

Olmsted Locks & Dam

Inland Waterways Users Board

MR. RICHARD HANCOCK, P.E., SES

DIRECTOR, Regional Business

Great Lakes & Ohio River Division

13 Aug 2013



®

US Army Corps of Engineers

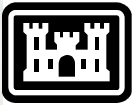
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Agenda

- Project Status
 - ▶ Review of Project Scope and benefits
 - ▶ Summary from last IWUB meeting
 - ▶ Current way ahead
 - ▶ Progress since last IWUB meeting
 - ▶ On going work
 - ▶ Quad chart status
- Olmsted Action Plan (When work is stopped)
 - ▶ Impacts to personnel
 - ▶ Alternative Uses of IWTF Funds
- Discussion



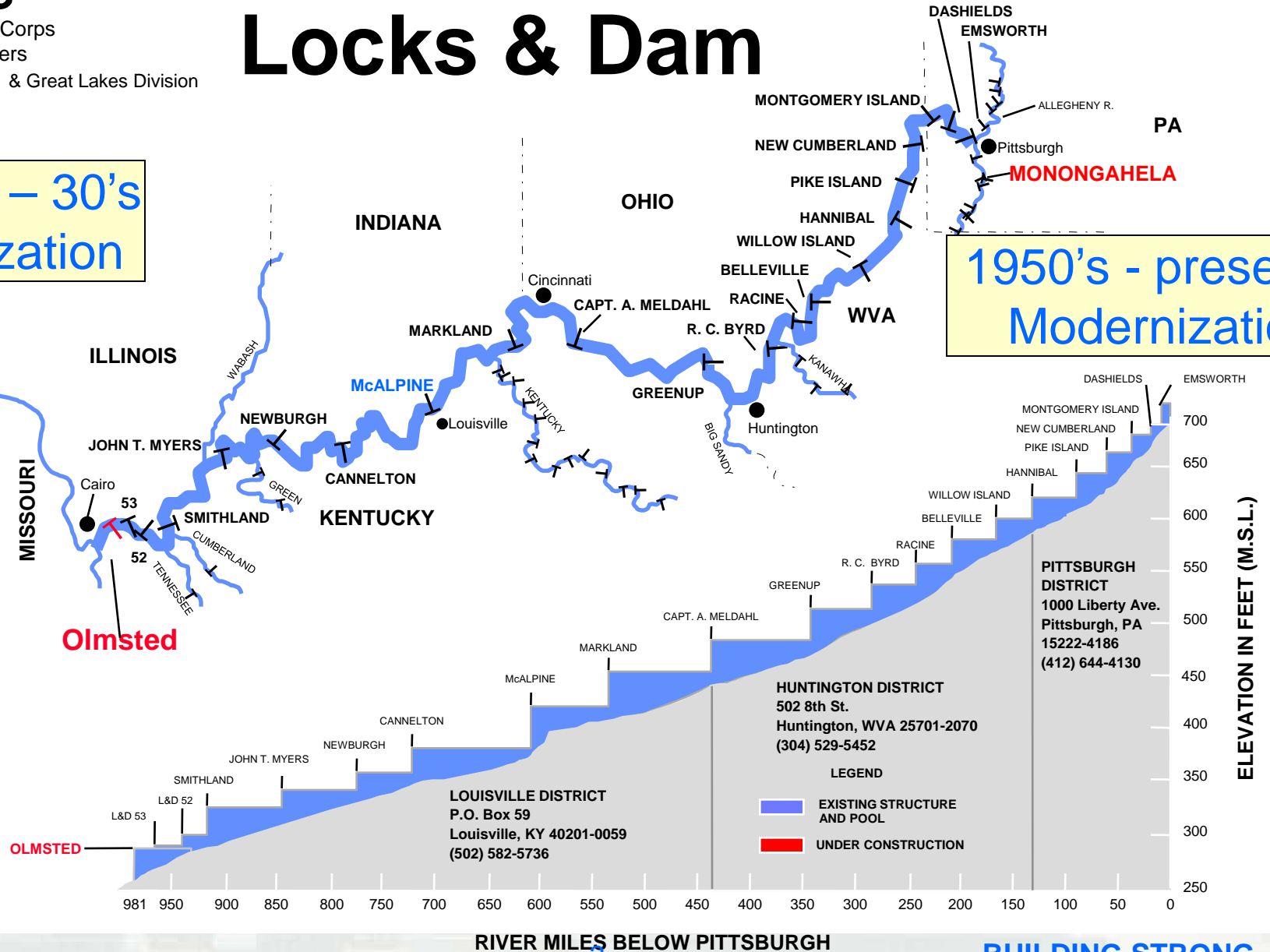


US Army Corps
of Engineers
Ohio River & Great Lakes Division

Ohio River Main Stem Locks & Dam

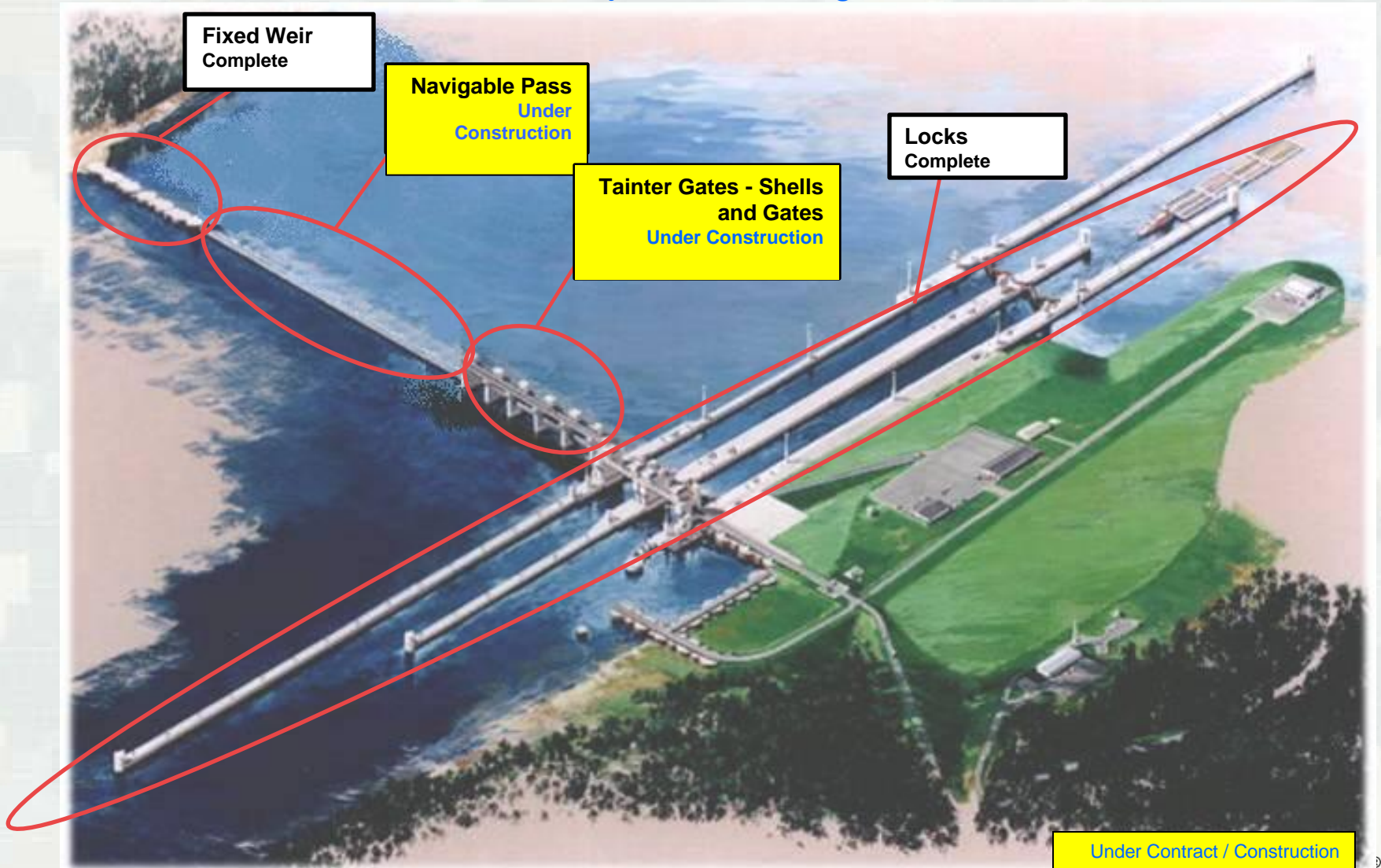
1920's – 30's
Canalization

1950's - present
Modernization



Olmsted Locks & Dam Project

Project Rendering

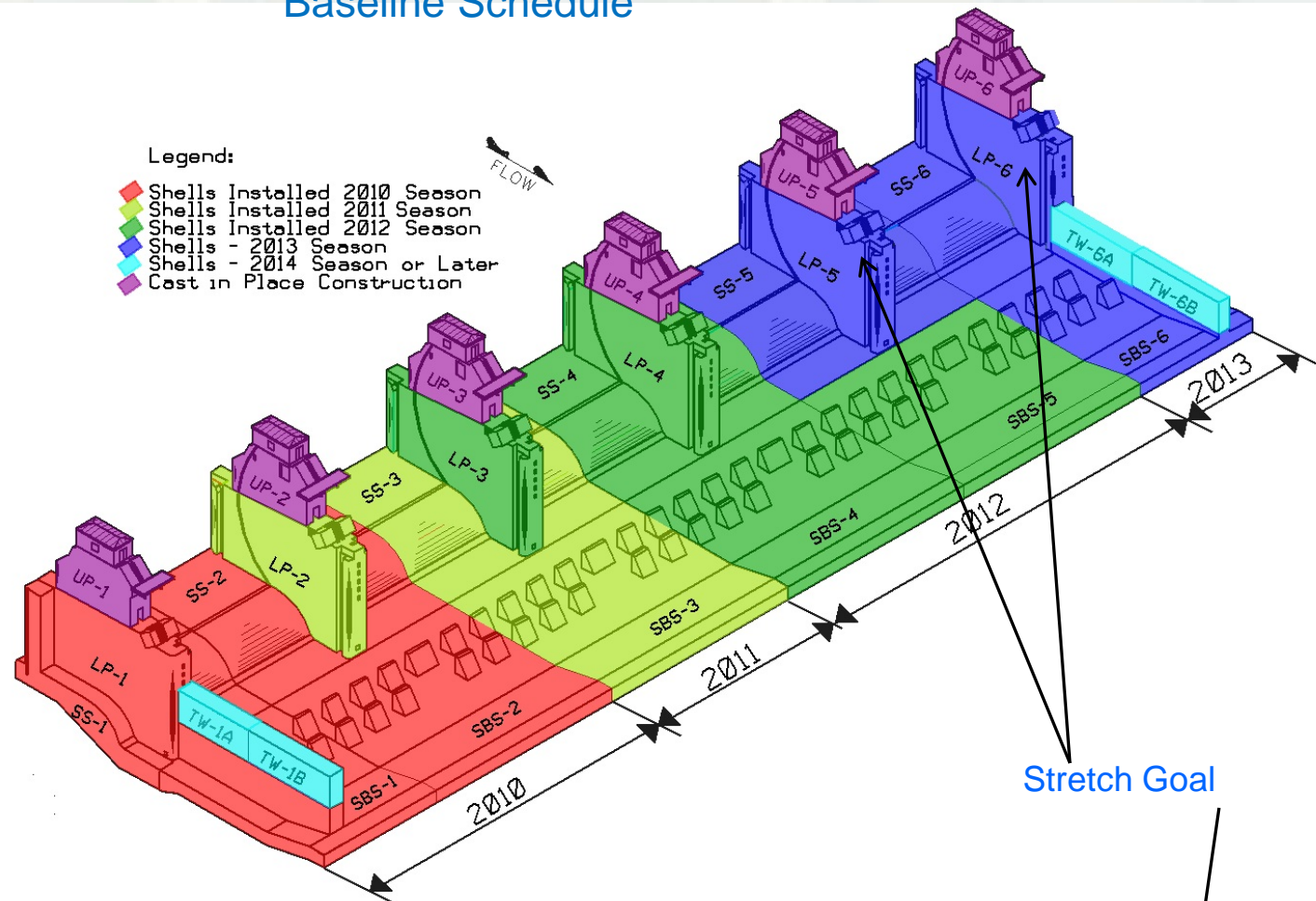


8/29/2013

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Shell Setting Schedule

Baseline Schedule



Key:

2010 Season(Actual)

SBS-1: September 22, 2010
 SS-1: October 15, 2010
 SBS-2: November 18, 2010
