

IWTF Projects Update Inland Waterway Users Board

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Agenda

- Olmsted
- Lower Mon
- KY Lock
- Chickamauga Lock

Olmsted Bottom Line Up Front

✓ Current Schedule: **Ahead of Schedule**

- 2018 (Project Operational)
- 2022 (Project Complete)

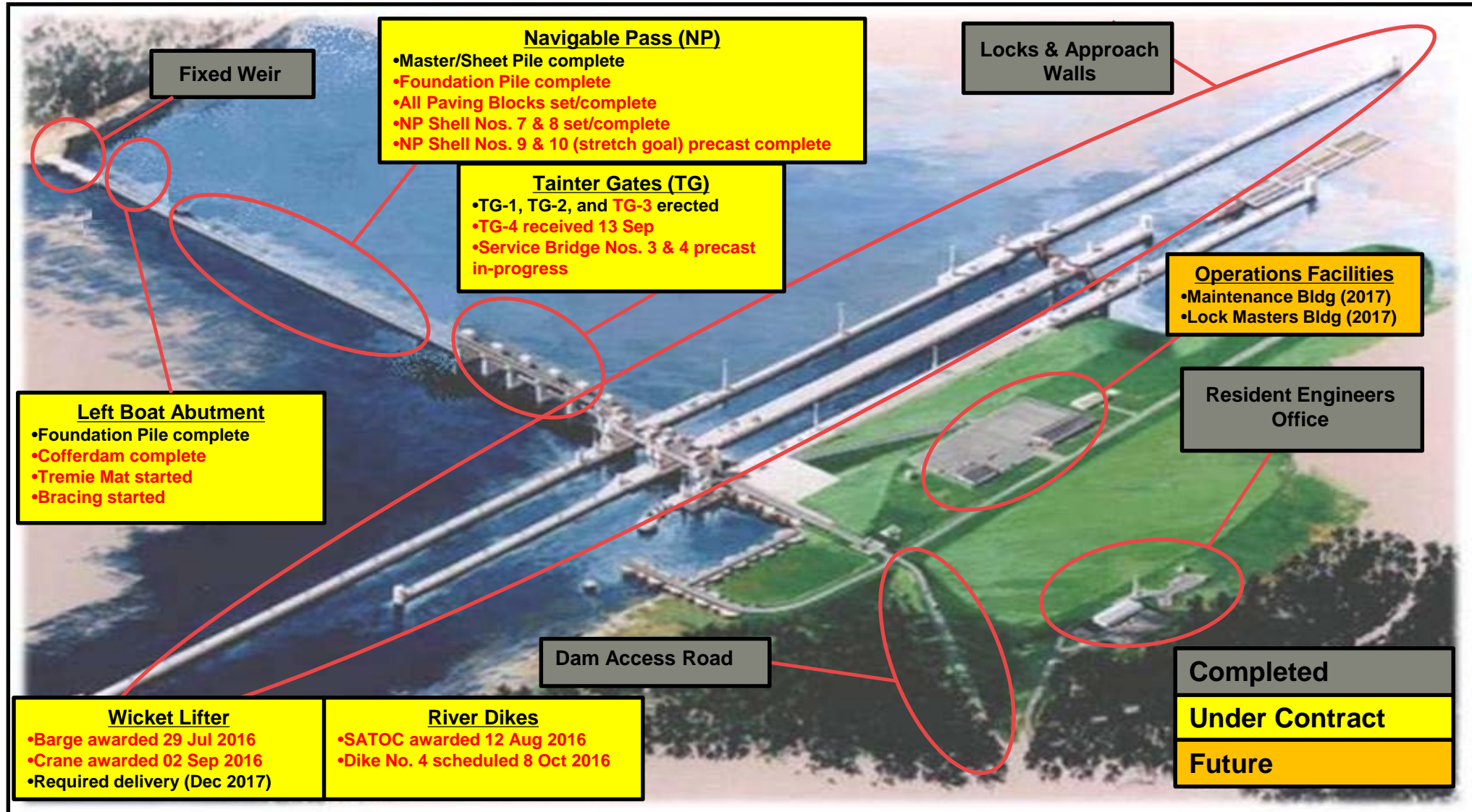
✓ Current Cost: **Under Budget**

- TEP (**\$300M+**) – Total Estimated Price
- TPCS (\$41M) – Total Project Cost Summary

✓ Keys:

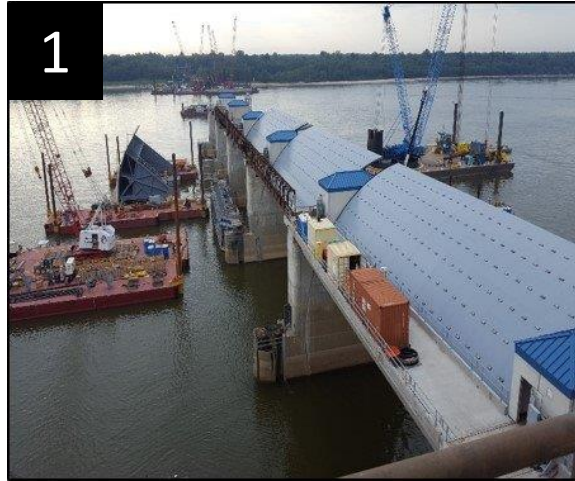
1. Receiving **full capability funding** each year has allowed the PDT to efficiently plan and execute our annual work plan.
2. Advantageous river conditions have allowed the work to expand beyond the contractual low water season (15 Jun – 30 Nov).

