purpose study for flood risk reduction. This reevaluation will result in a report that will either update and confirm the authorized project or make a new recommendation. The study will evaluate and compare the benefits, costs, and impacts (positive or negative) of alternatives including the No Action Alternative. The study will identify whether an economically justified plan exists to reduce economic damages and life safety risk due to flooding. This report also incorporates the requirements of the National Environmental Policy Act (NEPA) to evaluate the proposed alternatives.

USACE proposes to address problems related to life-safety risks and economic damages associated with flood events generated from the River Des Peres river system in University City. The main life-safety risks include direct life loss, flooding of critical infrastructure, flooding of evacuation routes, and health concerns with flooded structures. Economic damages addressed include direct structure inundation (structure, content and vehicles), traffic disruption, and other associate emergency costs.

The following objectives have been developed for this GRR: 1) reduce life-safety risk due to flooding (including inundation of structures & public infrastructure) in University City over the 50-year period of analysis and 2) reduce economic damage due to flooding in University City over the period of analysis.

The structural alternatives that were evaluated for cost purposes were a combination of these three features:

- Detention Basin 3
- Detention Basin 4
- Levee/Floodwall 2a

Economics developed the preliminary nonstructural alternative costs. These were reviewed by cost engineering for content and consistency. Cost Engineering developed estimates for the Nonstructural Only (Alternative 6) and DB4 & Nonstructural Alternative (Alternative 8) Plans using parametric costs. The Nonstructural Only (Refined TSP) plan includes a combination of non-residential floodproofing, residential filling basements, and buyout of 75 structures. The DB4 & Nonstructural Alternative plan consists of Detention Basin 4 and nonstructural plan for 47 structures. The NED plan is Detention Basin 4 only.

1.2 BASIS OF COST ESTIMATE

The cost estimate has been prepared based on current concept designs and site specific information available to date.

Quantities were developed based on a conceptual model and provided directly from MVS Engineering and Construction Branch. There is a possibility quantities may increase during construction but cost impacts would be considered minimal and is captured in the abbreviated risk analysis as a possible risk with moderate impacts.

Cost estimate was developed using MCACES. Mobilization and demobilization was assumed to be 5% of the construction cost. Disposal quote was received from 370 Crossing Clean Landfill in Bridgeton, MO. The wage rates were developed using Davis Bacon, Heavy & Highway construction for St. Louis County, MO MO20210001 07/23/2021. The MII 2020 Equipment Region 5 was used for equipment rates. The 2016 Cost Book was used, and a 21% material escalation was applied based on ENR historical indices to bring costs from 2016 to August 2021.

1.3 CONTINGENCIES

The Abbreviated Risk Analysis process indicated a 28-49% construction contingency based on associated project risks for the different features of work.

1.4 PLANNING, ENGINEERING, AND DESIGN (PED)

Planning, engineering and design costs are based on historical data of similar projects in the St. Louis District. Recommended percentages by the cost MCX were taken into consideration as well. 18% of the construction cost was used to determine the PED costs.

1.5 CONSTRUCTION MANAGEMENT

Construction Management costs are based on historical data of similar projects in the St. Louis District. Recommended percentages by the cost MCX were taken into consideration as well. 10% of the construction cost was used to determine the CM costs.

River Des Peres

9/23/2021

Detention Basin 3

ITEM	ESTIMATED AMOUNT	
Lands and Damages	\$12,650,000	
Real Estate Federal Admin Costs	\$91,440	
Mobilization and Demobilization	\$690,000	
Demolition		
Building Demolition	\$3,881,000	
Site Demolition	\$1,150,000	
Building/Pavement Disposal Fee	\$170,448	
Excavation	\$6,840,460	
Soil Disposal Fee	\$1,402,610	
Containment Levee	\$15,200	
Weir Control Structure		
Concrete Wing Walls	\$42,250	
Concrete Swale	\$17,472	
Rip Rap	\$35,040	
Bedding Stone	\$14,625	
Concrete Weir	\$160,000	
Culvert	\$85,030	
Establishment of Turf	\$66,600	
SUBTOTAL:	\$14,570,735	
E & D :	\$2,620,000	18%
S & A :	\$1,460,000	10%
Contingency:	\$5,222,000	28%
Lands and Damages:	\$12,741,440	
TOTAL COST:	\$36,614,175	

River Des Peres

9/23/2021

Detention Basin 4

ITEM	ESTIMATED AMOUNT	
Lands and Damages	\$2,057,220	
Real Estate Federal Admin Costs	\$91,440	
Mobilization and Demobilization	\$200,000	
Demolition		
Building Demolition	\$31,100	
Site Demolition	\$253,000	
Building/Pavement Disposal Fee	\$13,568	
Excavation	\$2,784,430	
Soil Disposal Fee	\$527,332	
Containment Levee	\$198,750	
Weir Control Structure		
Concrete Wing Walls	\$84,500	
Concrete Swale	\$38,220	
Rip Rap	\$31,350	
Bedding Stone	\$20,400	
Concrete Weir	\$224,000	
Culvert	\$87,400	
Establishment of Turf	\$39,960	
SUBTOTAL:	\$4,534,010	
E & D :	\$816,000	18%
S & A :	\$453,000	10%
Contingency:	\$1,915,000	33%
Lands and Damages:	\$2,148,660	
TOTAL COST:	\$9,866,670	

River Des Peres

9/23/2021

Levee/Floodwall 2A

ITEM	ESTIMATED AMOUNT	
Lands and Damages	\$5,400,000	
Real Estate Federal Admin Costs	\$270,000	
Mobilization and Demobilization	\$930,000	
Levee	\$98,175	
Automatic Flood Gates	\$4,390,000	
Floodwall		
Structural Excavation	\$640,000	
Structural Backfill	\$895,440	
Concrete	\$1,816,416	
Reinforcing Steel	\$1,401,000	
Concrete Formwork	\$2,340,000	
Sheet Piles	\$6,246,950	
Waterstop	\$282,000	
Joint Filler	\$120,000	
Pavement & Sidewalks	\$371,000	
SUBTOTAL:	\$19,530,981	
E & D :	\$3,516,000	18%
S & A :	\$1,953,000	10%
Contingency:	\$10,500,000	42%
Lands and Damages:	\$5,670,000	
TOTAL COST:	\$41,169,981	