 SS-2: January 02, 2011
 LP-1: February 16, 2011

2011 Season(Actual)

LP-2: July 22, 2011
 SBS-3: October, 09, 2011
 SS-3: November 16, 2011

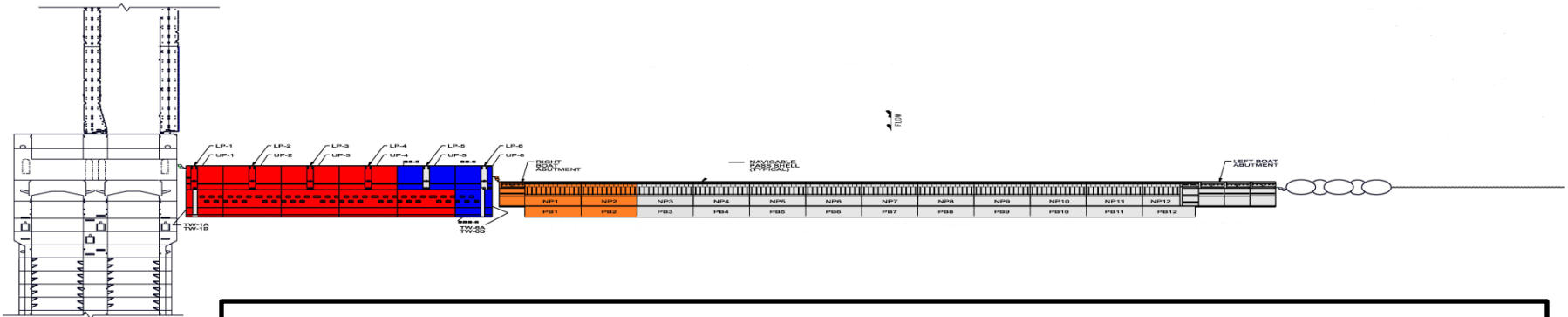
2012 Season (Actual)

SBS-4: July 11, 2012 (A)
 SS-4: August 16, 2012 (A)
 LP-3: September 8, 2012 (A)
 LP-4: September 16, 2012 (A)
 SBS-5: November 17, 2012 (A)

2013 Season (Planned)

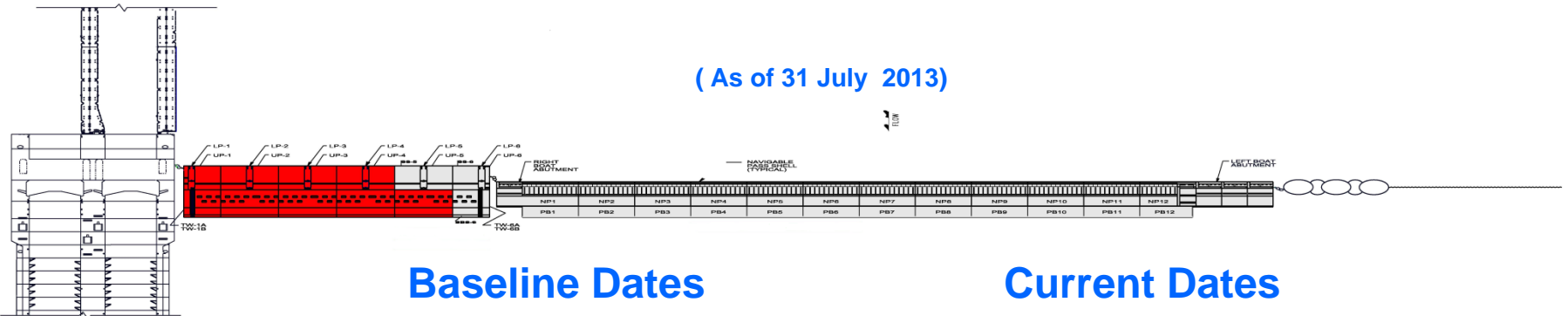
SS-5: September 14, 2013
 SBS-6: November 22, 2013
 SS-6: December 24, 2013
 LP-5: January 18, 2014 (Stretch Goal)
 LP-6: January 31, 2014 (Stretch Goal)

