

Olmsted Locks & Dam

Inland Waterways Users Board

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Great Lakes & Ohio River Division

14 August 2014



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US Army Corps of Engineers

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Agenda

- Status
 - ▶ Authorization Milestone
 - ▶ Overview
 - ▶ Dam Re-Baseline Plan
 - ▶ Navigation
 - ▶ 2014 LWS Summary To Date
 - ▶ 2014 LWS Forecast
 - ▶ Scorecard
 - ▶ Challenges
 - ▶ Realities

- Discussion

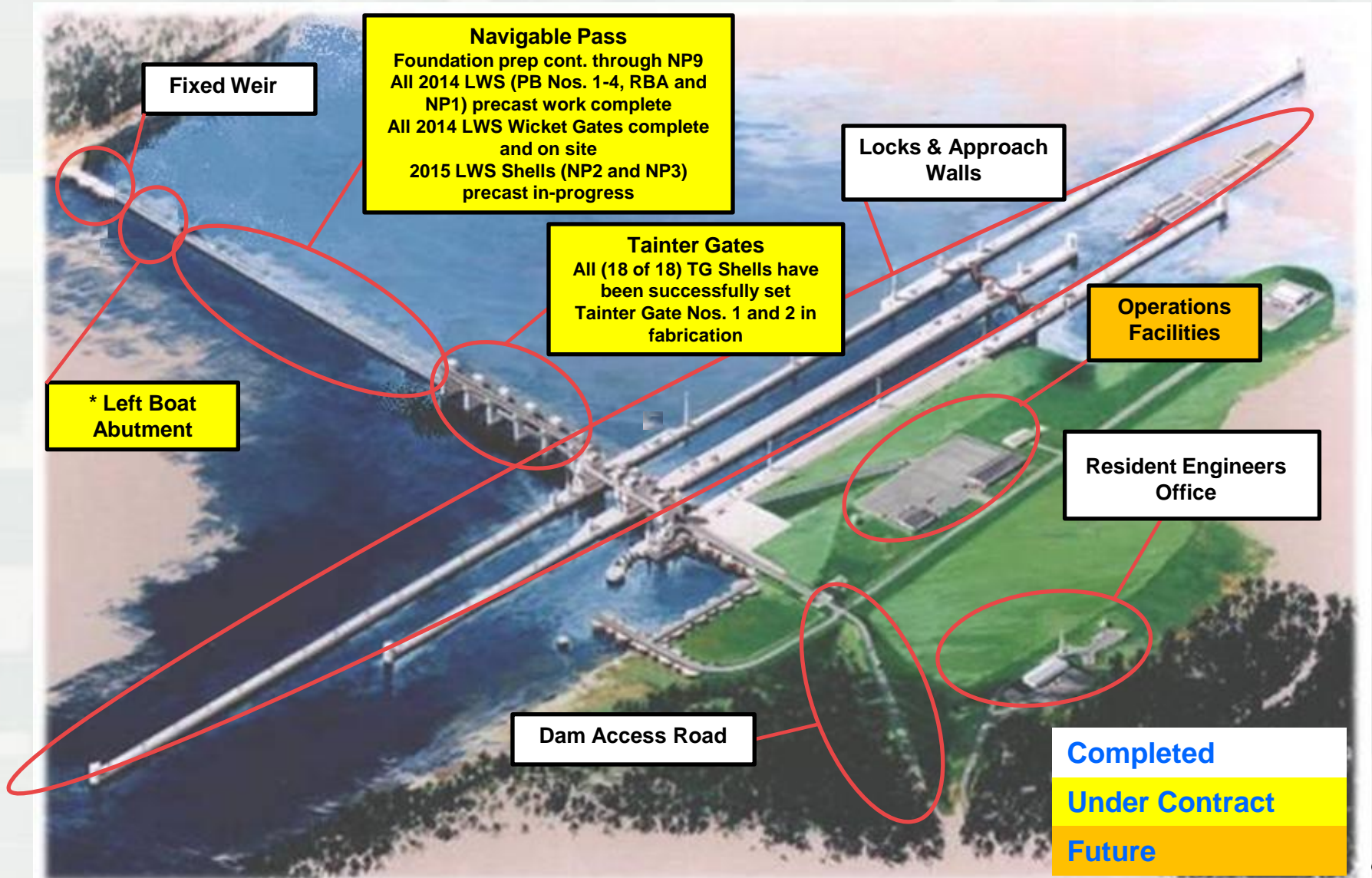


Congressional Interaction & Authorization Milestones

- Post Authorization Change Request (13 Apr 2012)
 - ▶ **\$2.918B, Dam Operational 2020, Project Complete 2024**
- Construction Method Validation (31 May 2012)
 - ▶ Validated that In-The-Wet (ITW) is the most efficient method to complete the project
- Qualitative Risk Assessment (28 Aug 2012)
 - ▶ Validated that **Locks & Dam Nos. 52/53 are failing** and identified failure mode mitigation measures
- Continuing Resolution (17 Oct 2013) increased Olmsted authorization avoiding significant slow/shutdown impacts
 - ▶ Cost (\$80M - \$208M)
 - ▶ Schedule (1 - 3 Years)
- 2014 Consolidated Appropriations Act (17 Jan 2014)
 - ▶ Division D—Energy and Water Development and Related Agencies
 - ▶ **25% IWTF “during [this] fiscal year period”**
- 2014 WRRDA Legislation (10 Jun 2014)
 - ▶ **15% IWTF cost share for FY15 and beyond**
 - ▶ **Sense of Congress to expend not less than \$150M annually until complete**



