

# Kentucky Lock Project Update Inland Waterways Users Board

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# Kentucky Lock Addition BLUF

- **Bottom Line Up Front**
  - ▶ **Downstream Cofferdam Construction**
    - Construction proceeding well
  - ▶ **Level III Economic Update has been delayed due to efforts on Soo Locks but no KY Lock project impacts.**
  - ▶ **Site, Demolition, and Utilities contract (\$4.1M) awarded January 2018**
  - ▶ **Downstream Lock Excavation contract (\$25M to \$100M) on track for FY18 award.**
    - Significant flexibility in its funding stream

# Kentucky Lock Project Overview

Bridges Superstructures - \$104M  
Completed Jul 2014

Bridges Substructures - \$44M  
Completed Mar 2006

D/S Lock Excavation  
Award – Sept. 2018

D/S Cofferdam - \$67.1M  
Award - Sept. 2016

U/S Miter Gate Fab. - \$5.6M  
Completed Dec 2016

D/S Lock  
Award – Sept. 2020

Upstream Cofferdam - \$17M  
Completed Nov 2006

Upstream Lock - \$110M  
Completed Feb 2017

Approach Walls  
Award – Sept. 2021

Site, Demolition, &  
Utilities  
Award – Jan 2018

Lock & Associated Facilities	\$1,044M
TVA Transmission Towers	13M
P & L Railroad	97M
Hwy 62 and other roadways	100M
<b>Total</b>	<b>\$1,254M</b>

\$499M Obl thru Sep 2017 = 40% complete

## Downstream Cofferdam

Low Bid: \$67.1M

Current amount: \$65.5M

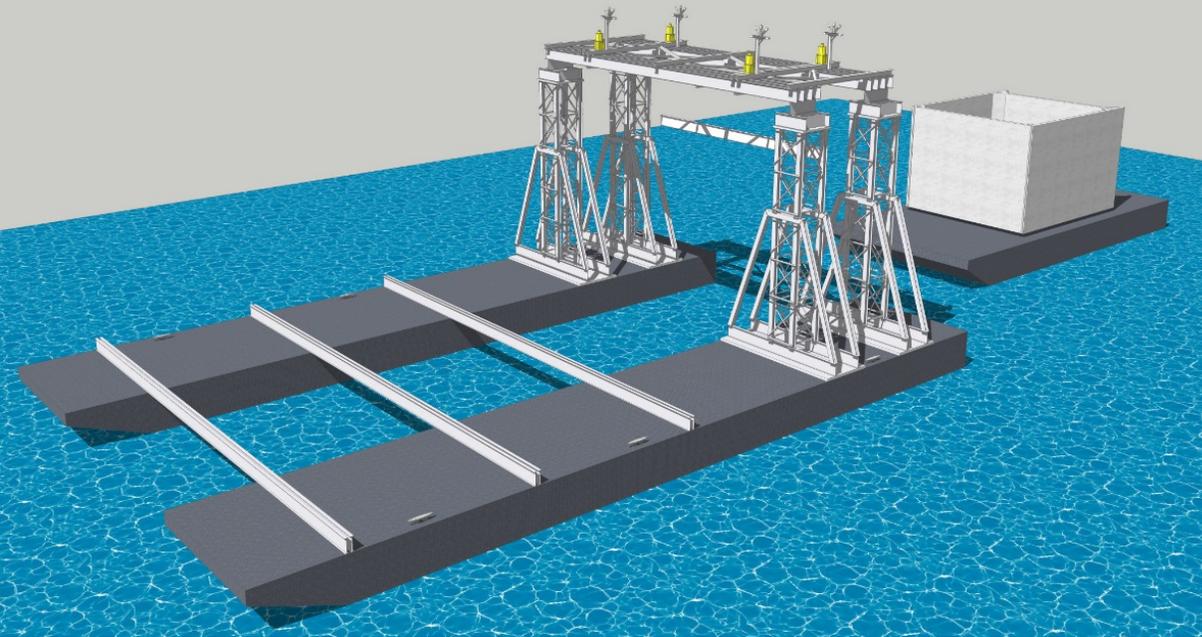
Contractor: Johnson Bros.

Award: September 2016

Complete: December 2019

Downstream  
Cofferdam





## Lift-in Arrangement 3D Model

2 Feb 2018 – Gantry barge system being assembled

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Excavated Notch for Gantry barge

Concrete Delivery Platform

2 February 2018



Sheet Pile Cell Template

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Interior forms and spud wells for 1<sup>st</sup> of 3 lifts for first shell



2 February 2018 – Pics on casting barges approximately 3 miles downstream from KY Lock.



Wall armor in foreground and forms for second shell in background.