Planned Future Work 2013 Shell Settings



Shell set FY 12 & prior
 Planned FY 13 Shells
 Nav Pass Foundation Work

(As of 31 July 2013)



Baseline Dates

SS-5:	21 August 2013
SBS-6:	31 October 2013
SS-6:	27 November 2013
LP-5:	02 January 2014 (Stretch)
LP-6:	09 January 2014 (Stretch)

Current Dates

SS-5:	14 September 2013
SBS-6:	22 November 2013
SS-6:	24 December 2013
LP-5:	18 January 2014 (Stretch)
LP-6:	31 January 2014 (Stretch)

Post Authorization Change Report (PACR)

- Recommend Authorization Increase to: \$2.918 B
- Current Section 902b Limit: \$1.7 B (will hit in 2nd qtr of FY14)
- BCR for authorization at 4% discount rate: 9.9
- Estimated Lock and Dam Operational: FY 2020
- Estimated Dam Construction Complete: FY 2021
- Estimated Project Complete: FY 2024



Annual Benefits vs. Net Annual Benefits

- Stream of future benefits/costs discounted to present value, amortized to generate “Annual” estimates
- Discounting approximates “time value” of costs/benefits
 - A dollar today worth more than one 50 years from now
 - Performed using multiple “discount rates”
- Annual Benefits – Annual Costs = Net Annual Benefits

Cost/Benefit Analysis – 7.0% Discount Rate

Annualized Benefits	
Transportation Benefits	\$823,272,341
Fuel Tax Revenues	\$19,976,006
Less WOPC Normal O&M	\$7,664,548
Less LD 52 Repairs	\$12,291,092
Less LD 53 Repairs	\$11,860,808
Incremental Annual Benefits	\$875,064,795
Annualized Costs	
Construction	\$211,450,732
Interest During Construction	\$19,093,734
Normal O&M	\$3,832,274
Main Chamber Maintenance	\$277,669
Aux Chamber Maintenance	\$314,605
Dam Maintenance	\$60,200
Incremental Annual Costs	\$235,029,214
Net Annual Project Benefits	\$640,035,580
BENEFIT - COST RATIO	3.7



PACR Recommendation / 902 Status

- Recommendation: Olmsted is the #1 priority project in the IMTS inventory, producing significantly more benefits than the #2 priority, even if optimistic assumptions are made concerning the reliability of L/Ds 52 and 53. Authorization needs to be increased prior to impacting the construction schedule.
- 902 Status: No action has been taken to increase the section 902 authorization limit. A slowdown of Olmsted construction will begin in Nov 2013 and work stoppage will occur in Jan 2014. QUESTION: What are the chances of getting an authorization increase before Nov 2013?



Summary from last IWUB Mtg

- Reviewed Overall Schedule
 - ▶ On-going Work: Pile driving & Precast for shells
 - ▶ Future Work: Pile driving, finish precast, setting shells for the low water season
- Reviewed Status of section 902 authorization
- Reviewed maintenance impacts and risks at L/Ds 52 and 53
- Briefed Balanced Scorecard
- Briefed Olmsted Action Plan (when work on Olmsted is stopped)
- Reviewed potential personnel impacts and alternate uses of IWTF monies (when work on Olmsted is stopped).



Current Way Ahead

- Continue to construct project as efficiently as possible
- Slow down in November 2013 due to 902 limitations
 - ▶ Will hold sufficient funds to cover demobilization, caretaker, security, environmental and contingencies (~\$40M total).
 - ▶ Team is developing staffing impacts of a slowdown, likely 35 +/- (of ~47) government employees impacted and ~610 Contractor employees.
- Shutdown by 2nd Quarter 2014



Current Way Ahead

- Precast Activities

- ▶ Finish fabricating shells LP-5 & LP-6
- ▶ Begin infill of LP-3 and LP-4 during the low water season and acceptable river elevation

- Marine Activities

- ▶ Continue pile driving activities (critical path)
- ▶ Set remaining flat shells this season with a stretch goal to set LP-5 and LP-6 this season
- ▶ NavPass foundation work (critical path)
- ▶ Tainter Gate – trunnion anchorage fabrication and upper pier build-out.



Current Way Ahead

- Impacts of High River Elevations in July
 - ▶ 29 day delay to the schedule
 - ▶ Critical pile driving activity started 23 July; scheduled to start 29 June
- Schedule Recovery
 - ▶ Success! Use of Dredge Hurley (dust-pan dredge)
 - ▶ Shifted to 7 day, 24-hour schedule on critical path activities
 - ▶ Utilizing 5-day, 12-hour rolling shifts
 - ▶ Re-sequence air lift excavation and NavPass foundation work to start early



2013 Low Water (LW) Season Critical Path Adjustment

- Reflects Lean Construction Process Improvement (Finish started activities (pile driving) expediently)
- SS-5 originally scheduled as 2012 stretch goal and simply carried forward into the 2013 LW season
- 2013 LW river conditions facilitated Tainter Gate (TG) footprint piling (foundation and sheetpile cutoff wall) activities to start prior to predecessor Shell setting activities effectively re-sequencing the work
- All TG footprint piling will be complete allowing subsequent TG Shell setting activities to progress unfettered (pile driving and shell setting are mutually exclusive activities)
- Consistent with current plan to drive-out Navigable Pass piling in 2014 LW season (no planned Nav Pass Shell setting)



Progress Since Last IPR

Pile driving underway.
Foundation cleanup for
SS-5 underway.