Olmsted Project Overview



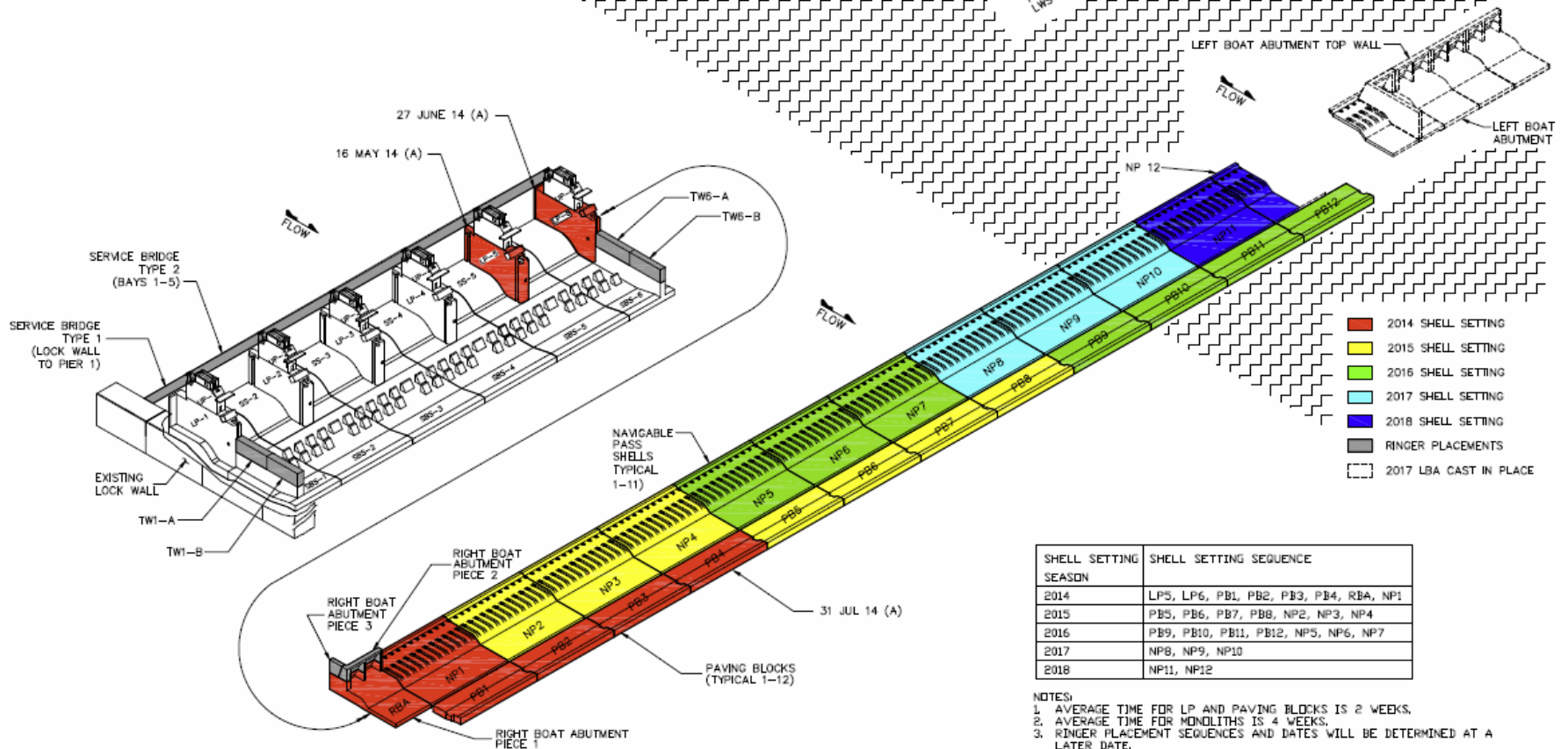
Olmsted Dam – Plan

RINGER BARGE PLACEMENTS	
SHELL	WEIGHT (TONS)
RBA PIECE 2	372
RBA PIECE 3	81.5
TW1-A	347
T1-B	302
TW6-A	308
TW6-B	316
SERVICE BRIDGE TYPE 1	118
SERVICE BRIDGE TYPE 2	283

11 TOTAL RINGER PLACEMENTS

CAT BARGE PLACEMENTS	
SHELL	WEIGHT (TONS)
RBA PIECE 1	2511.5
NP 1-11	4955
NP 12	4785.7
PAVING BLOCKS 1-12	2562
25 TOTAL CAT BARGE PLACEMENTS	

ACRONYM LEGEND	
LP	LOWER PIER
TG	TAJINTER GATE
SB	SERVICE BRIDGE
GM	GROUT MAT
FP	FOUNDATION PILE
M/SP	MASTER/SHEET PILE
RBA	RIGHT BOAT ABUTMENT
PB	PAVING BLOCK
NP	NAVIGABLE PASS (MONOLITH)



Olmsted Dam Foundation Prep By Low Water Season

Foundation Construction (through Grout Mat Installation)

RBA	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	LBA3	LBA2	LBA1
	PB1	PB2	PB3	PB4	PB5	PB6	PB7	PB8	PB9	PB10	PB11	PB12			

Master/Sheet Pile Driving

RBA	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	LBA3	LBA2	LBA1
	PB1	PB2	PB3	PB4	PB5	PB6	PB7	PB8	PB9	PB10	PB11	PB12			

Foundation Pile Driving

RBA	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	LBA3	LBA2	LBA1
	PB1	PB2	PB3	PB4	PB5	PB6	PB7	PB8	PB9	PB10	PB11	PB12			