Olmsted Project Overview - Status



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2016 Low Water Season Images



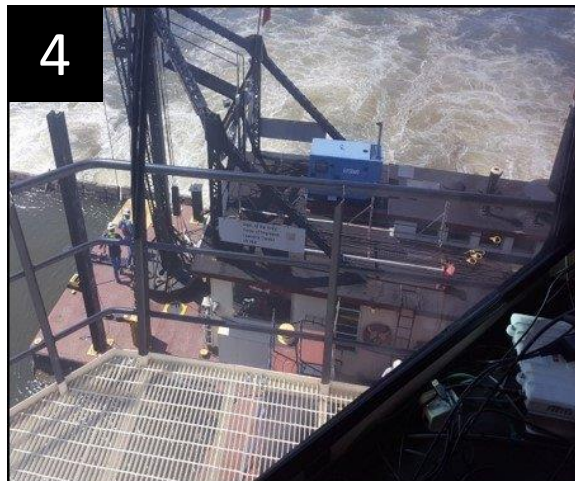
TG 4 Arrival



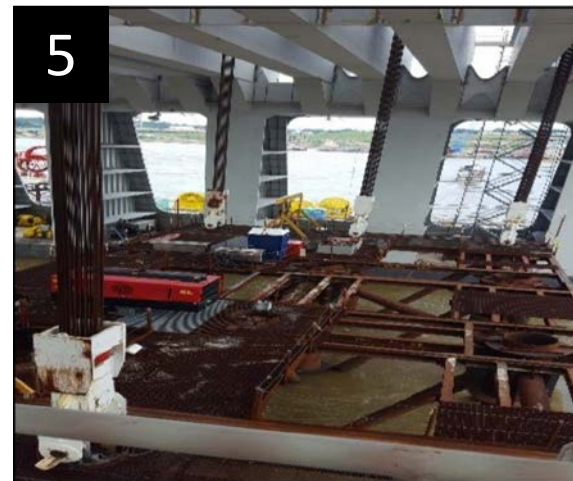
TG 2 Unwatering



NP 7-10 Precast



L&D 52 Emergency Support



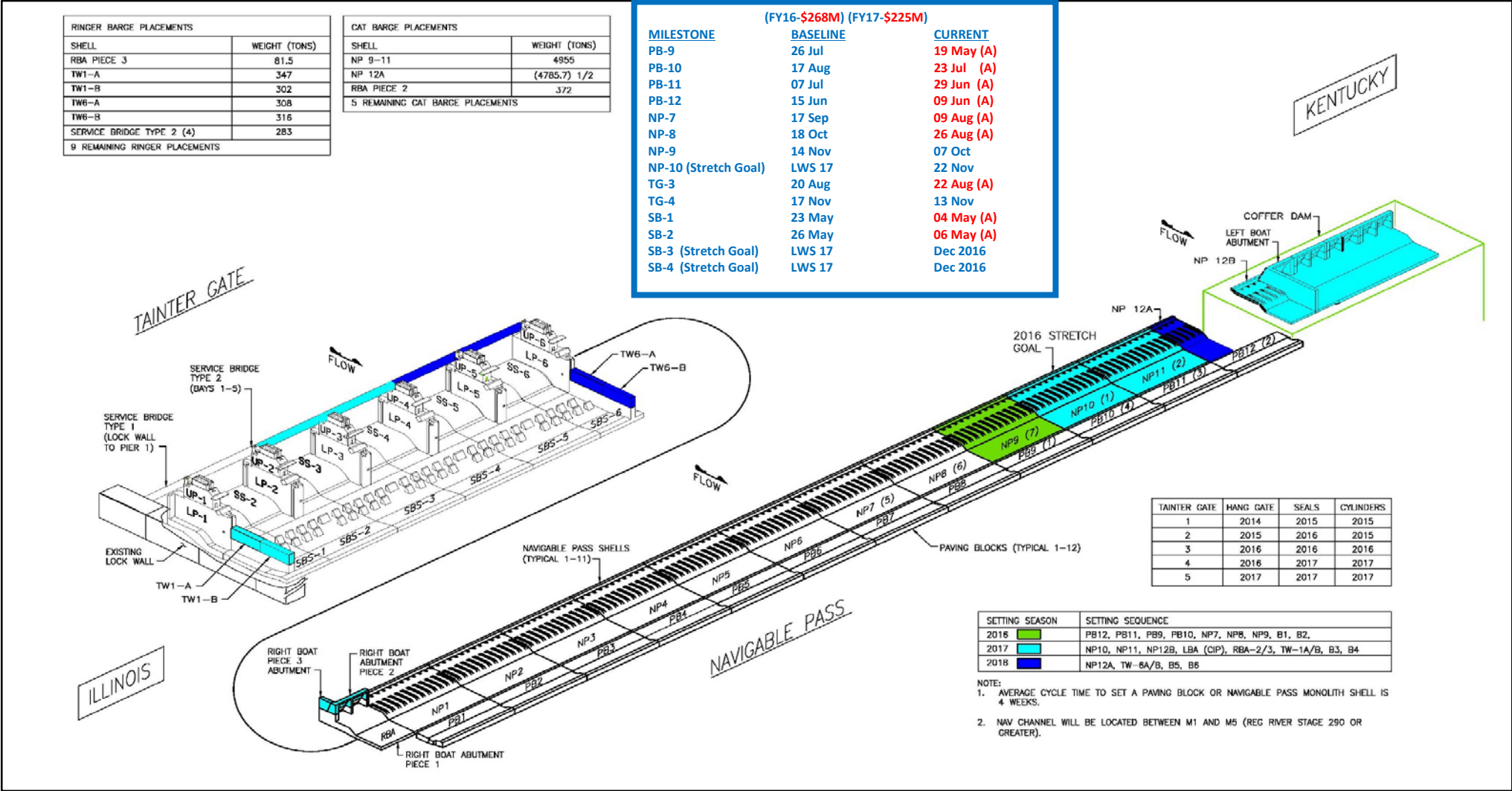
PB 10 Set



LBA Cofferdam Piling

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2016 Plan-to-Complete

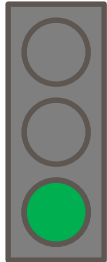


* Eight shells set in LWS 2015 including one shell set outside historical LWS limits (15 Jun – 30 Nov)

