

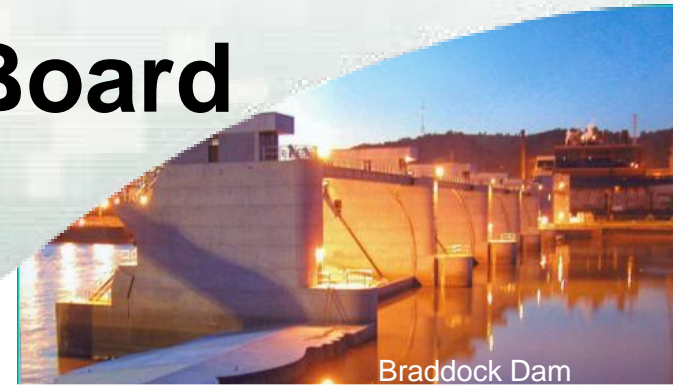
# Locks and Dams 2, 3, and 4 Monongahela River, PA (Lower Mon Project) Inland Waterways Users Board

MR. DAVID DALE, PE, PMP, SES

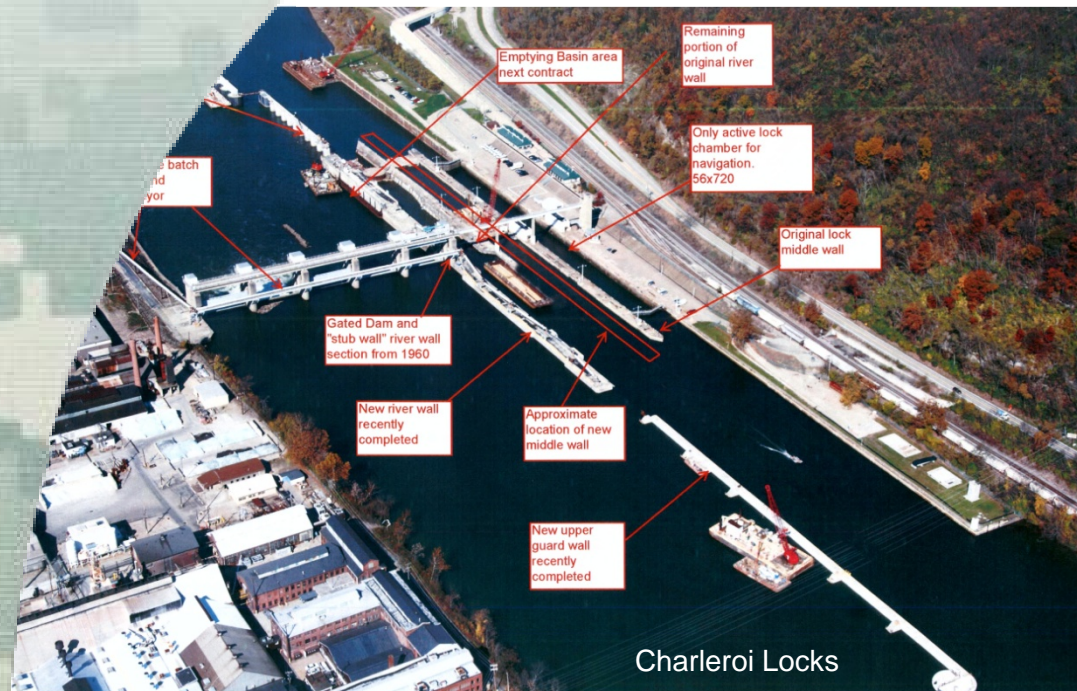
DIRECTOR, Programs

Great Lakes & Ohio River Division

12 August 2015



Braddock Dam



US Army Corps of Engineers  
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# Agenda

- **Financials**
- **Project Overview**
- **Schedule**
- **Ongoing Construction at Charleroi**
- **Images of Charleroi Construction**
- **Scorecard**
- **“S” Curve**
- **Challenges**
- **Discussion**



