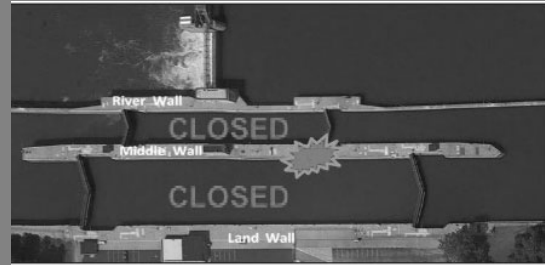
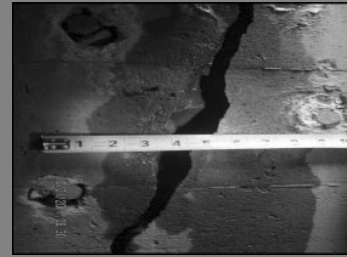


Upper Ohio Navigation Project Project Update Inland Waterways Users Board Meeting No. 92

Mr. Steve Fritz
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Great Lakes and Ohio River Division
12 September 2019



"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

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Upper Ohio Bottom Line Up Front

- ✓ **Current Schedule:**
 - ▶ Project Completion, TBD based on funding
 - ▶ Montgomery could be awarded in 2022 provided funding is available to complete design and construct
- ✓ **Current Cost:**
 - ▶ TEP – Total Estimated Price, fully funded, assuming efficient funding, at \$1.81 Billion
 - ▶ Maximum savings from the value engineering study informed this estimate
- ✓ **Keys:**
 1. Project does not meet the OMB threshold to be included in the President's budget request
 2. GI-PED funding is limited and therefore will not support efficient design of a large contract, i.e. (Montgomery)
 3. District poised to utilize up to \$15.9 M of PED funds if received in the FY20 work plan for Montgomery design
 4. Capital investment strategy will set priority

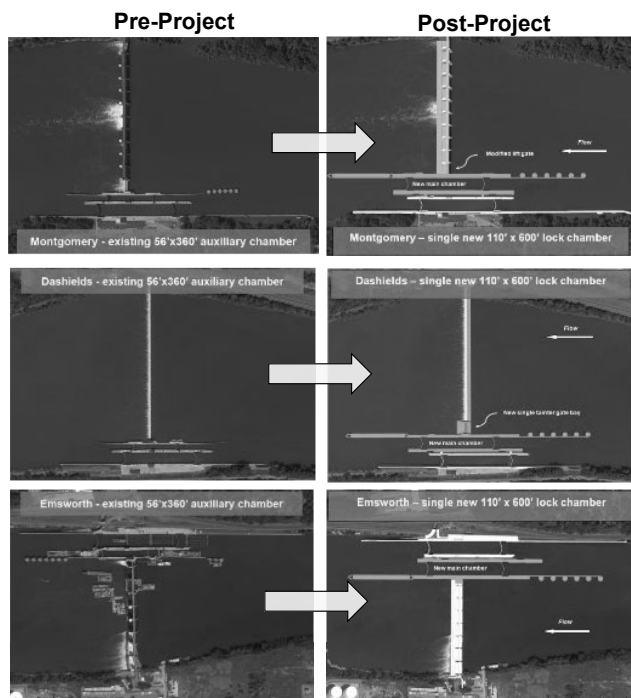
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Upper Ohio - Project Overview



Major Project Features

- Similar work at Montgomery, Dashields, & Emsworth
 - Demolish the existing 56' x 360' Auxiliary Chamber
 - Construct a new 110' x 600' Main Chamber
 - Modifications to dams

Financial

- 902 Limit: \$2.29 Billion
- Fully Funded Estimate at Completion¹: \$1.81 Billion

1. Total Project Cost updated – January 2019. This fully funded cost includes the maximum potential savings from the value engineering study.



Upper Ohio - Project Funding and Status

Current Project Estimate ¹ : \$1.81B	GI-PED	CG	IWTF	Total
FY17 Allocation:	\$5,525,000	-	-	\$5,525,000
FY18 Allocation:	\$2,353,000	-	-	\$2,353,000
FY19 Allocation:	\$2,500,000	-	-	\$2,500,000
FY20 Budget:	\$0	-	-	-
Total Allocations to Date:				\$10,378,000
Remaining Balance:				\$1,799,622,000
Remaining Balance Change From Last Meeting:				Not previously reported

	First Cost	Fully Funded
Original Authorized Cost:	\$2.69B	\$3.14B
Revised Project Cost¹	\$1.55B	\$1.81B

- Total Project Cost updated – January 2019. This fully funded cost includes the maximum potential savings from the value engineering study.
- Last IWUB reported \$1.55B which was the "first cost", not the "fully funded" cost.