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Olmsted Project

Time and Cost Scorecard – July 2016



Expenditures

Planned (BCWS)	\$2.223B
Earned (BCWP)	\$2.128B
Actual (ACWP)	\$2.227B

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

(PACR)/(Current)

Project Complete	Sep 2024/Mar 2022
Dam Operational	Sep 2020/Oct 2018

Measures: Planned project completion and Dam contract operational dates

Target:

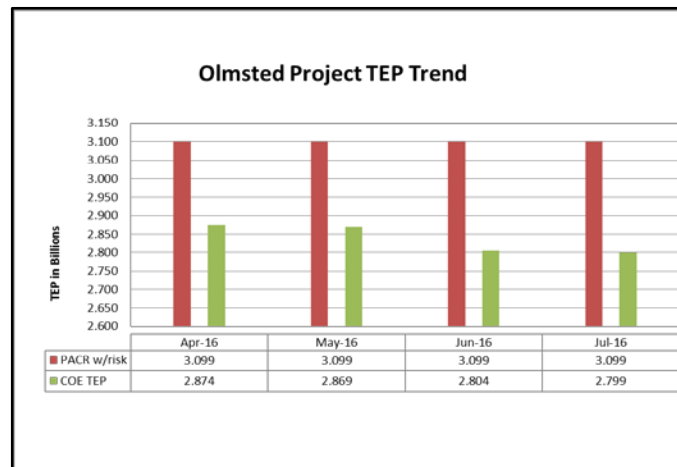
Green: Current = PACR-12 months

Yellow: Current = PACR-11 months to PACR-7 months

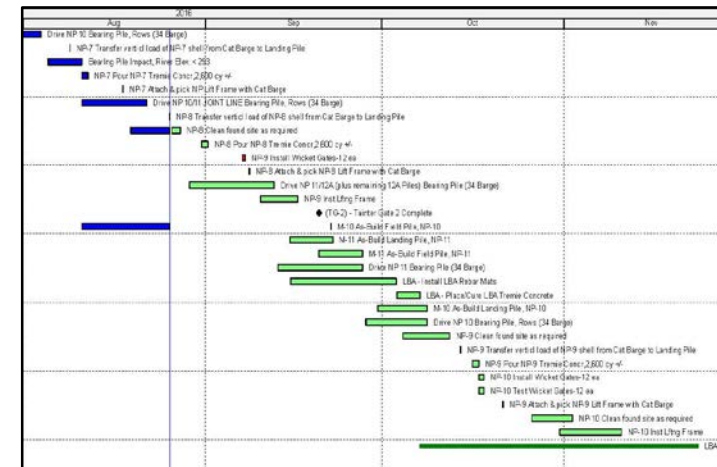
Red: Current = PACR-6 months to after PACR date