# Locks and Dams 2, 3, and 4, Monongahela River, PA

Total Project Cost <b>Forecast: \$1,220,000,000</b>	ARRA	CG	IWTF	Total
FY13 Allocation:	\$1,510,007	\$11,093,652	\$11,093,652	\$23,697,311
FY14 Allocation:	\$0	\$36,336,500	\$36,336,500	\$72,673,000
FY15 Allocation:	\$(50,711)	\$28,016,000	\$28,016,000	\$55,981,289
FY16 Budget:	\$0	\$26,000,000	\$26,000,000	\$52,000,000

Remaining Balance:	\$240,632,377	\$240,632,377	\$481,265,673
Remaining Balance Change From Last Meeting			\$-1,513,033,001

Note:

## Changes

Total project cost revised from \$2,733 M to \$1,220 M. \$1,220M reflects a “non-certified” risk informed cost and schedule forecast to reach over 90% of project benefits by 2029. This cost does not include the Port Perry Railroad Bridge relocation nor the Charleroi Land Chamber.

Remaining balance revised from \$1,994,298,674 to \$481,265,673. Reflects removal of Port Perry Bridge and the Charleroi Land Chamber and estimated allocations of \$738M thru FY 2016.

## Funding Overview

- Original Authorized Cost: \$556M
- 902 Limit: \$1.76B
- ARRA Funding (FY09-FY14): \$68.4M
- Engineering & Design Cost: \$603M \*
- Supervision & Admin Cost: \$207M
- Mitigation: \$12M

\* \$603M includes all Engineering & Engineering During Construction

## Next Steps

- Award Charleroi River Chamber Completion (Base plus Options) Contract in FY2015

## Current Status of the Project

- Charleroi Emptying Basin Construction – On Schedule
- Charleroi M22-M27 Construction – On Schedule



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## Lower Mon - Project Costs (\$million)

	Total Project
Authorized Cost (1992)	\$506
Authorized Total Cost Inflated (Oct 2014)	\$940
Cost Forecast (Oct 2015)	\$1,138 Not escalated
Fully Funded Cost Forecast (Oct 2015)	\$1,220 Fully funded thru 2029

- Project 902 Limit: \$1,761,250,000
- **Forecasted cost estimate \$1,220,000,000 Fully Funded thru 2029**
  - Cost forecast is a working estimate (October 2015 price level) including risks, not certified
  - Cost forecast and schedule includes the WRDA 2014 Olmsted IWTF cost share change and IWTF revenue structure changes
  - Cost forecast does not include Port Perry Railroad Bridge nor the Charleroi Land Chamber
- Estimated allocations thru FY 2016 - \$738.7 million
- Estimated sunk costs (investments) thru FY 2015 - \$579 million

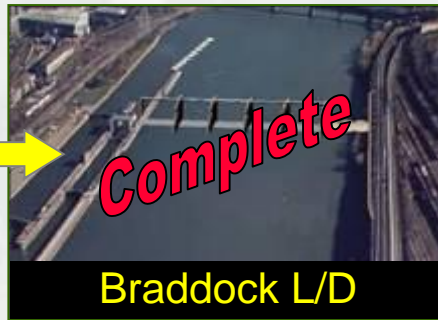
Note: This new slide reflects the uncertified cost forecast to achieve over 90% of project benefits. Cost/schedule recertification is scheduled for FY2016 at which time this table data could be updated and a new baseline established.



# 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



## Lower Mon - Project Schedule

Major Feature Construction	Last Reported Completion (May 2015)	Revised
Charleroi River Wall	FY 2016	
Charleroi Dam Emptying Basin	FY 2016	
Charleroi M22-M27	FY 2018	
Charleroi Dam Stilling Basin	FY 2021	
Charleroi River Chamber Completion	FY 2022	
Dredging Pool 3	FY 2022	
Relocations	Variable	
Lock and Dam 3 Removal	FY 2023	

- This chart depicts the early schedule based on the revised Olmsted cost share, the projected increase in IWTF revenue, and the Lower Mon remaining the second priority for inland navigation construction
- Specific relocations are associated with pool changes so their timing is variable



