

Chickamauga Lock Project Update Inland Waterways Users Board Meeting No. 92

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Chickamauga Lock Replacement

- **Bottom Line Up Front**
 - ▶ **Lock Excavation Construction**
 - Contract closeout pending
 - Warranty issue for blasting damage.
 - ▶ **Lock Chamber Construction**
 - Mass concrete placements using conveyor system anticipated in Sept 2019.
 - Plan to exercise Option 9a by 30 Sept 2019
 - ▷ Scope includes placement of concrete and embedded metals that will allow more efficient completion of previously exercised Options.
 - ▶ **Post Authorization Change Report (PACR)**
 - OMB review on-going.



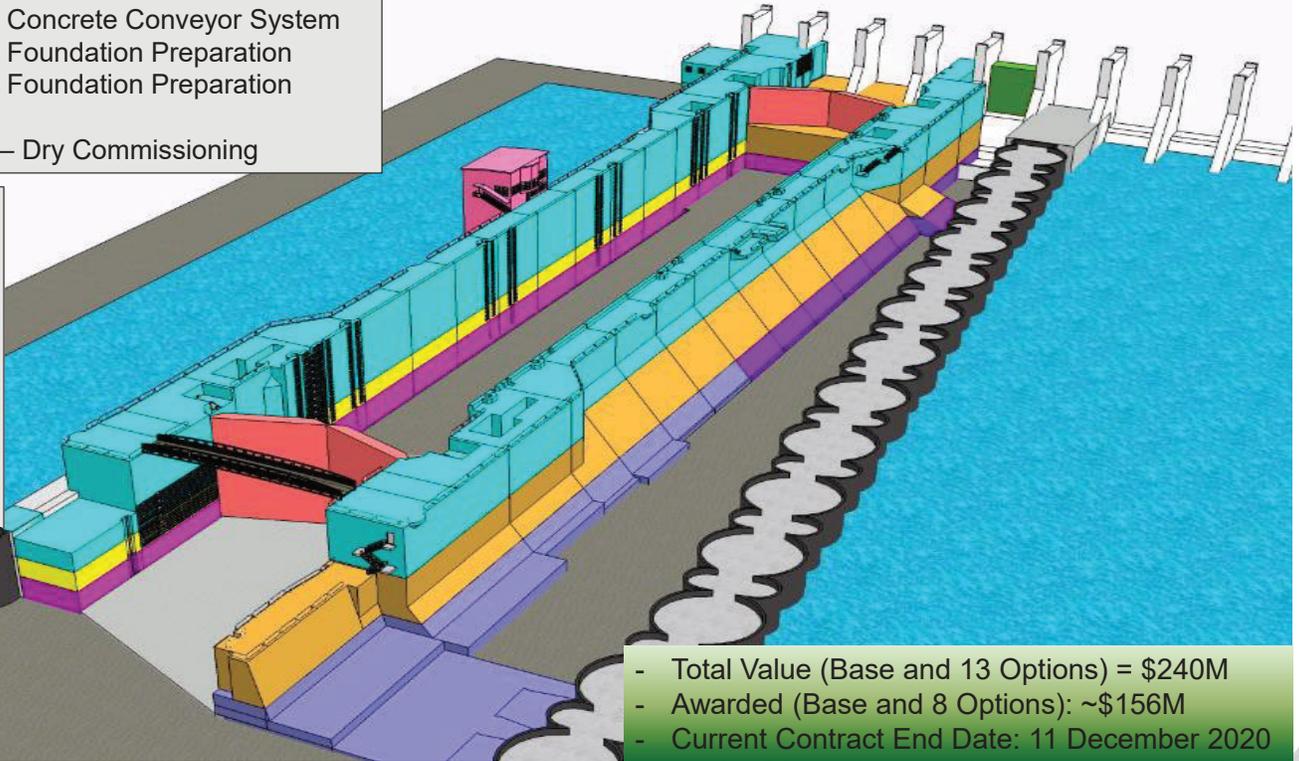
CHICKAMAUGA LOCK PROJECT OVERVIEW



Lock Chamber Construction Contract

- ✓ Option 1 – Concrete Conveyor System
- ✓ Option 2 – Foundation Preparation
- ✓ Option 3 – Foundation Preparation
- ⋮
- Option 13 – Dry Commissioning

- Legend**
- ✓ Option 4
 - ✓ Option 5
 - ✓ Option 6
 - ✓ Option 7
 - ✓ Option 8
 - Option 9
 - Option 10
 - Option 11
 - Option 12



Current project photos

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1. 6 August 2019: Lock Chamber contract – 2 of 3 planned tower cranes erected, concrete conveyor system installed from batch plant to cofferdam work area, foundations for 3rd tower crane and elevator placed.