Budget



Major Activity Schedule



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Discussion



Army Strong
Building Strong
Finishing Strong

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Lower Mon

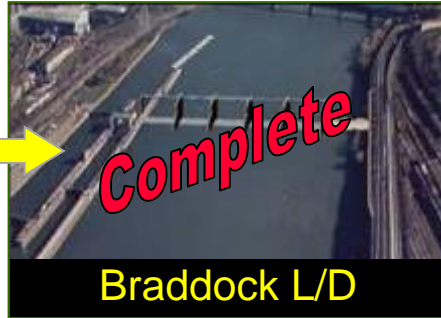
Bottom Line Up Front

- ✓ Current Schedule: **On Schedule**
 - 2023 (Project Operational)
 - 2024 (Project Complete)
- ✓ Current Cost: **On Budget**
 - TEP (\$1.2 B) – Total Estimated Price
- ✓ Keys:
 1. Fiscal year capability must include contingencies for modifications to fully funded contracts in order to avoid schedule slips.
 2. Developing ideas to bring project in ahead of schedule.

Lower Mon - Project Overview

Pre-Project Condition

Post-Project Condition



Major Project Features

- New Dam at Braddock
- New Locks at Charleroi
- Dredging
- Removal of Locks and Dam 3
- Relocations

Financial

- 902 Limit: \$1.76 Billion
- Current Estimate at Completion \$1.2 Billion, including contingencies

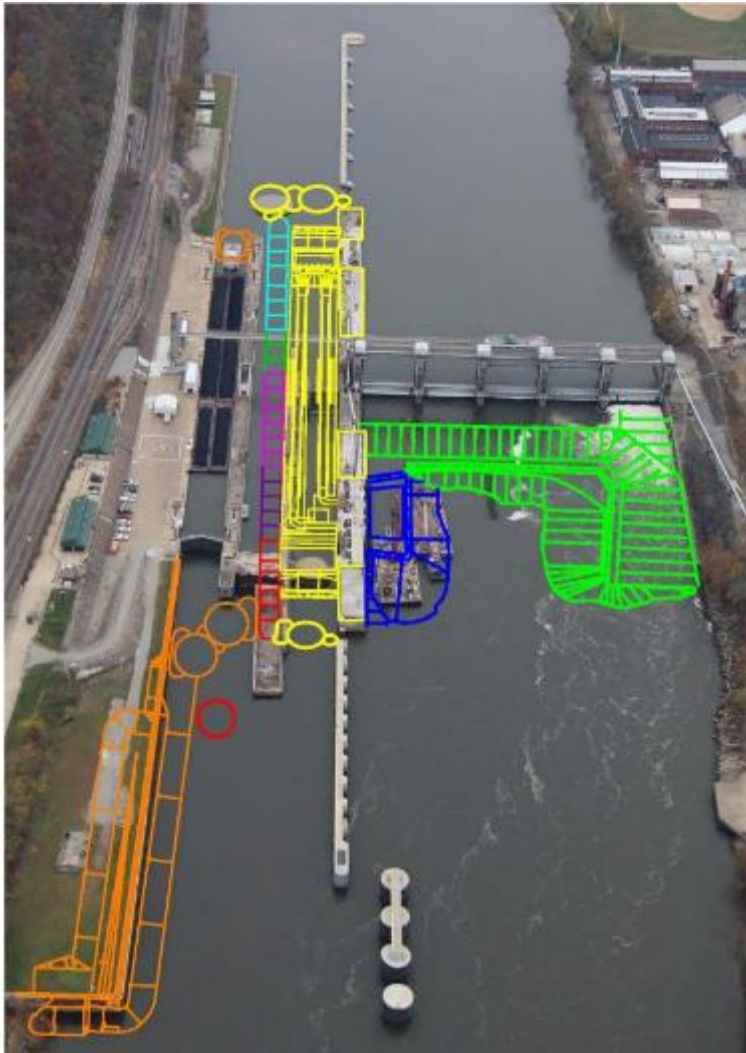
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Lower Mon - Project Schedule

Major Feature Construction	Last Reported Completion (July 2016) No FY17 W.P.	Last Reported Completion (July 2016) with FY17 W.P.	Revised (with FY17 W.P.)
Charleroi River Wall	FY 2016		FY 2017 *
Charleroi Dam Emptying Basin	FY 2016 (Actual)		
Charleroi M22-M27	FY 2019		
Charleroi Dam Stilling Basin	FY 2021		
Charleroi River Chamber Completion	FY 2026	FY 2023	
Dredging Pool 3	FY 2026	FY 2022	
Relocations	Variable		
Lock and Dam 3 Removal	FY 2027	FY 2023	