# Locks and Dams 2, 3, and 4, Monongahela River, PA

Schedule of Remaining Work	Design Initiated	Contract Award	Construction Complete *2	Project Benefits*3	Capitalized Cost Closeout*3
Charleroi River Wall	1-Oct-95	27-Sep-04	14-Dec-15 S	2022	2025
Charleroi Emptying Basin	1-Oct-95	30-Sep-13	26-Dec-15 S	2022	2025
Charleroi River Chamber (M22-M27)	1-Oct-95	15-Aug-14	December 2018S	2022	2025
Charleroi Dam Stilling Basin	1-Oct-95	FY 2018 S	FY 2021 S	2022	2025
Charleroi River Chamber Completion	1-Oct-95	FY2015 S	FY 2022 S	2022	2025
L/D 3 Removal	2020	2021 S	FY 2023 S	2022	2025
Dredging	1-Oct-95	2017 S	FY 2022 S	2022	2025
Municipal Relocations *1	1-Oct-95	Multiple	Multiple	NA	2025

\* 1: To complete all municipal relocations, multiple relocation agreements are required.

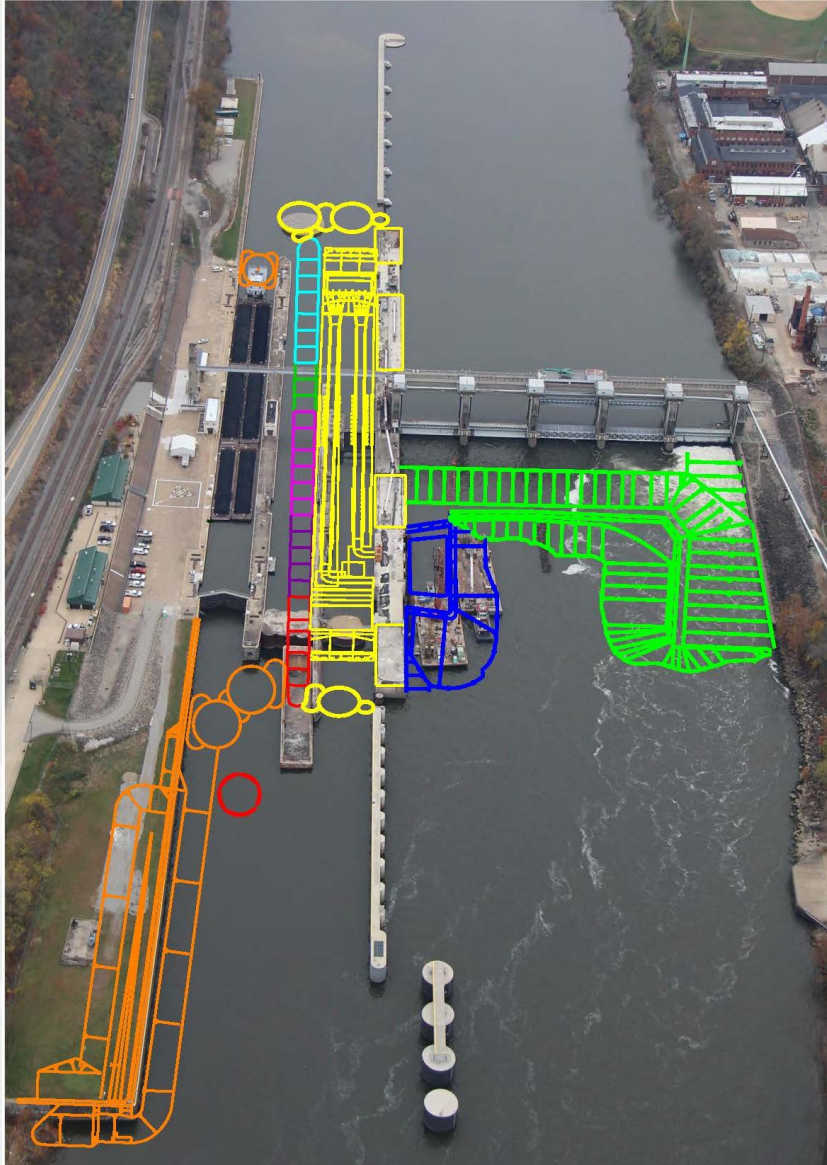
\* 2 Dates are achievable based on the most efficient funding profile.