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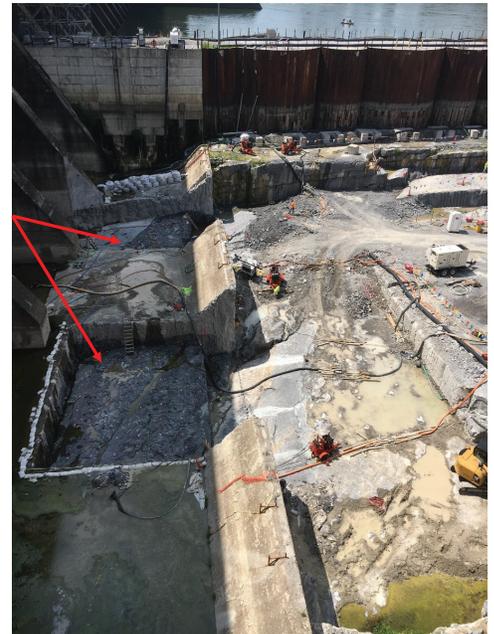
Current project photos

Tower Crane Foundation

Pedestrian Bridge/Elevator Foundation



Dam Spillway Apron Demo



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Chickamauga Lock & Dam, Tennessee River, TN

	ARRA	CG	IWTF	Total
Total Project Cost (TPC):				\$757,666,000 ¹
Allocations through FY2014:	\$49,307,619	\$68,391,511	\$68,389,500	\$186,088,630
FY15 Allocation:	\$0	\$1,500,000	\$1,500,000	\$3,000,000
FY16 Allocation:	NA	\$14,800,000	\$14,800,000	\$29,600,000
FY17 Allocation:	NA	\$20,000,000	\$20,000,000	\$40,000,000
FY18 Allocation:	NA	\$38,250,000	\$38,250,000	\$76,500,000
FY19 Allocation:	NA	\$76,245,000	\$13,455,000	\$89,700,000
Total Allocations to Date:	\$49,307,619	\$219,186,511	\$156,394,500	\$424,888,630
Remaining TPC Balance:				\$332,777,370
Remaining Balance Change From Last Meeting				\$0

Note: ¹Project cost data is reflective of Jun 2018 certified cost at a Oct 2017 price level, Fully Funded, 2024 completion

Changes
None

Funding Overview

- Authorized Cost: \$757,666,000 (Oct 17 \$)
- 902 Limit: \$909,199,200 (Oct 17 \$)
- ARRA Funds: \$ 49,307,619 (total FY09-12)
- Engineering & Design Cost: \$ 55,230,000 (thru FY18)
- Supervision & Admin Cost: \$ 9,153,000 (thru FY18)
- Mitigation Cost: TBD

Current Status of the Project

- Lock Chamber contract (Base & 8 Options) valued at ~\$156M; **26%** financially complete.
- Lock Excavation contract – **contract closeout pending.**
- OMB review of PACR underway.

Next Steps

- Lock Excavation contract – **warranty issue (blasting damage)**
- Lock Chamber contract – **exercise Option 9a by 30 Sept.**

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Chickamauga Lock & Dam, Tennessee River, TN

Schedule of Remaining Work	Design Initiated	Contract Award	Construction Complete *	Project Benefits**	Capitalized Cost Closeout
Task 1 – Approach Walls Fabrication	30-Mar-04	05-Apr-10	08-Mar-13		
Task 2 – Cofferdam Stabilization	31-Sep-05	25-Sep-15	18-Jul-16		
Task 3 – Lock Excavation	31-Sep-05	26-Sep-16	1 Feb 2019***		
Task 4 – Lock Chamber	11-Aug-05	28-Sep-17	Jun 2023		
Task 5 – Approach Walls and Decommission	11-Aug-05	30-Sep-21	Dec 2024	Sept 2023	
Task 6 – Site Restoration	11-Aug-05	30-Sep-23	Dec 2024		

*Dates are achievable based on the most efficient funding profile.