* Completion of punch list items extend into October 2016

Lower Mon – Charleroi Ongoing / Pending Construction Plan



Description	Last Reported Completion	Current Completion (FY17 Work Plan)	Current Completion (No FY17 Work Plan)	Previously Planned Award	Current Planned Award	Option Expires	% Complete
Emptying Basin		Physically Completed	Physically Completed	Completed		NA	99.9%
M22-M27	2018	2019	2019	Completed		NA	38%
RCC Base	2022	2023	2023	Completed		NA	39%
RCC Opt 1	2022	2023	2027	May 16	May 17	30 Sep 17	NA
RCC Opt 1a	NA	TBD	TBD	NA	NA	30 Sep 17	NA
RCC Opt 1b	NA	TBD	TBD	NA	NA	30 Sep 17	NA
RCC Opt 2	2022	2023	2027	Jun17	Jun17	30 Sep 18	NA
RCC Opt 3	2022	2023	2027	Nov 17	Nov 17	30 Sep 18	NA
RCC Opt 4	2022	2023	2027	Dec 18	Dec 18	31 Mar 20	NA
RCC Opt 5	2022	2023	2027	Nov 20	Nov 20	31 Mar 21	NA
Stilling Basin	2021	2021	2021	Oct 18	Oct 18	NA	NA

Notes:

- RCC – River Chamber Completion
- Option 1a and 1b no longer being considered. Option 1 will be awarded in its entirety in FY2017, funding dependent.
- Risk informed RCC completion is 2027.

- Remaining project features not shown on this slide:

Dredging
Pool Clearing
Lock and Dam 3 Removal
Relocations

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Lower Monongahela River Project Time and Cost Scorecard



Expenditures

Planned (BCWS) \$612.2M
Earned (BCWP) \$614.2M
Actual (ACWP) \$613.2M

Target: Actual as compared to Planned: (<5% = Green); (>5% and <10% = Yellow); and (>10% = Red)

Values shown reflect project sunk cost of \$550.6M thru FY 2014 and Current data thru July 2016

CPI=1.00

Estimated Cost at Completion



>90% benefits
BAC(FF) \$1.22 B
EAC(FF) \$1.21 B

Estimated from revised cost and schedule forecast fully funded thru 2029 and estimated costs thru FY 2015, not certified

Schedule

(Baseline)/(Current Early)

Operational (Realize over 90% of project Benefits) 2027 / 2023 *
Operational (Realize over 90% of project Benefits) 2027 / 2026 **
Project Complete 2029 / 2028

* With FY 2017 work plan funding
** Without FY 2017 work plan funding



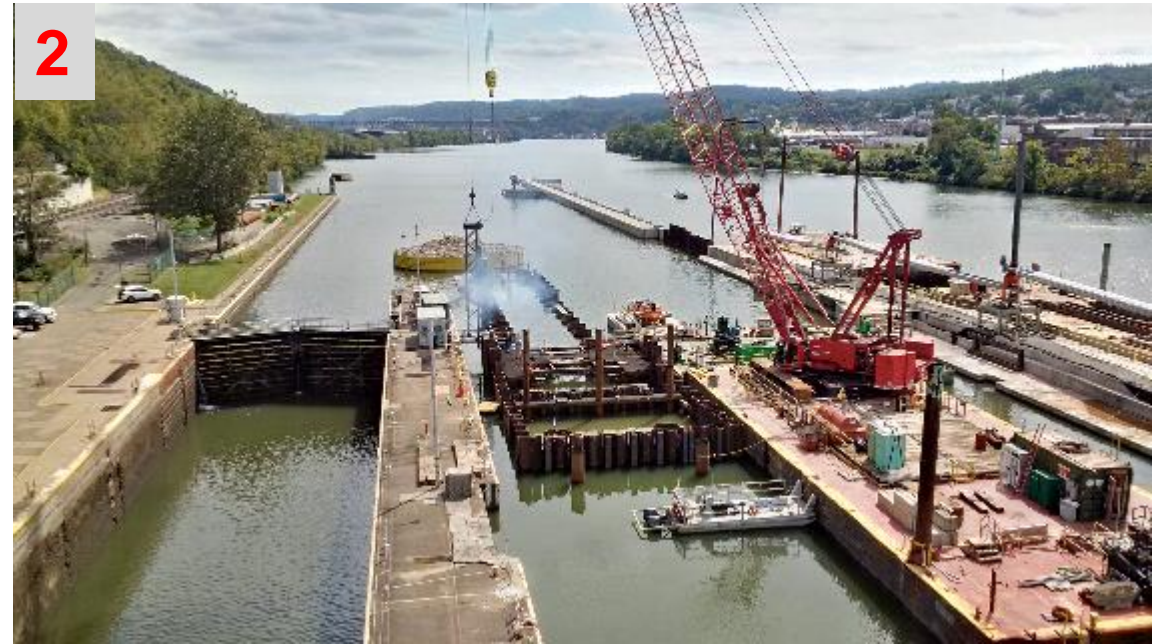
Milestones Status for the Next 6 Months

Activity	Baseline	Current
Award RGC Option 1A	NA (Sep 16)	29 Aug 16
Award RGC Concrete 1A	NA (Sep 16)	29 Aug 16
Real Estate Plan, Submit to LRD	NA	30 Sep 16
Stilling Basin Model	FY17	Feb 2017
Dredging RTA	FY17	May 2017