Shell and Paving Block Setting

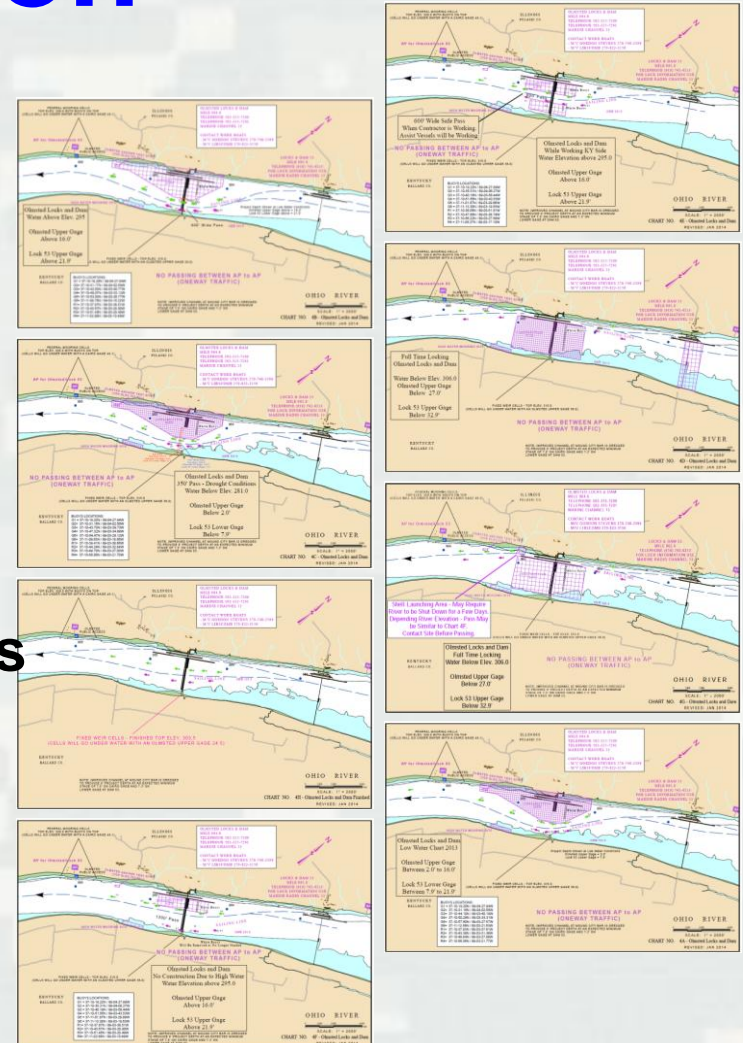
RBA	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	LBA3	LBA2	LBA1
	PB1	PB2	PB3	PB4	PB5	PB6	PB7	PB8	PB9	PB10	PB11	PB12			

■ River Season 2014
 ■ River Season 2015
 ■ River Season 2016
 ■ River Season 2017
 ■ River Season 2018

LBA

Navigation

- 2014 Navigation channel successfully established (minimal lockage exposure)
- Tactical team and protocols in place
- *Scenario based Navigation Charts published
- L&D 53 Approach Point control established out of Olmsted Tower



* March 2014 Louisville District Ohio River Navigation Charts



2014 LWS Summary

- **Pre-cast Yard:**

- ▶ All TG (Tainter Gate) shells complete (18/18)
- ▶ NP (Navigable Pass) shells RBA and NP1 complete (2/13)
- ▶ PB (Paving Block) Nos. 1 - 4 complete (4/12)

- **Heavy Lift:**

- ▶ All TG shells set (18/18)
- ▶ PB No. 4 set (1/12)

- **Marine:**

- ▶ All TG foundation pile and master/sheet pile complete
- ▶ TG/NP transition piling complete
- ▶ D/S M/S pile PB4 through RBA complete
- ▶ NP1 foundation piling complete
- ▶ Silt/Sediment mitigation (Dredge Hurley) complete
- ▶ Foundation/Drainage stone through NP 6 (50% of NP footprint) complete
- ▶ Grout mat through NP 3 (25% of NP footprint) complete

- **TG Upper Pier:**

- ▶ UP (Upper Pier) Nos. 1 and 2 all concrete work complete (machinery house remaining)
- ▶ UP Nos. 3 and 4 trunnion anchorage on-going
- ▶ UP Nos. 5 and 6 infill concrete on-going