**Based on June 2018 Certified cost estimate Cost and Schedule Risk Assessment, the project has an 80% confidence level of being completed by Jan 2027. Primary driver for the 25 months of schedule contingency is the funding stream uncertainty.

***Date Lock Excavation contractor demobilized from cofferdam work area and laydown yard.

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Chickamauga Lock Project Time and Cost Scorecard



Expenditures	30 Jun
Planned (BCWS)	\$275.7M
Earned (BCWP)	\$270.4M
Actual (ACWP)	\$270.8M

BCWP: Reports the value (based on % complete) of the work performed to date.

Target:
Actual as compared to Planned: (<1% = Green)
(>1% and <3% = Yellow) and (>3% = Red)

Schedule

30 Jun

(Baseline)/(Current)

Project Complete	Jan 2027 / Dec 2024
Lock Operational	Jan 2027 / Sept 2023

Measures: Planned project completion and Lock operational dates

Target: Lock Chamber contract completion June 2023



Budget

Chickamauga Project EAC Trend



Major Activity Schedule

Activity	Baseline	Current
PACR – OMB Approval	1 Mar 2019	???
Lock Chamber – Initial Monolith Concrete Placement	May 2019	Sept 2019
Lock Chamber – Exercise Option 9a	30 Aug 2019	30 Sept 2019

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Chickamauga Lock Replacement – Cost and Schedule Risk Analysis (CSRA) – June 2018

- 79 Risk Items Identified
 - Cost Rankings and Risk Matrix Results

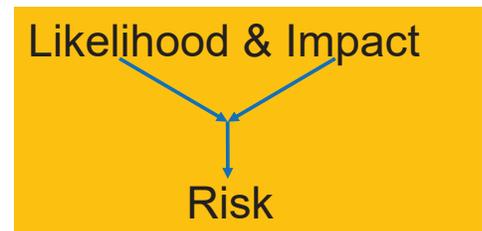
Very Likely	Likely	Possible	Unlikely
12	21	5	41