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Charleroi Construction Images

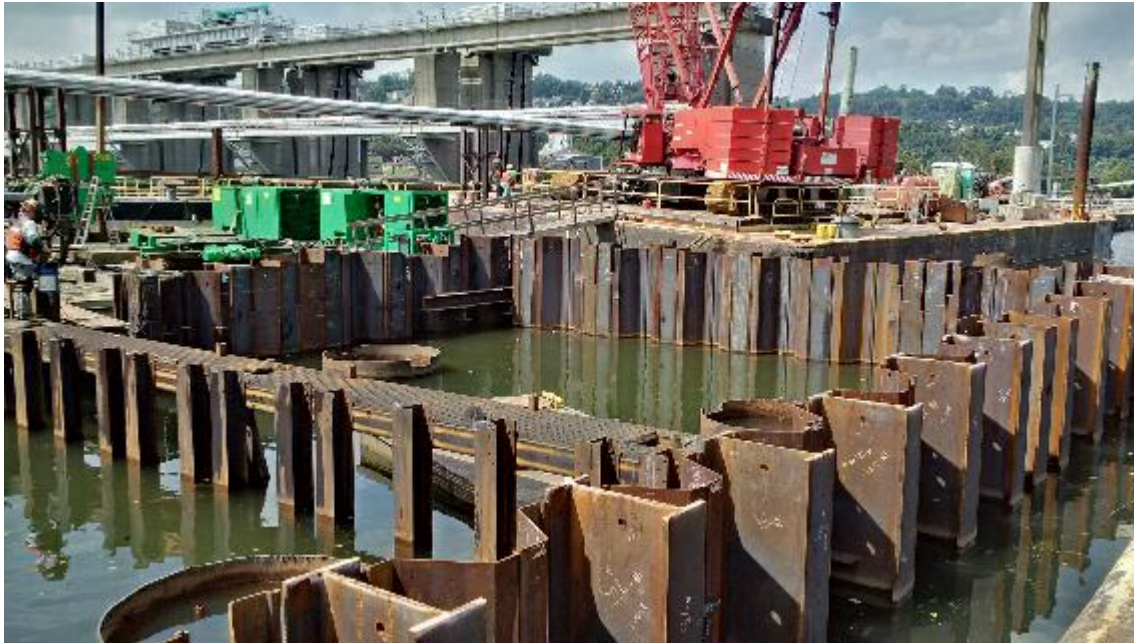


1 - M22-M27 Contract: Showing stability cell

2 - RCC Base Contract: Showing installation of king piles and sheet piling along M6 and M5

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Discussion



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KY Lock Addition BLUF

■ Bottom Line Up Front

- ▶ Existing construction is on schedule.
- ▶ Critical Path Construction is resuming with the September award of Downstream Cofferdam.
- ▶ FY17 Capability funding has increased by \$8M, to \$39M, to reflect the actual bid amount on Downstream Cofferdam.
- ▶ Traffic levels are healthy
- ▶ New Risk-Based Total Project Cost Estimate this fall:
 - Cost Estimate will likely increase
 - Current BCR of 1.7 at 7% will likely decrease

KY Lock Project Overview

Bridges Superstructures - \$104M
Completed Jul 2014

Bridges Substructures - \$44M
Completed Mar 2006

D/S Excavation
Award – Sept. 2017

U/S Miter Gate Fab. - \$5.6M
Awarded Sep 2013, 99% Comp

Upstream Cofferdam - \$17M
Completed Nov 2006

D/S Cofferdam - \$67.1M
Sept. 2016 Base Award
at \$42.4M.