\* 3: Project benefit and close out dates are based on the most efficient funding profile and breaching of Dam 3. Early contract completion for Dam 3 removal extends into 2023.

4: Over 90 % of project benefits can be achieved without constructing the Charleroi Land Chamber or relocating the Port Perry Railroad Bridge both of which have been removed from this slide.



# Lower Mon – Charleroi Ongoing / Pending Construction (Plan - Visual)



- Emptying Basin – Planned Complete FY 2016 (64% complete)
- M22-M27 – Planned Complete FY 2018 (11% complete)
- RCC – Base Contract (M1-M7) Planned Complete FY 2022
- RCC – Option 1 (M11-M16) Planned Complete FY 2022
- RCC – Option 2 (M8-M10) Planned Complete FY 2022
- RCC – Option 3 (M17-M21) Planned Complete FY 2022
- RCC – Option 4 (In-Chamber) Planned Complete FY 2022
- RCC – Option 5 (Chamber-Operational) Planned Complete FY 2022
- Stilling Basin – Planned Completion FY 2021

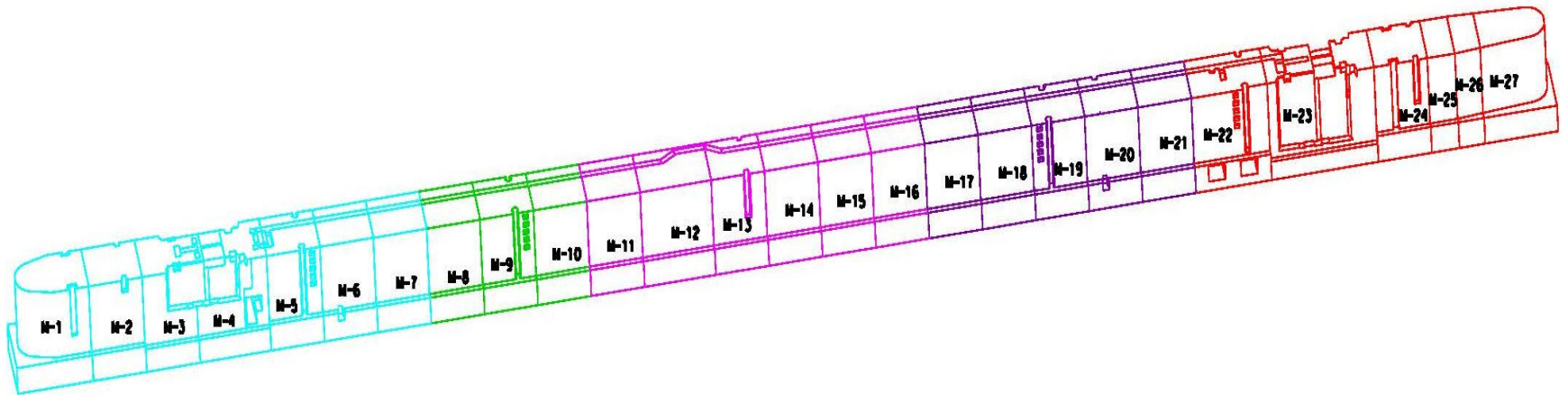
Completion date of the Charleroi River Chamber could be as late as **2027** if not awarded efficiently.