Work continues on the
fabrication of LP-5 & LP-6
in the PCY.



Dredge Hurley 2013 LW Utilization

- Started: 25 June 2013
- Finished: 30 June 2013
- Material moved: 120,000 CY
- Cost per Cubic Yard: \$6.41 (vs. \$16.75)
- Cost Savings: \$1,240,000
- Schedule Savings: 6 weeks (Excavation Activity)



Test Run through the Lock Chamber



Tow successfully passed the river-side lock chamber on 28 July 2013.

Second test through the land-side chamber (at night) will be 18 August 2013.





Olmsted Project

Balanced Scorecard – June 2013

Expenditures

Planned (BCWS) \$1.592B
 Earned (BCWP) \$1.580B
 Actual (ACWP) \$1.556B

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

Project Compl.
 Dam Operational

Rating

(PACR)/(Current)

Sep 2024/Oct 2023

Sep 2020/Oct 2019

Measures: Planned project completion and Dam contract operational dates

Target: Green; Current = PACR-12months,
 Yellow; Current = PACR-11 month to PACR- 7 months
 Red ; Current = PACR-6 months to after PACR date

Total Estimated Price (TEP)

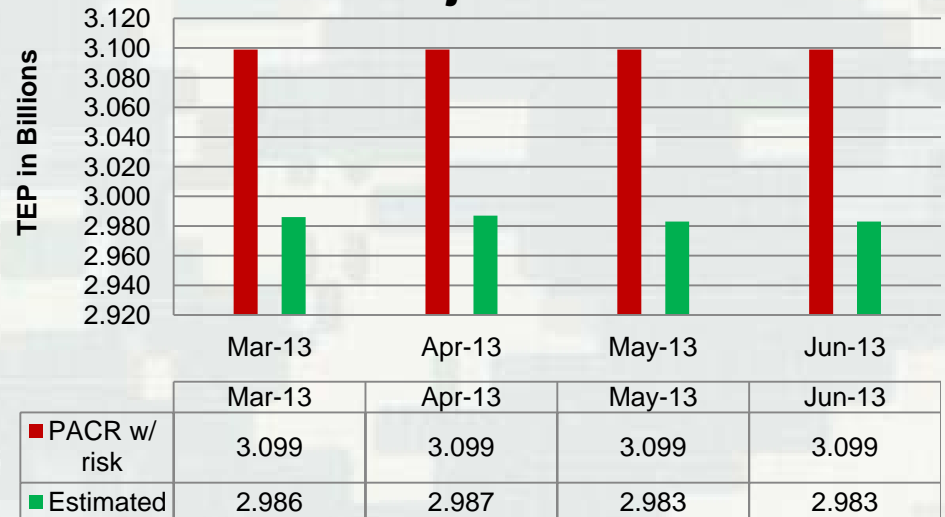
PACR \$3.099B

Current Estimated \$2.983B

Measures: Total , fully inflated, price for the project includes risk.