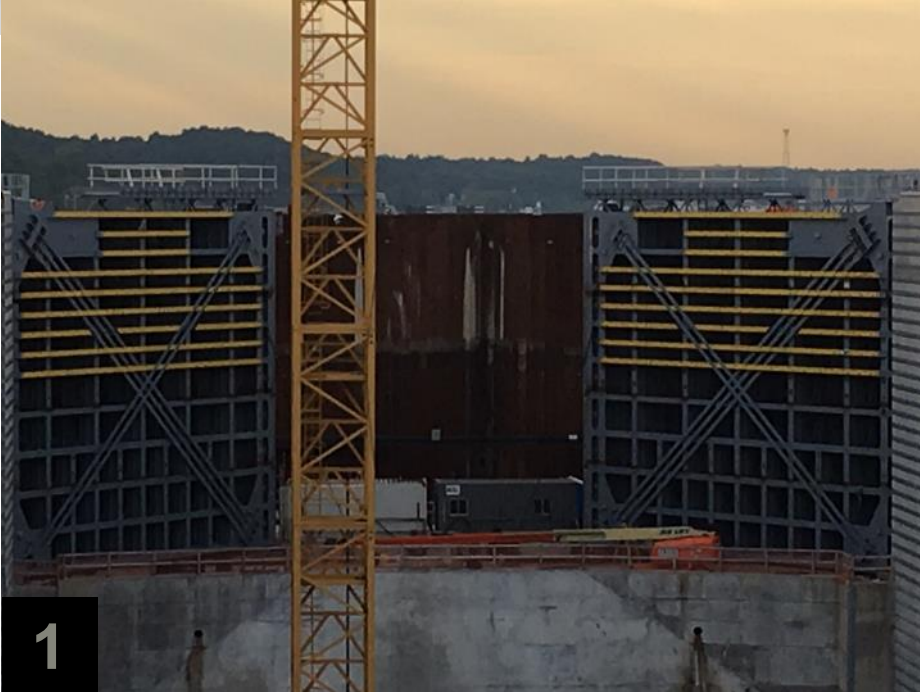
D/S Lock
Award – Sept. 2019

Upstream Lock - \$110M
Awarded Jan 2010, 96% Comp

Approach Walls
Award – Sept. 2021

Lock & Associated Facilities	\$664M
TVA Transmission Towers	13M
P & L Railroad	97M
Hwy 62 and other roadways	100M
Total	\$874M

\$471M Obl thru Sep 2016 = 54% complete
BCR = 1.7 & RBRCR = 3.9 (both @ 7%)



1. Upstream Miter Gates nearing completion; 2. Unique $\frac{3}{4}$ yard concrete bucket for culvert bulkheads; 3. Tie-in Embankment under construction; 4. Aerial May 2016



KY Lock Project Schedule

Major Feature Construction	Award	Complete ²	Revised
Upstream Lock Monoliths Construction	Jan 2010	Dec 2016	
Downstream Cofferdam Construction	Sep 2016	Sep 2019	
Downstream Lock Excavation Construction	Sep 2017	Mar 2020	No change from July 2016 IWUB Meeting
Downstream Lock Construction	Sep 2019	Dec 2023	
Approach Walls Construction	Sep 2021	May 2023	
Risk Based TPCE	Mar 2016	Nov 2016	
Economic Update	Nov 2016	Jul 2017	
PACR for 902 Exceedance ¹	Jul 2017	Mar 2018	