- **Off Site Fabrication:**

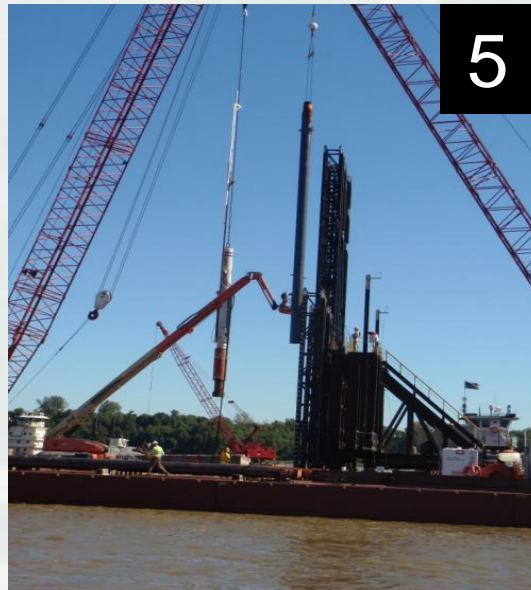
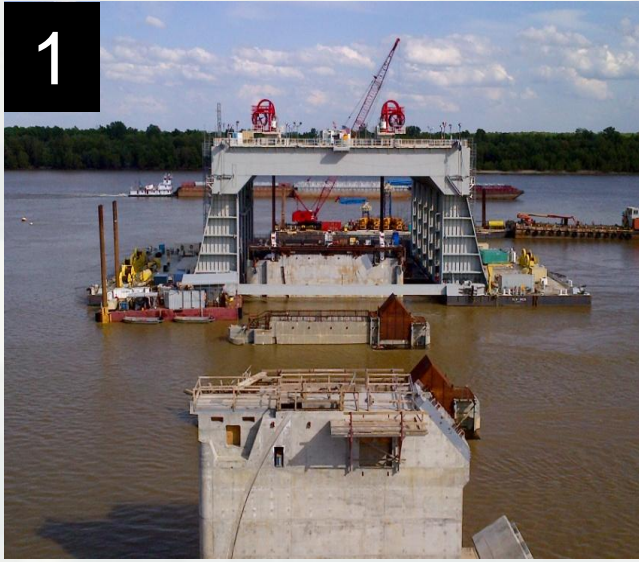
- ▶ TG #1 (painting and final assembly) / TG #2 (fabrication 25% complete)
- ▶ 36 Wicket Gates delivered to site (sufficient to support all 2014 LWS scheduled and stretch goal setting milestones)

Legend

LP – Lower Pier
TG – Tainter Gate
SB – Service Bridge
GM – Grout Mat
FP – Foundation Pile
M/S – Master/Sheet
RBA – Right Boat Abutment
LBA – Left Boat Abutment
PB – Paving Block
NP – Nav Pass Shell (Monolith)



2014 LWS Images



1: Setting LP-5. **2:** Testing Wicket Gates during Fabrication **3:** Placing PB-4 on the cradle.
4: 5,000th onsite Dive **5:** Nav-Pass foundation Pile **6:** TG-1 moving into the paint booth.



2014 LWS Milestones

▪ Scheduled Milestones

- Set LP-5 (**complete**)
- Set LP-6 (**complete**)
- Set PB #1-4 (12) (**PB #4 set**)
- **Install TG #1 (5)**
- Set RBA (1)
- Set NP #1 (12)
- Install Grout Mat (thru NP #9)
- Drive Foundation Pile (thru NP #3)
- Drive M/S Pile (thru NP#4 U/S, NP #8 D/S)

▪ Stretch Goal Milestones

- Set PB 5 (12)
- Set PB 6 (12)
- NP #2 (12)

Legend

LP – Lower Pier
TG – Tainter Gate
SB – Service Bridge
GM – Grout Mat
FP – Foundation Pile
M/S – Master/Sheet
RBA – Right Boat Abutment
LBA – Left Boat Abutment
PB – Paving Block
NP – Nav Pass Shell (Monolith)



Olmsted Project

Time and Cost Scorecard – June 2014

Expenditures

Planned (BCWS)	\$1.757B
Earned (BCWP)	\$1.747B
Actual (ACWP)	\$1.727B

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

Target:

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

Schedule

	<u>(PACR)/(Current)</u>
Project Complete	Sep 2024/Mar 2022
Dam Operational	Sep 2020/Oct 2018