Target: Green < 3.0B, Yellow > 3.0B and < 3.1B, Red >\$3.1B

Olmsted Project TEP Trend

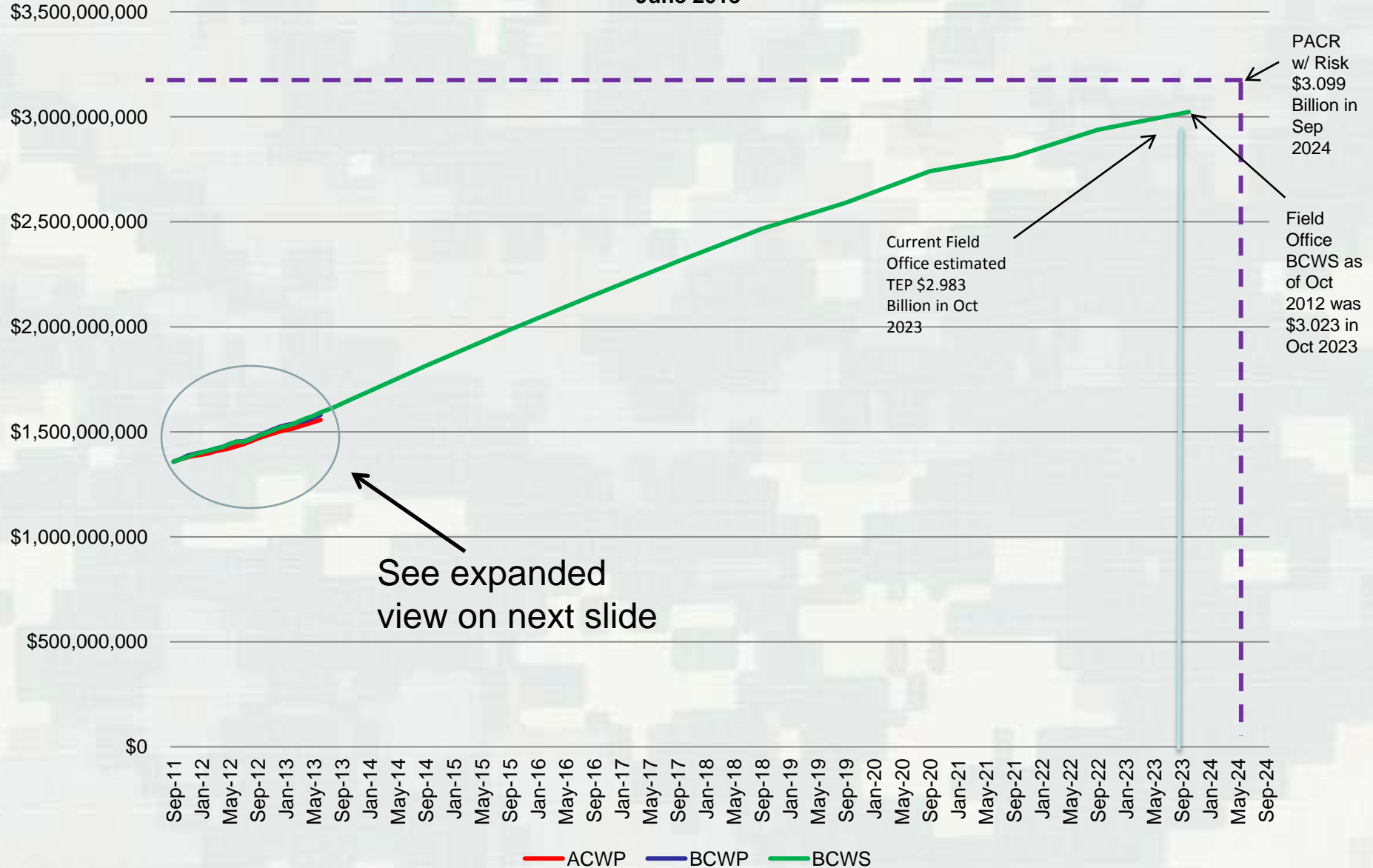


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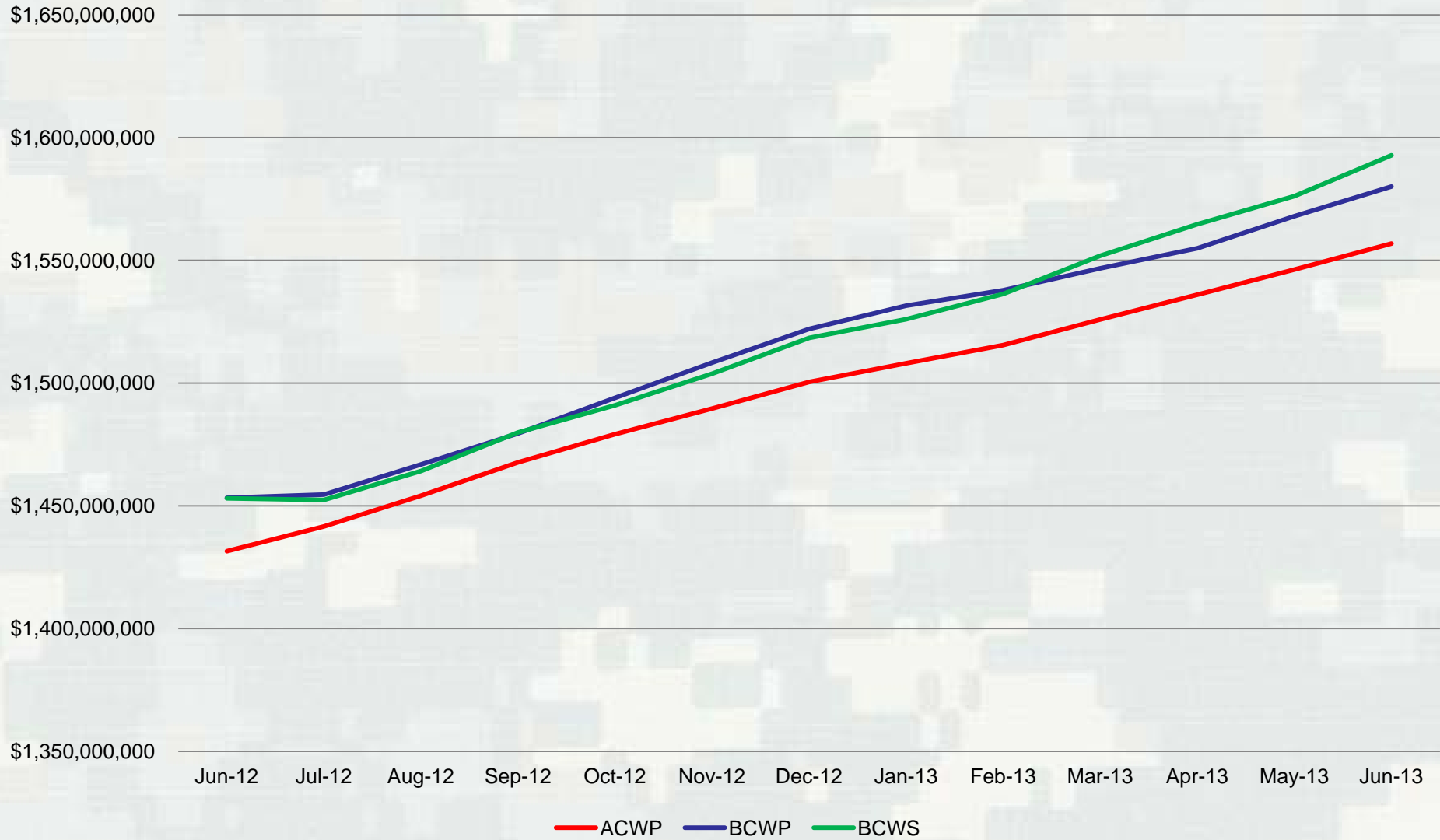
Olmsted L&D Project Earned Value Analysis