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# Kentucky Lock Project Time and Cost Scorecard



<b>Expenditures</b>		31 Dec
Planned (BCWS)		\$448.7M
Earned (BCWP)		\$450.0M
Actual (ACWP)		\$447.5M

**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)

<b>Schedule</b>		31 Dec
		(Baseline)/(Current)

Project Complete	May 2028 / Jul 2024
Lock Operational	May 2028 / Jul 2024

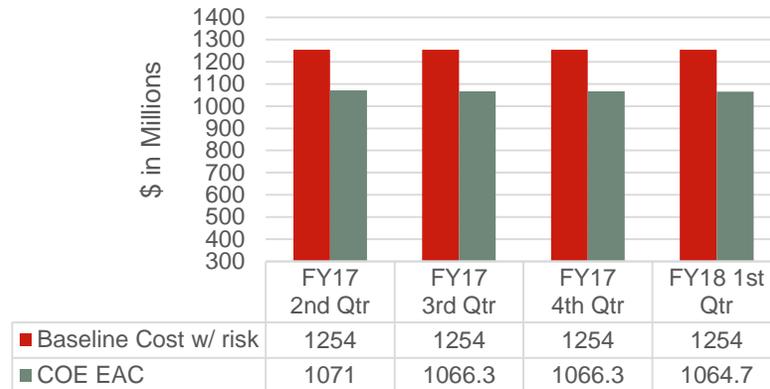
**Measures:** Planned project completion and Lock operational dates

**Target:**  
PACR Anticipated in FY19.



## Budget

KY Lock Project EAC Trend



## Major Activity Schedule

Activity	Baseline	Current
Level 3 Economic Update – Draft Report	14 Nov 2017	30 Sep 2018
Site, Demolition, & Utilities – Award Contract	Sep 2017	Jan 2018(A)
PACR to HQ	Feb 2018	Dec 2019
Downstream Lock Excavation Award Contract	Sep 2018	Sep 2018

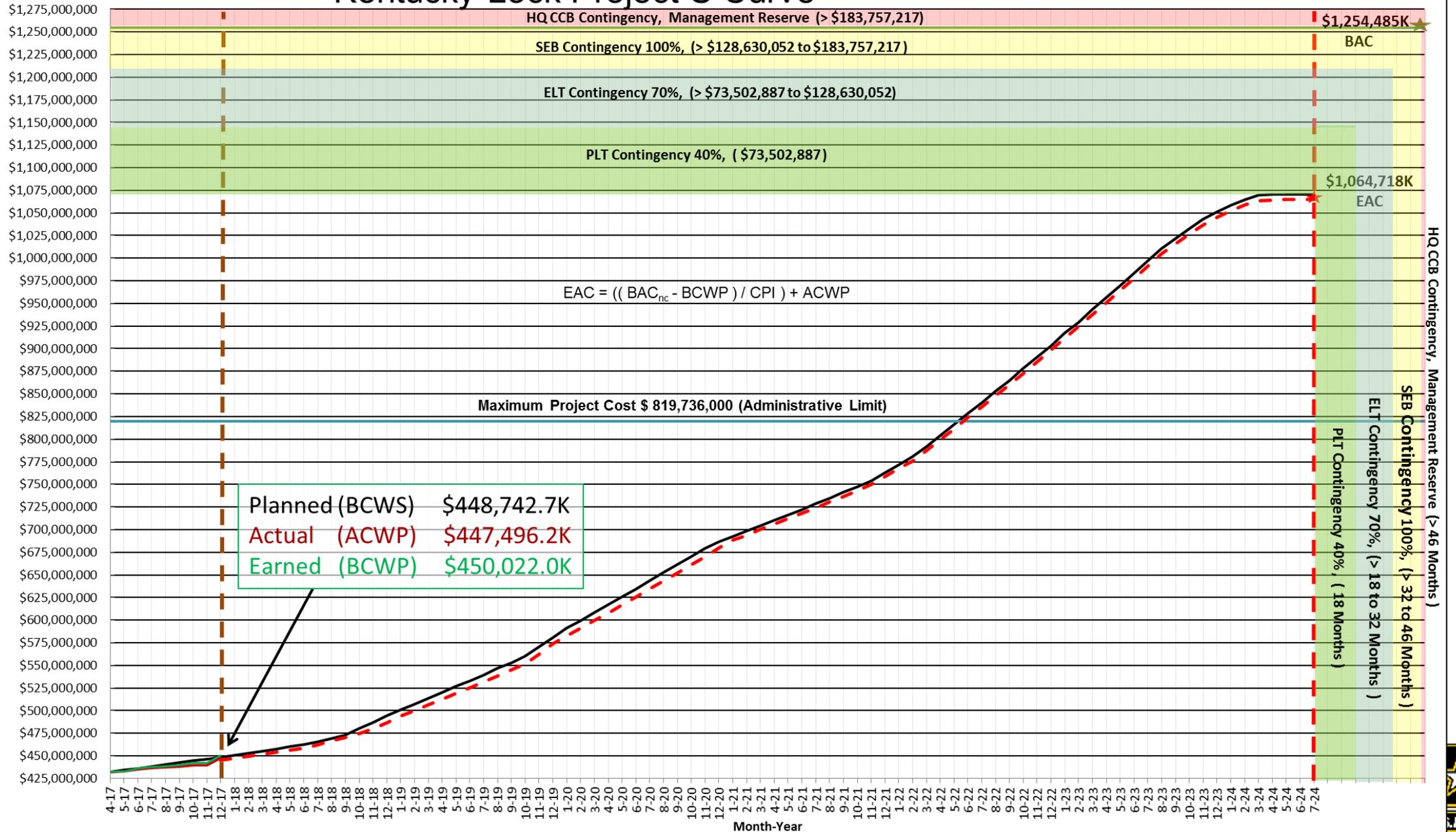
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# Kentucky Lock Project S Curve