¹902 Exceedance expected by FY2022

² not risk informed, 80% confidence level schedule available in Nov 2016

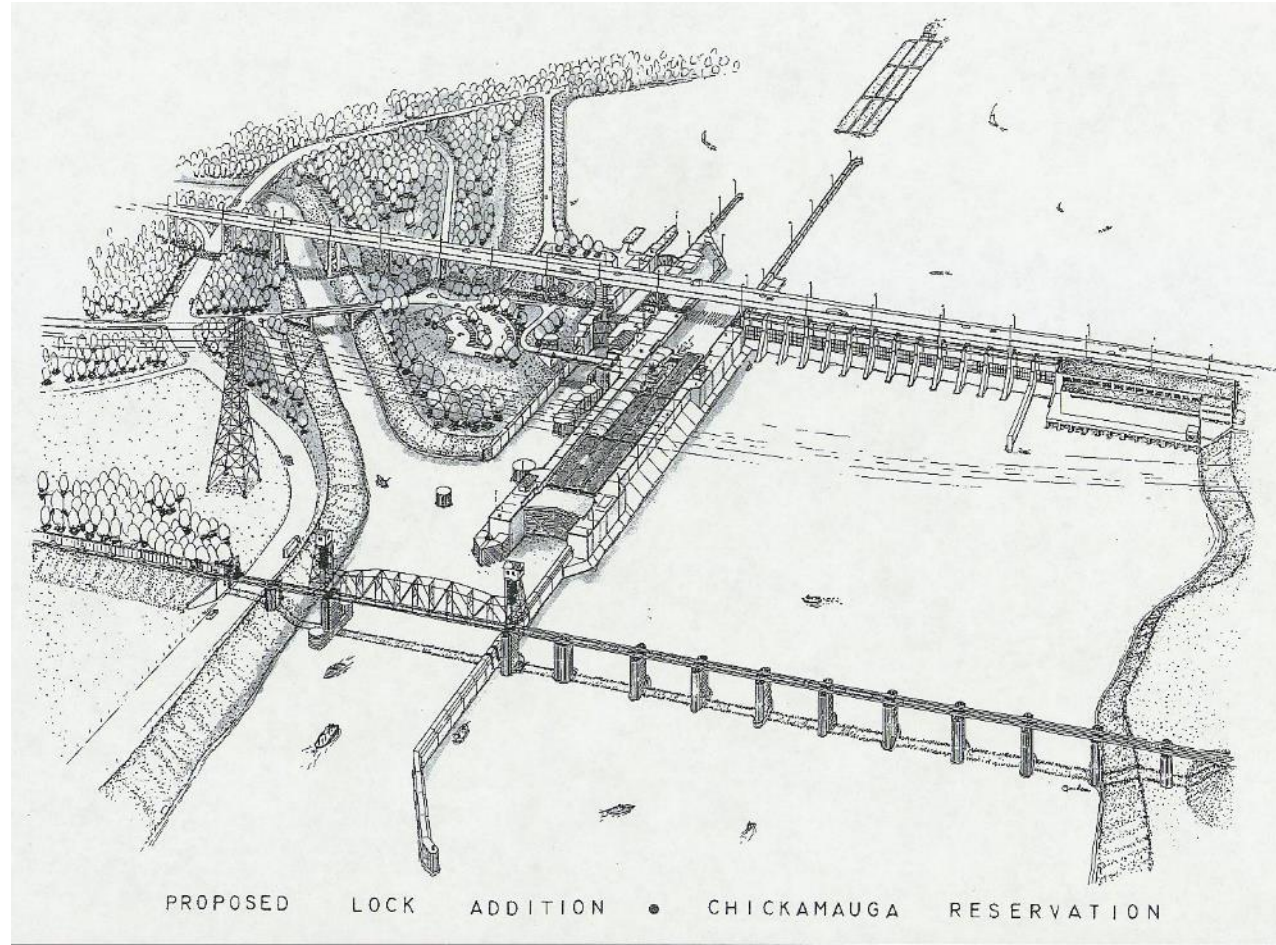
KY Lock

Summary and Challenges

- Project is ramping-up design & construction to reflect workplan funding.
- Recent years average delays >9 hours. CY15 were >14 hours (due to Barkley dewatering). CY16 to date >13 hours.
- New Risk informed estimate will likely increase schedule and budget
- 902 Limit is \$811M vs. current TPCE of \$874M - PACR required

Chickamauga Lock Replacement Agenda

- BLUF / Project Overview
- Construction Photos
- Schedule
- Challenges



Chickamauga Lock Replacement BLUF

- **Bottom Line Up Front**
 - **Economic and Total Project Cost Updates**
 - Econ Update – final review/approval by LRD anticipated by 30 September 2016
 - Updated BCR & RBRCR at 3.125% are 2.4 and 8.8, respectively.
 - Updated BCR = 0.8 @ 7% (Post Agency Technical Review, Final Draft Economics)
 - Updated RBRCR = 1.8 @ 7% (Post Agency Technical Review, Final Draft Economics)
 - **Critical Path Construction resumes with September award of Lock Excavation contract.**
 - **FY17 Capability funding remains at \$37M, District developing plans for potential FY17 award of Lock Chamber contract.**

Chickamauga – Project Overview

Road & Bridges - \$6M
Completed Feb 2007

Lock & Associated Facilities	\$749M
Road and Bridges	6M
Total	\$755M

\$211M Obl thru FY 16 = 28% completed

Decommissioning/Site Work
Award scheduled: Sep '20

Bridge Fabrication - \$400K
Completed June 2011

Lock Chamber
Award scheduled: Sep '17

Gates & Valves - \$17M
Awarded Sep 2009, Comp 2012

Lock Excavation - \$33.2M
Sep '16 Award Base and 2
Options at \$26M.

Approach Beams - \$14M
Awarded Apr 2010, Comp 2013

Cofferdam - \$86M
Awarded Sep 2006, Comp 2012

Cofferdam Stabilization - \$3.1M
Awarded Sep 2015, Comp 2016

Approach Walls
Award scheduled: Sep '21



1. Cofferdam completed in 2012; 2. Cofferdam dewatered looking Upstream in June 2016 during Cofferdam Stabilization contract

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Chickamauga Lock Project Schedule

Major Feature Construction	Award	Complete	Revised
Cofferdam Stabilization	Sep 2015	Oct 2016	Completed Jul 2016
Lock Excavation Construction	Sep 2016	Sep 2018	
Lock Chamber	Sep 2017	Sep 2022	
Site Work and Decommission Existing Lock ¹	Sep 2020	Oct 2022	See Note 1
Approach Walls Construction ¹	Sep 2021	Oct 2023	See Note 1
Risk Based TPCE	Aug 2015	Jun 2016	
Economic Update	Jan 2015	Jul 2016	Completion Sep 2016
PACR for 902 Exceedance ²	Jul 2016	Fall 2016	

¹ Changed sequence after re-evaluation of contract scopes

² 902 Exceedance expected by FY2020

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Chickamauga Lock Summary and Challenges

- Project is ramping up construction and design based on workplan funding.
- Project schedule is based on Efficient Funding
- New Economic Update results in BCR above 1.0 @ 3.125% discount rate due to reduced benefits.
- BCR @ 7% is less than 1.0
- 902 Limit is \$476M (FY15) vs. current TPCE of \$755M (FY17) - PACR required