(Based on DOD Gold Card)

June 2013

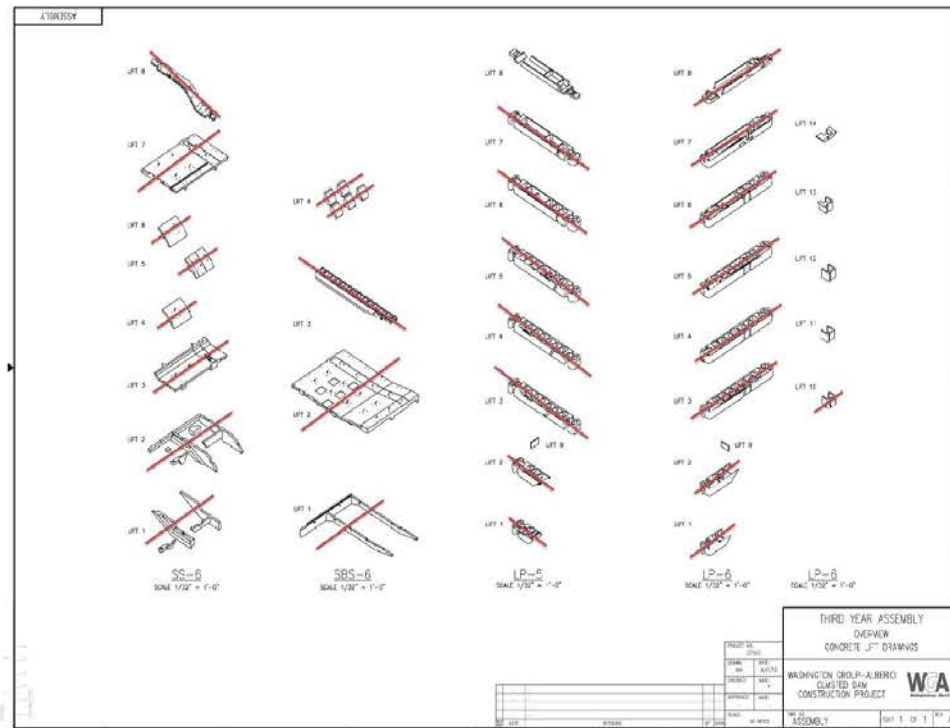


Olmsted Project: 12 Month Rolling Graph



FY-13 Work in Precast Yard

Baseline Schedule



SBS-6		
	Current	CY of Concrete
Lift 1	29-Oct-12 A	156
Lift 2 & 4	16-Apr-13 A	957
Lift 3	09-May-13 A	83
Lift 6	18-Jun-13 A	77
Baffle Blocks 1,2,3	25-Apr-13 A	75
Baffle Blocks 4,5	29-Apr-13 A	27

LPS-6 (CAST AT POSITION 5)		
	Current	CY of Concrete
Lift 1	24-Apr-12 A	56
Lift 2	17-May-12 A	76
Lift 3	11-Jun-12 A	179
Lift 4	12-Sep-12 A	184
Lift 5	30-Nov-12 A	194
Lift 6	08-Apr-13 A	169
Lift 7	11-Jun-13 A	140
Lift 8	17-Jul-13 A	56
Blister Lift 1	23-Jul-13 A	14
Blister Lift 2	12-Aug-13	13
Blister Lift 3	28-Aug-13	16
Blister Lift 4	11-Sep-13	15
Blister Lift 5	24-Sep-13	20

SS-6		
	Current	CY of Concrete
Lift 1	25-Oct-12 A	51
Lift 2	27-Nov-12 A	161
Lift 3	07-May-13 A	270
Lift 6	04-Jun-13 A	125
Lift 4&5	23-May-13 A	59
Lift 7	20-Jun-13 A	536
Lift 8	02-Jul-13 A	67

LPS-6 (CAST AT POSITION 6)		
	Current	CY of Concrete
Lift 1	29-Oct-12 A	49
Lift 2	07-Nov-12 A	67
Lift 3	12-Dec-12 A	165
Lift 4	12-Feb-13 A	175
Lift 5	17-Apr-13 A	182
Lift 6	06-Jun-13 A	156
Lift 7	23-Jul-13 A	130
Lift 8	15-Aug-13	50

Precast Yard Schedule for FY13

- Complete SBS-6 including baffle blocks
- Complete SS-6
- Complete LPS-5
- Complete LPS-6

Schedule

29 April 2013 (A)
02 July 2013 (A)
15 August 2013
24 Sept 2013

Situational Awareness

- Facts:
 - Current 902 limit \$1,700,053,000
 - Expended thru 30 June 2013 \$1,553,166,726
 - Available to expend prior to hitting the 902 limit \$146,886,274
 - 2014 PB efficiently funds Olmsted at \$163M
 - 2014 PB includes Authorization language (strike and replace...)
 - Senate Draft WRDA addresses 902 limit if enacted as written.
- Assumptions:
 - On the current schedule the contract will hit the 902 limit in November-December 2013 (1st Qtr. FY14)
 - Funds will be retained for:
 - \$7,670,000 for demobilization, severance & relocation
 - \$4,762,000 caretaker, job site security, environmental monitoring & maintenance of completed work.
 - \$4,568,000 S&A and EDC
 - \$25,000,000 for contingencies (claims, etc.)
 - Cash Flow is constrained to \$150M/yr