# Kentucky Lock Project Schedule

Major Feature Construction	Award	Complete <sup>2</sup>	Revised
Upstream Lock Monoliths Construction	Jan 2010	Feb 2017	Complete
Downstream Cofferdam Construction	Sep 2016	Nov 2019	Dec 2019
Site, Demolition & Utilities	Jan 2018(A)	Jan 2019	
Downstream Lock Excavation Construction	Sep 2018	Dec 2020	
Downstream Lock Construction	Sep 2020	Mar 2024	
Approach Walls Construction	Sep 2021	Nov 2023	
Risk Based Total Project Cost Estimate	Mar 2016	3 Jan 2017	Complete
Economic Update	Jan 2017	Sep 2018	
Post Authorization Change Report for 902 Exceedance <sup>1</sup>	Jul 2017	Dec 2018	

<sup>1</sup>902 Exceedance expected as early as FY2022

<sup>2</sup>New schedule associated with new cost estimate. Assumes no risk. 80% confidence schedule adds 46 months to project completion date)



New Federal Materials  
Concrete Batch Plant  
1.5 miles away



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# Downstream Lock Excavation Options Strategy

Fiscal Year	Efficient PROJECT Funding	Minimum PROJECT Funding to complete contract	Impacts of Minimum Funding
2018	\$40.5M	\$20M	Possibly higher bids with a small Base scope.
2019	\$58.6M	\$40.8M	Possibly higher bids because of extended Options expiration dates.
2020	\$90.3M	\$58.6M	Project completion date slips 12 months (cannot award next contract), \$5.5M cost increase, \$100M benefits foregone
Contract End Date	January 2021	September 2021	Minimum funding pushes more work into the last year of this contract; and thus, extends its completion date.

Notes:

- Will be a Base contract with approximately 10 Options so as to accommodate the above minimum funding stream and maximize funding flexibility.
- If possible, Base contract scope will be finalized once FY18 funding amount is known.
- If Options are not exercised, their scope will simply be included in the next contract.
- Downstream Lock Excavation construction schedule is being refined and impacts above could change.

# Cost Estimate Comparison of Categories with Large Differences Break-out of Upstream vs. Downstream Cofferdams

Feature	Authorized Cost	2017 TPCE	Difference	Percent Difference	Sunk Costs	Remaining Costs
	(FY2017 Price Level)	(FY2017 Price Level)				
<b>Cofferdams</b>	<b>\$52,712,225</b>	<b>\$94,358,499</b>	<b>\$41,646,274</b>	<b>79%</b>	<b>\$16,954,711</b>	<b>\$77,403,788</b>
Upstream Cofferdam	\$20,706,158	\$16,954,711	-\$3,751,447	18%	\$16,954,711	0
Downstream Cofferdam	\$32,006,067	\$77,403,788	\$45,397,721	142%	\$0 <sup>1</sup>	\$77,403,788

<sup>1</sup>At the time of this estimate, no expenditures had been made. But as of 31 January 2018, total expenditures for the Downstream Cofferdam were \$16.7M.

Note: All costs above are first costs, not fully funded.

# Kentucky Lock

## Summary and Challenges

- Downstream Cofferdam construction going well but it is a high risk contract due to constricted marine area and geology.
- Recent years average delays at KY Lock >7 hours and traffic levels remain robust. This should bode well for benefits in ongoing Economic Update.
- Downstream Lock Excavation is on track and will be configured to maximize funding flexibility.