Next Steps

- Complete the Economic Re-Evaluation Report

Current Status of the Project

- Not in FY 2020 President's budget
- Design work started on Montgomery
- Continuing Economic Re-Evaluation

Upper Ohio - Discussion

- GI-PED funding is limited and therefore can not support an efficient design/construction schedule
- Funding from the Construction General account is more efficient than staying in GI-PED even considering other Inland Waterway priorities
- Project could be in position to award first construction contract in late FY2020
- Project could be in position to award the Montgomery Locks contract in FY2022
- Economic re-analysis to wrap up in January
- Risks
 - Facility failure occurs while waiting for funds
 - Facility failure occurs while under construction
 - Other IWTF priorities – Capital investment strategy
 - Economics

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Upper Ohio – Funding Profile to Support Efficient Construction (funds shown are first cost, FY19 Level)

FY 1	FY 2	FY 3	FY 4	FY 5	FY 6	FY 7	Total
\$40M	\$43M	\$84M	\$225M	\$355M	\$461M	\$331M	\$1,554M

Profile Assumptions/Comments:

1. Unable to predict first year of construction general funding.
2. All project sites will be designed and built concurrently.
3. Funding profile is based on Project First cost, not the Fully Funded cost.
4. Unlikely to achieve this level of funding under current constraints.

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Upper Ohio Value Engineering Summary

Value engineering results

Facility	Maximum Cost Avoidance	Current Working Estimate
Emsworth	\$416,110,000	\$578,323,000
Dashields	\$501,216,000	\$547,838,000
Montgomery	\$362,743,000	\$677,570,000

Table reflects fully funded costs, FY 2019 Price Level

Cost to complete the VE study

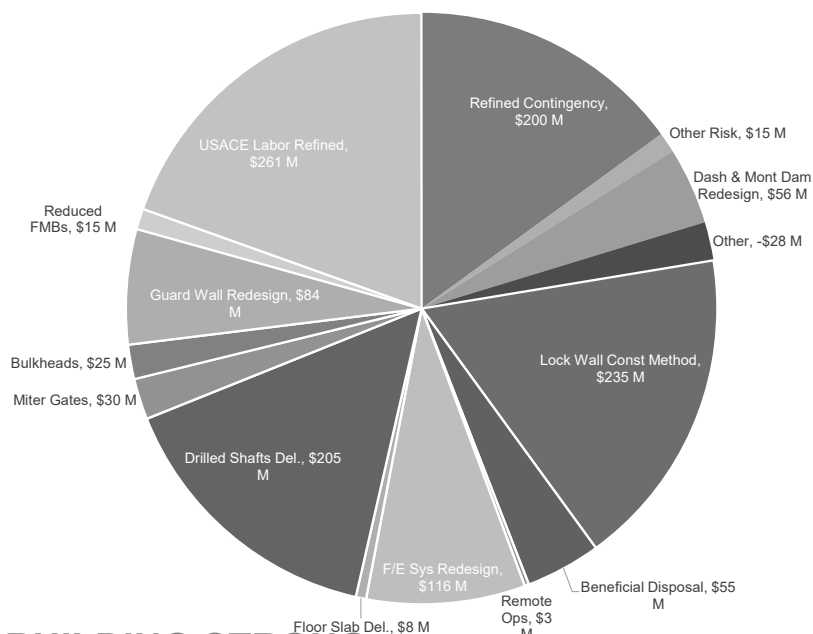
- ▶ ~ 10 months, including pre-planning, actual face to face charrette, and analysis
- ▶ ~\$165,000 (actual total: \$164,448.07; including labor: \$151,031.65 and travel: \$13,416.39)

- **VE process:** *Completing a feasibility study is similar to doing a VE study, in that, the feasibility study identifies the most economic and environmentally acceptable project from many alternatives. The feasibility VE study focused on specific items within the recommended (NED) plan where cost savings (same value at lower costs) measures may be achieved. This VE took a closer look at the feasibility level VE study and expanded it. This VE study indicates a maximum savings potential that will be refined as the actual designs progress.*

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Breakdown of Reductions Maximum Cost Avoidance \$1.28B fully funded



Reduced Contingency – a reduced project cost resulted in a reduction in contingency, but a large driver was also the removal of contingency associated with inefficient funding

Dash & Mont Dam Redesign – reduced impacts on the dam at Montgomery and used a Labyrinth Weir at Dashields dam

Lock Wall Construction – saved cost by using in-the-wet construction vs. coffer box construction

Beneficial Disposal – savings in disposal of clean fill into scour holes and concrete as fish barriers

F/E Redesign – simplified filling and emptying system design

Delete Floor Slab – eliminated concrete lock floors, using gravel instead

Delete Drilled Shaft Foundation – build new lock walls on top of rock

Miter Gates Heights – different size miter gates in stead of standardize gate sizes reduced costly rock excavation

Maintenance Bulkheads – Consider alternatives for shared bulkheads

Guard Wall Redesign – using granular fill cells for guard walls

Reduced FMBs – Reduced the number of Floating Mooring Bitts

USACE Labor Refined – developed staffing plans for S&A and refined PED leveraging economies of scale

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Discussion