Measures: Planned project completion and Dam contract operational dates

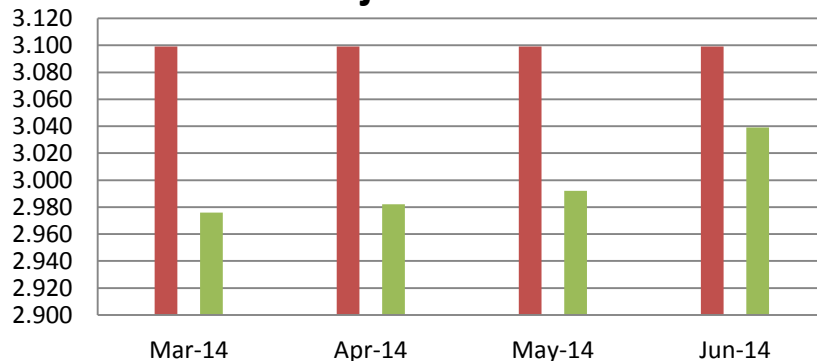
Target:

Green: Current = PACR-12 months

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

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

Olmsted Project TEP Trend

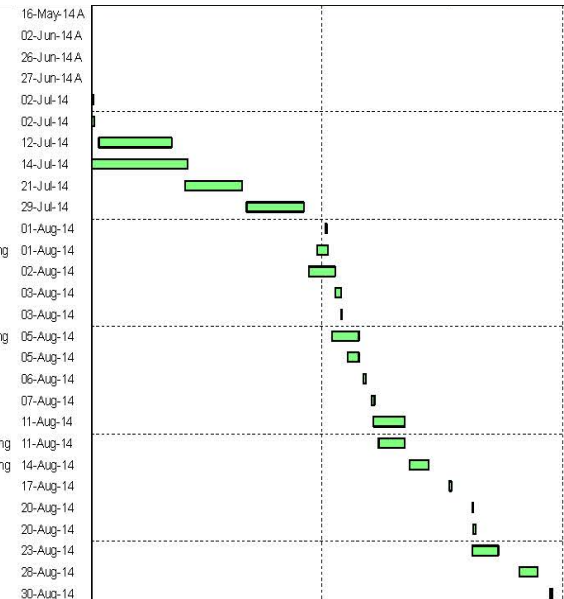


TEP in Billions

■ PACR w/
risk
■ Estimated

Olmsted Major Activity Schedule

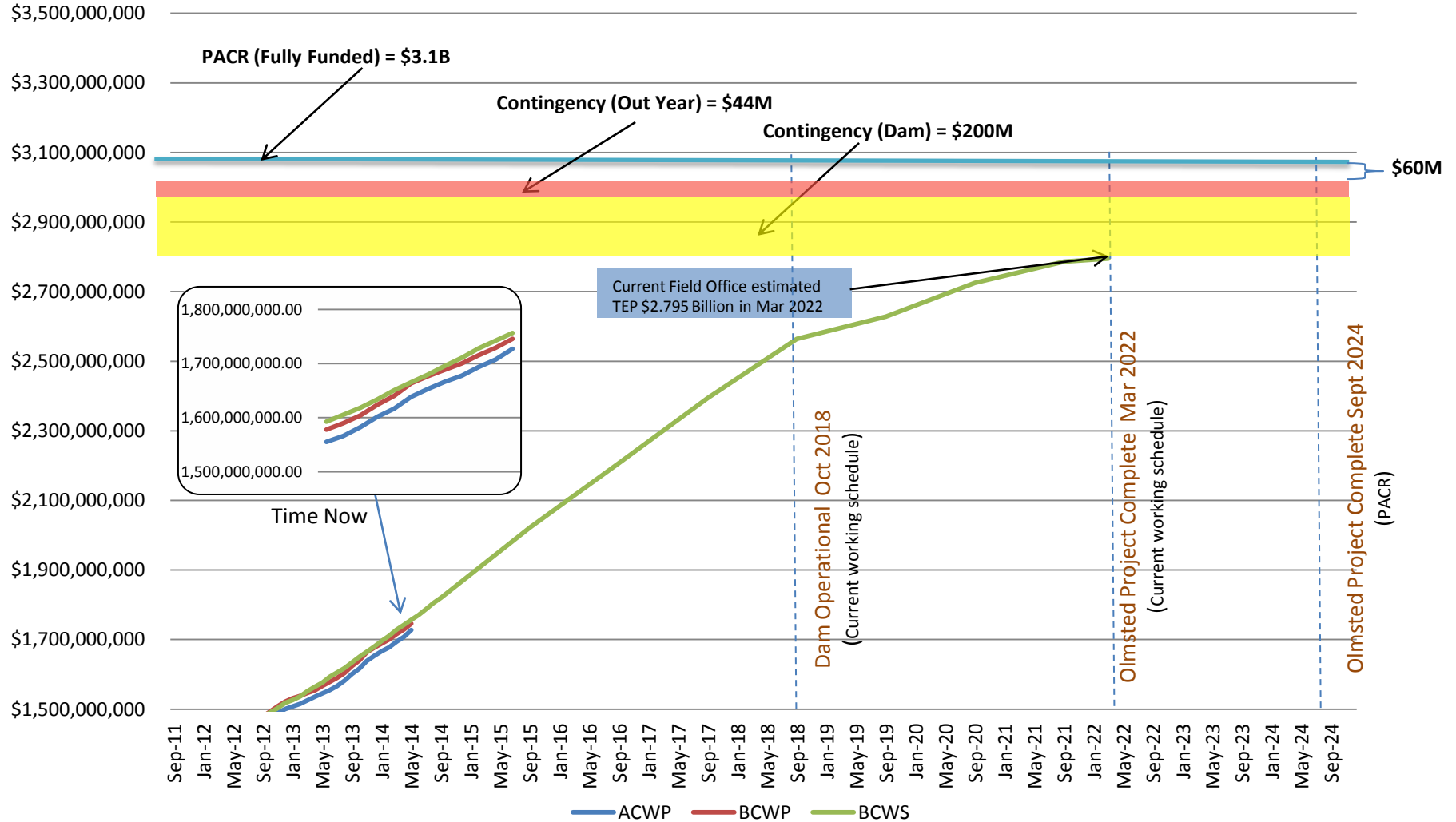
LP-5 Transfer vertic lload of shell from Cat Barge to Landing Pile
 LP-5 Attach and pick Lift Frame with Crane Barge
 LP-6 Clean/Inspect landing site as required
 LP-6 Transfer vertic lload of shell from Cat Barge to Landing Pile
 LP-6 Attach and pick LP-6 Lift Frame with crane brg
 M-4 Inst M&S Piles, D/S 44-55
 M-3 Inst M&S Piles, D/S 32-43
 M-4PB Inst Lfing Frame
 M-2 Inst M&S Piles, D/S 20-31
 M-1 Inst M&S Piles, D/S 8-19
 M-4PB Clean found site as required
 LP-3 Trunnion Girder - Stress Transverse Tendons & Perform Lift-Off Testing
 RBA-Inst M&S Piles D/S 1-7
 M-4PB Transfer vertic lload from Cat Barge to Bedding Stone
 M-4PB Disconnect PB Lift Frame from Set Pavers and lift off Pavers
 LP-4 Trunnion Girder - Stress Transverse Tendons & Perform Lift-Off Testing
 Modify 34 barge - Template move
 LP-3 Trunnion Girder - Grout Transverse Tendons inside Ducts
 LP-4 Trunnion Girder - Grout Transverse Tendons inside Ducts
 M-3PB Inst Lfing Frame
 LP-3 Trunnion Girder - Stress Longitudinal Tendons & Perform Lift-Off Testing
 LP-4 Trunnion Girder - Stress Longitudinal Tendons & Perform Lift-Off Testing
 M-3PB Clean found site as required
 M-3PB Transfer vertic lload from Cat Barge to Bedding Stone
 M-3PB Disconnect PB Lift Frame from Set Pavers and lift off Pavers
 RBA-Inst M&S Piles U/S 1-7
 M-2PB Inst Lfing Frame
 M-2PB Clean found site as required