Olmsted Legislation

- Water Resources Development Bills
 - ▶ Senate Bill 601 - passed
 - Sec 7007 - GAO study of increased costs and schedule.
 - Sec 7008 – Future funding 100% from General Fund of Treasury
- Appropriations Bills - pending
 - ▶ Senate Bill 1245
 - Sec 105 increases authorized cost to \$2.918 billion.
 - None of the funding to come from IWTF for the Fiscal Year. Does not change overall requirement for 50/50 funding.
 - ▶ House Bill 2609
 - Sec 108 increases authorized cost to \$2.918 billion.



Olmsted Action Plan

(when work is stopped)

- Slowdown in Nov 2013. Stop work by 2nd quarter FY2014
- Work stoppage will immediately add at least one year and \$82.5M to the project. An extended stoppage will increase costs and the completion date significantly
- Impacts to Personnel
 - ▶ 47 government staff members work on the Olmsted project
 - ▶ 620 Contractor staff members work on the Olmsted project
- Funding for minimum staff is in the Shutdown Plan for caretaker status.
- Once staff members are reassigned, they will be committed to new projects. This will cause an additional learning curve for newly hired staff when the Olmsted authorization is increased.



Discussion



Back-Up Slides



Alternative Uses for IWTF

(introduce Jim Hannon)

- Assumption

- ▶ Follow the CPBM priorities as much as possible
- ▶ Also consider the funding available and whether benefits can be achieved
- ▶ HQ is doing analysis to include potential for rehabs

- Alternative Uses of IWTF Funds

- ▶ Next priorities, Lower Mon, Kentucky, Chickamauga
- ▶ Preparing design and solicitation package to advertise and award Lower Mon Middle Wall (~\$100m) by the end of the second quarter 2014.



Division	District	Project	Benefits	
			Average Annual	Source
LRD	LRL	Olmsted L/D Construction	\$ 875,064,795	Report
LRD	LRH	Greenup Dam Rehab PED and Const	\$ 18,960,343	Estimated
LRD	LRH	Meldahl Dam Rehab	\$ 18,960,343	Estimated
LRD	LRH	Willow Island Dam Rehab PED and Const	\$ 11,886,264	Estimated
LRD	LRH	Marmet Dam Rehab	\$ 11,344,108	Estimated
LRD	LRL	JT Myers Dam Major Rehab	\$ 9,142,532	Est*
LRD	LRN	Kentucky Lock Addition	\$ 66,057,052	Report
LRD	LRN	Chickamauga Replacement Lock	\$ 93,288,706	Est*
LRD	LRP	Lower Mon 2,3, & 4 Replacement **	\$ 220,032,000	Report
LRD	LRP	Montgomery Major Rehab	\$ 24,887,347	Estimated
MVD	MVN	Inner Harbor Lock Replacement	\$ 160,056,231	Est*
MVD	MVR	Lagrange 1200' Lock Addition	\$ 53,060,000	Report
MVD	MVR	L/D 22 Upper MS 1200' Lock Addition	\$ 45,799,413	Est*
MVD	MVR	Lagrange Major Rehab	\$ 10,178,239	Estimated
MVD	MVR	ILL WW Thomas O'Brien L/D Major Rehab	\$ 4,875,803	Estimated
MVD	MVS	L/D 25 Upper MS 1200' Lock Addition	\$ 54,854,226	Est*
MVD	MVS	L/D 24 Upper MS 1200' Lock Addition	\$ 49,869,093	Est*
MVD	MVS	L/D 25 Upper MS Dam Major Rehab	\$ 9,634,988	Estimated
MVD	MVS	Mel Price Upper MS Major Rehab	\$ 7,596,594	Estimated
NWD	NWW	Lower Monumental Major Rehab	\$ 3,304,068	Est*
SWD	SWG	High Island to Brazos River, TX	\$ 5,666,000	Report
SWD	SWL	No. 2 Lock AR Lock Wall/Bank Slope Rehab	\$ 22,685,480	Estimated

* An analysis has been completed for this project, however, the benefit estimating procedure (3 x Av. Annual Equivalent Capability Cost) produced a higher value.

** Lower Monongahela replacement benefits are phased.



Benefit/Cost Categories

- Primary benefit categories:
 - Transportation rate savings
 - Locks and Dams 52 and 53 repair avoidance
 - O&M reductions
 - Fuel tax revenues
- Primary cost categories:
 - Construction cost (w/ IDC)
 - Olmsted future maintenance/repair cost



Computation of Benefits

Two New Scenarios

- Failure assumptions for L/Ds 52/53 were questioned. Therefore, alternate benefit calculation scenarios with different assumptions for L/Ds 52/53 were developed.
- Slipping the failure assumptions for L/Ds 52/53 in years 2021 thru 2026 by 20 years, and assuming no delays to navigation from 2021 thru 2026, the annual benefits reduce from \$875 million to \$513 million. This produces a BCR of 2.2 (based on total project cost)
- In another scenario, we removed the major failure assumptions in years 2021 thru 2026 completely and annual benefits dropped to \$445 million. This produces a BCR of 1.9 (based on total project cost)