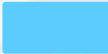



Remaining project features not shown on this slide:

- Dredging
- Pool Clearing
- Lock and Dam 3 Removal
- Relocations



# Lower Mon – Charleroi Middle Wall (Isometric)



-  M22-M27 – Planned to Complete in FY 2018 (Under Contract) (11% complete)
-  RCC – Base Contract (M1-M7) Planned to Complete in FY 2022
-  RCC – Option 1 (M11-M16) Planned to Complete in FY 2022
-  RCC – Option 2 (M8-M10) Planned to Complete in FY 2022
-  RCC – Option 3 (M17-M21) Planned to Complete in FY 2022

Option 4 and Option 5 not shown in isometric view.

Completion date of the Charleroi River Chamber could be as late as 2027 if not awarded efficiently



# Charleroi Construction Images



Emptying Basin Contract: 1 – Pedestal template fabrication; 2 – Precast Segment.  
M22-M27 Contract: 3 – Excavation at downstream closure; 4 – Drilled shaft and King Pile template.



# Locks and Dams 2, 3, and 4 Monongahela River Project

## Time and Cost Scorecard – **Thru June 2015**

### Expenditures

Planned (BCWS)      \$ **556.2** M  
 Earned (BCWP)      \$ **570.6** M  
 Actual (ACWP)      \$ **569.0** M

**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 **June 2015**  
**SPI=1.03, CPI=1.003**

### Schedule

*(Baseline)/(Current Early)*

Overall Project Completion      2071 / 2061  
 Realize over 90% of project Benefits      **2027 / 2022**

Reserve Balances (estimated):

- Contingency to >90% of benefits:      **52** Months
- Management Reserve not yet determined

Opportunity to move project benefits to the left due to Olmsted cost share revision and an increase in the fuel tax

### Estimated Cost at Completion

**>90% benefits**      Total project  
 BAC(FF)      \$ **1.2** B      \$ **2.73** B  
 EAC(FF)      \$ **1.2** B      \$ **2.73** B

*Estimated from revised cost and schedule forecast fully funded thru 2029 and estimated costs thru FY 2015*

Reserve Balances (FF):

**Project Contingency      \$ 0.151 Billion**  
**Sunk Cost (thru June 2015): \$ 0.57 Billion**

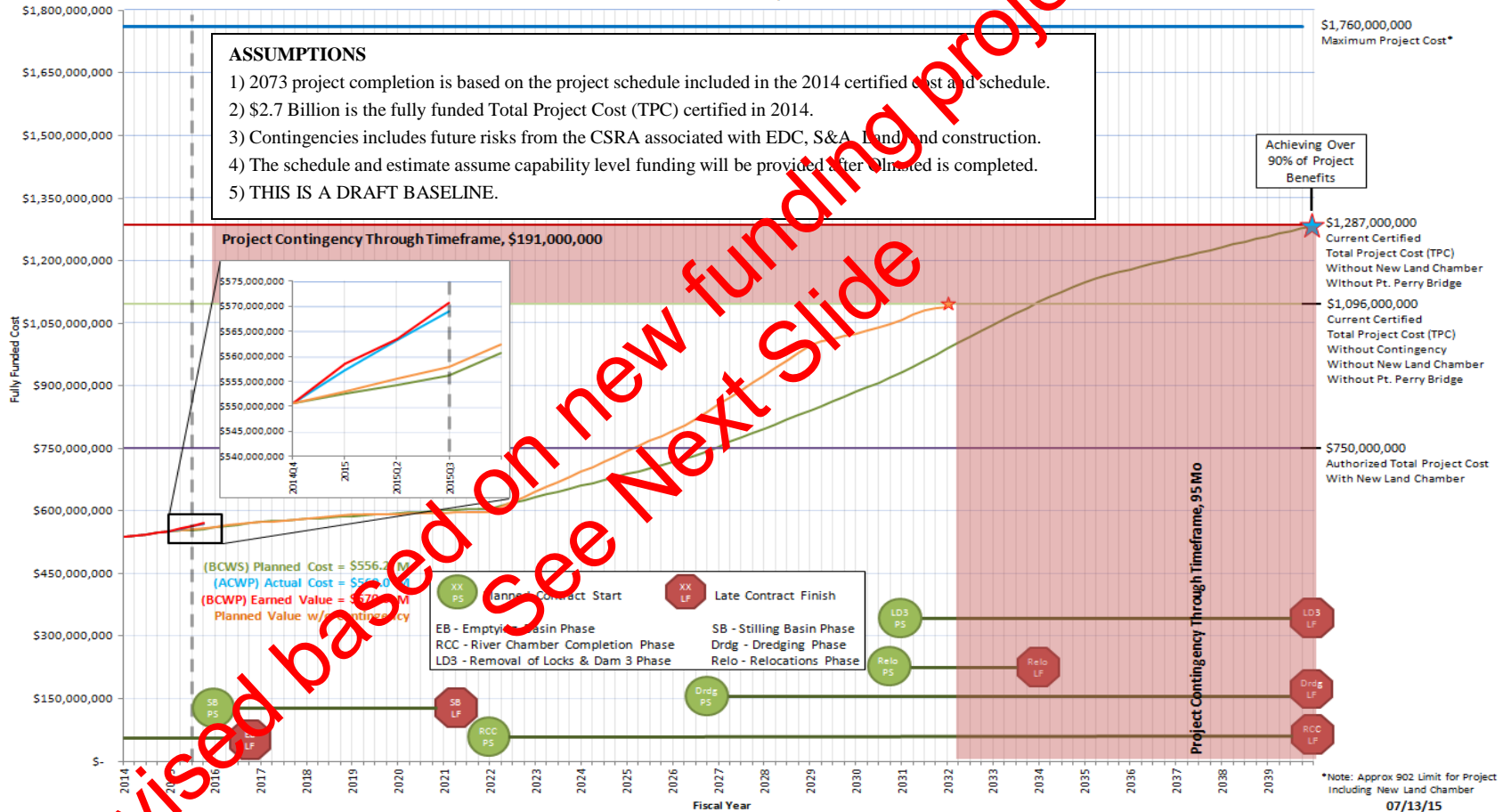
### Milestones Status for the Next 6 Months