Olmsted L&D Project Earned Value Analysis

(Based on DOD Gold Card)

June 2014



Future Challenges

- Efficient Funding Stream
 - Minimum of \$150M/year through 2020
 - Less than \$150M would have direct impact on the schedule
 - Optimal Funding of \$180M/year (**FY15** /FY16)
- Passing Traffic as Work continues into the Navigable Pass Footprint
- Delivery of Tainter Gate No. 1 (1 October 2014)



Realities

- 1. Jobs.** Olmsted directly supports approx. 550 engineers, foremen and craft workers.
- 2. Hub of the Inland Water Transportation System.** Approx. 91M tons of commodities transit Locks and Dam Nos. 52/53 annually. (Busiest node in the system)
- 3. Olmsted must be built.** Locks and Dam Nos. 52/53 **must be replaced** in the near future **to ensure reliable navigation** of the lower Ohio.
- 4. Value to the nation.** The estimated annual net benefit of the operational project is **\$640 million**.
- 5. Olmsted is inland navigation's top priority.** The Inland Waterways Users Board (IWUB) has adopted the Inland Marine Transportation System (IMTS) Capital Investment Strategy report that ranks Olmsted Locks and Dam as the **number one priority** for locks and dams construction projects.
- 6. Project oversight has increased.** Olmsted is a USACE designated mega-project. All additional management controls are in place.
- 7. Execution.** Using the existing cost-reimbursable contract and the in-the-wet construction method is the most efficient way to complete the project on schedule and within budget.



Olmsted Locks and Dam, Ohio River, Olmsted, IL

Total Project Cost: \$3,098,573,000 *	CG	IWTF	Total
FY13 Allocation:	\$71,856,000	\$71,856,000	\$143,712,000
FY14 Allocation :	\$122,606,000	\$41,106,000	\$163,712,000
FY15 Budget:	\$136,000,000	\$24,000,000	\$160,000,000

Remaining Balance (after FY15):	\$945,098,000	\$166,782,000	\$1,111.880,000
Remaining Balance Change From Last Meeting			\$ 21,796,000

Changes

- Incorporated the Certified Cost Estimate dated July 2014.
- Incorporated the CG/IWTF (85/15) for FY15 and remaining balance funds.

Funding Overview

- Original Authorized Cost: \$775M
 - 902 Limit: TBD *
- ARRA Funding (FY09-11):\$29.5M
 - EDC/SA: \$157.4M/\$131.5M
 - Mitigation: \$16.0M

* 902 Limit being developed based on latest Certified Cost Estimate.

Next Steps

- Set Nav Pass 1 in 2014 LWS
- Set Right Boat Abutment in 2014 LWS
 - Set 4 Paving Blocks in 2014 LWS
 - Install Tainter Gate 1 in 2014 LWS

LWS - Low Water Season

Current Status of the Project

- CG / IWTF (75/25) for FY14 only;
(85/15) beyond FY14

Note *: Cost and Schedule data are reflective of the latest Certified Cost Estimate (as of 01 OCT 2013)



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Schedule of Remaining Work	Design Initiated	Contract Award	Construction Complete	Project Benefits	Capitalized Cost Closeout
Dam	26-Aug-96	28-Jan-04	30-Jun-21	1-Jul-21	30-Dec-21
Wicket Lifter	1-Oct-15	9-Feb-17	13-Feb-19	14-Feb-19	30-Jun-19
Building & Grounds	1-Oct-18	18-Jun-19	30-Apr-21	1-May-21	30-Sep-21
Demolition L&D 52	1-Apr-19	18-Oct-21	16-Feb-24	N.A.	30-Jun-24
Demolition L&D 53	1-Apr-19	1-Dec-21	1-Oct-23	N.A.	1-Jan-24
River Dikes	1-Oct-20	6-Jun-22	7-Jun-24	30-Jun-24	30-Sep-24



Discussion



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