High	Medium	Low
3	21	55

- Schedule Rankings and Risk Matrix Results

Very Likely	Likely	Possible	Unlikely
12	20	6	41

High	Medium	Low
8	6	65

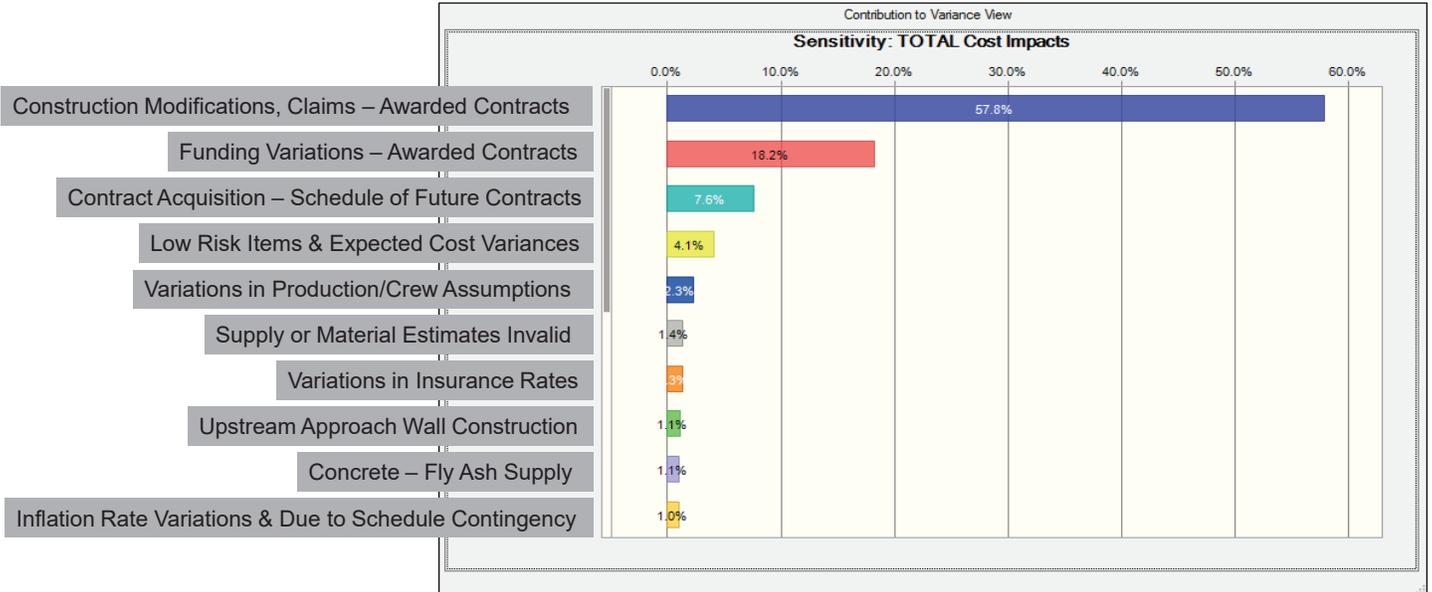


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Chickamauga Lock Replacement 2018 Total Project Cost Estimate - Cost Sensitivity

Cost Contingency = \$90.9M (19%)



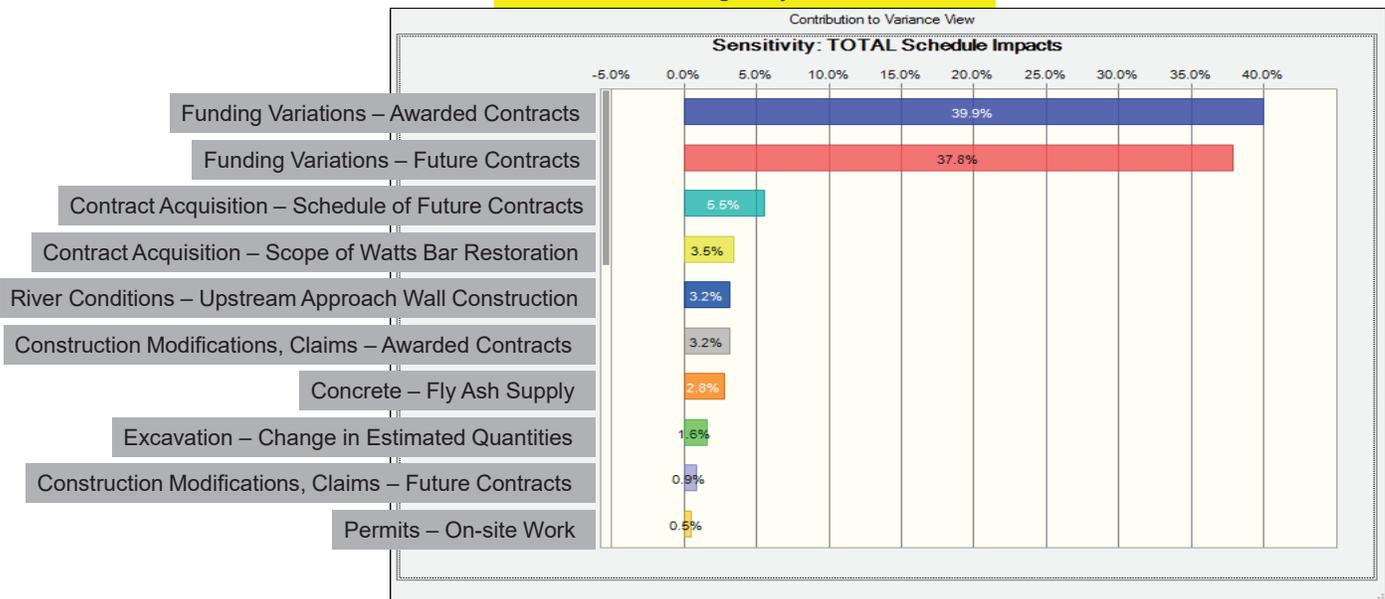
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Chickamauga Lock Replacement 2018 Total Project Cost Estimate - Schedule Sensitivity

Schedule Contingency = 25 months



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Chickamauga Lock Summary and Challenges

- **Lock Excavation** contract is substantially complete.
 - Working on blast damage warranty item discovered during foundation preparation activities by Lock Chamber contractor.
 - Contract closeout pending.
- **Lock Chamber** contract on-going.
 - Exercised 4 Options in March 2019, anticipate exercise of Option 9a in Sep 2019
 - No Cost Change
 - Preparing for mass concrete placements in September 2019.
- **Efficient Funding Profile**

FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total
\$94.5M	\$76.0M	\$74.8M	\$87.3M	\$34.7M	\$367.3M