- Charleroi River Chamber Completion (RCC) RTA: **Scheduled 23 Apr 2015 – Actual 23 April 2015***
- Advertise RCC: **Scheduled 5 June 2015 – Actual 3 June 2015***
- Open Bids for RCC: **Scheduled 3 August 2015***
- Award for RCC: **Late August early September 2015***

Activity Name	Activity ID	Gantt Chart											
		2015	2016										
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
RCC RTA (LRD CW400)	RCC 19620			◆ 23-Apr-15									
Open bids	RCC 19820												
Award (Early) Milestone	RCC 23920												
River Chamber Contract Award (HQ CC800)	RCC 24020												

# Lower Mon "S" Curve

## Lower Monongahela River Project Baseline Estimate Without New Land Chamber and Port Perry Relocated Perry Bridge All Costs are Fully Funded

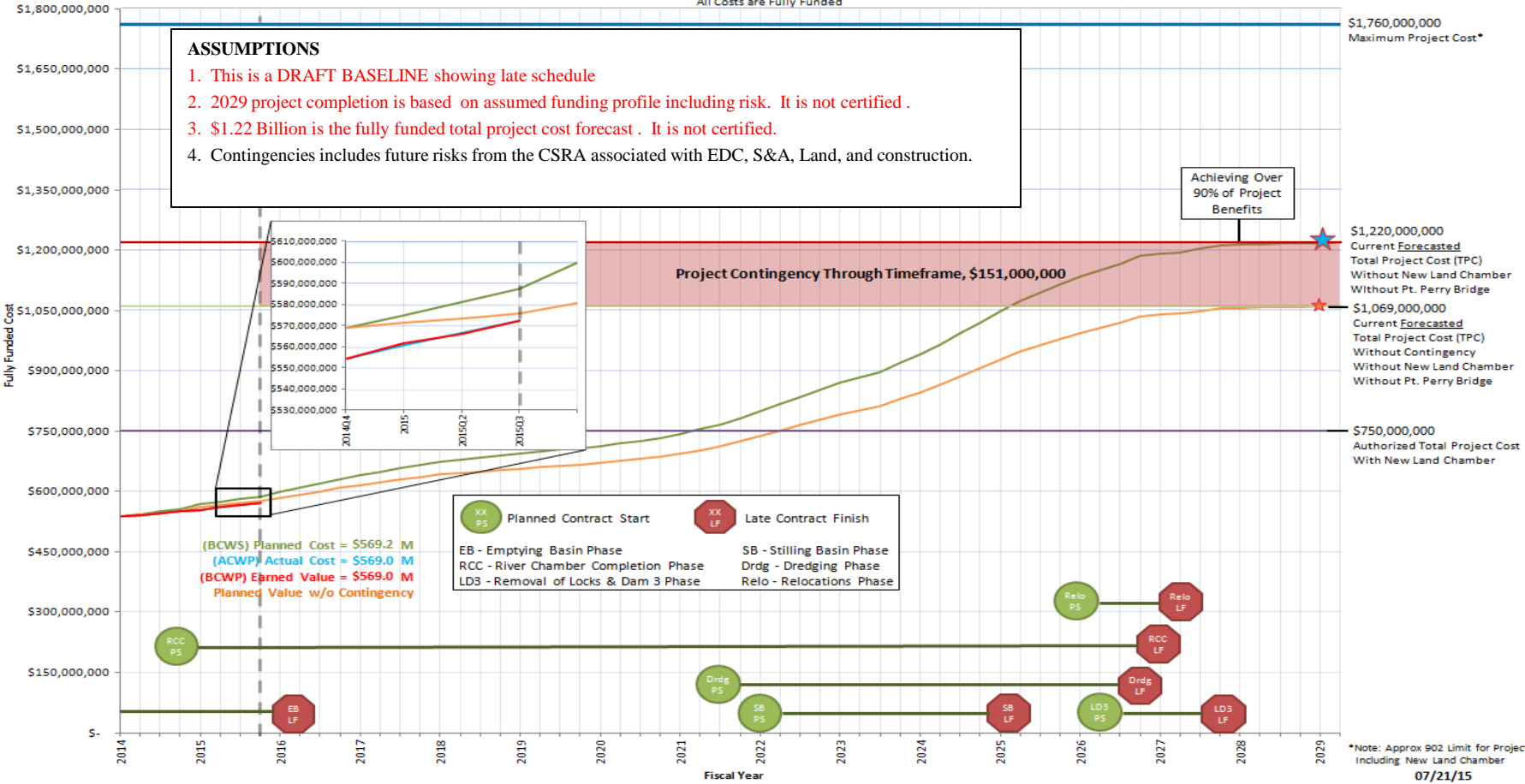


**Basis** = March 2014 Certified Total Project Cost Estimate  
**Original** = Steve Fritz, Project Manager and Sean Weston, Cost Engineer  
**Approved By** = NOT READY FOR APPROVAL

Current Estimated  
Completion Date Including  
Contingency

# Lower Mon "S" Curve

## Lower Monongahela River Project Baseline Estimate Based on Revised Funding Conditions Without New Land Chamber and Port Perry Bridge All Costs are Fully Funded



**This slide has replaced the previous "S" Curve Slide**  
 Basis = Oct 2015 Cost Forecast with Revised Funding Profile – NOT CERTIFIED  
 Originator = Steve Fritz, Project Manager and Sean Weston, Cost Engineer  
 Approved By = NONE

↑  
 Current Estimated Completion Date Including Contingency

# Future Challenges

- **Most Efficient Schedule & Funding**
  - Continue to move project schedule left at every opportunity
  - Funding available when needed
- **Site constraints at Charleroi and/or Victory Hollow**
  - **Multiple contractors sharing these sites**
    - Emptying Basin Contract
    - M22-M27 Contract
    - River Chamber Completion Contract
    - Dredging Contract
    - Stilling Basin Contract



# Lower Mon – Discussion/Questions

