

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

MR. DAVID DALE, PE, PMP, SES

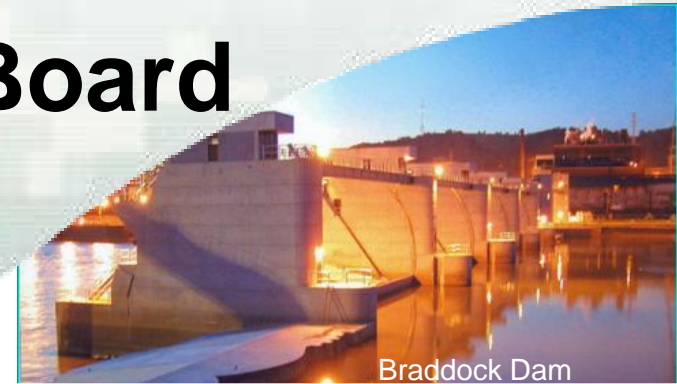
DIRECTOR, Programs

Great Lakes & Ohio River Division

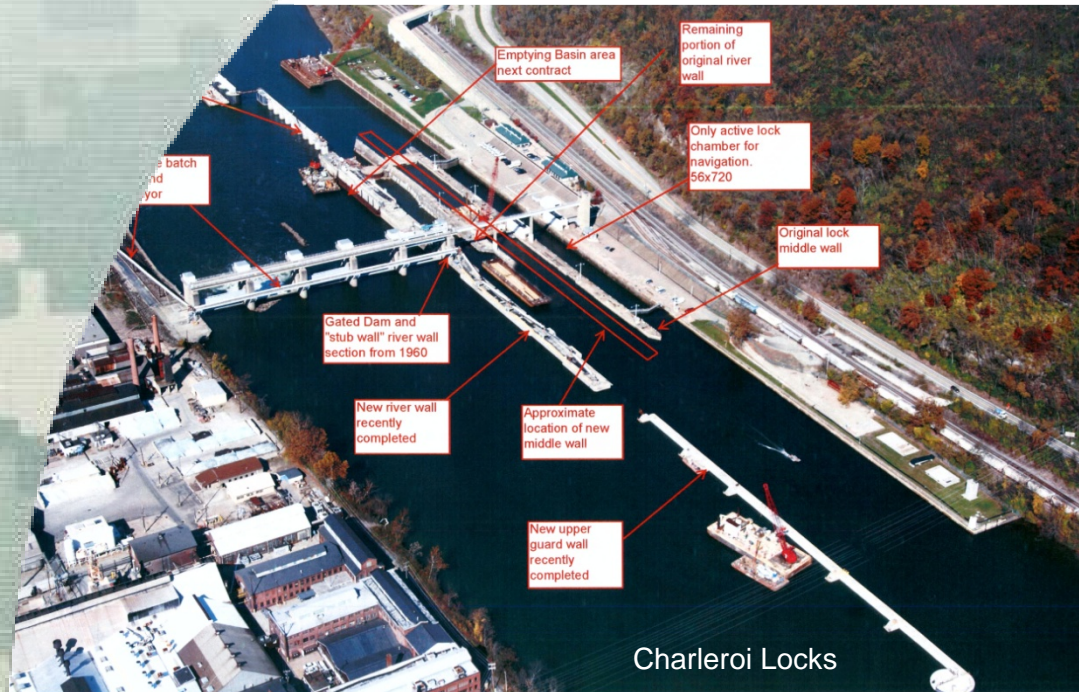
2 December 2015



US Army Corps of Engineers
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Braddock Dam



Charleroi Locks

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 Forecast: \$1,220,000,000 | 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: | \$(141,537) | \$28,015,000 | \$28,015,000 | \$55,888,463 |
| FY16 Budget: | \$0 | \$26,000,000 | \$26,000,000 | \$52,000,000 |

| | | | |
|--|----------------------|----------------------|----------------------|
| Remaining Balance: | \$240,632,377 | \$240,632,377 | \$481,375,500 |
| Remaining Balance Change From Last Meeting | | | +\$91,827 |

Note:

Changes

Total project cost presented at last IWUB as \$1,220 M.

Remaining balance revised from \$481,265,673 to \$481,357,500, an increase of \$91,827. These actions account for delta.
 \$90,827 of ARRA funds expired, previous was \$50,711. No more ARRA funds on project.
 \$ 2,000 reprogrammed to Emsworth
 \$ -1,000 adjustment

Funding Overview

- Original Authorized Cost: \$556M
- 902 Limit: \$1.76B
- ARRA Funding (FY09-FY15): \$68.3M
- Engineering & Design Cost: \$603M *
- Supervision & Admin Cost: \$207M
- Mitigation: \$12M

\$603M includes all Engineering & Engineering During Construction

Next Steps

- Exercise Charleroi River Chamber Completion Option 1 in FY2016

Current Status of the Project

- Charleroi River Chamber Completion – Awarded 16Sep15
- Charleroi Emptying Basin Construction – On Schedule
- Charleroi M22-M27 Construction – **Slightly behind schedule with no impact on project completion**



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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
- **Actual allocations thru FY2015 - \$686.6M**
- Actual sunk costs (investments) thru FY 2015 - \$575.5 million
- Estimated allocations thru FY 2016 - \$738.6 million

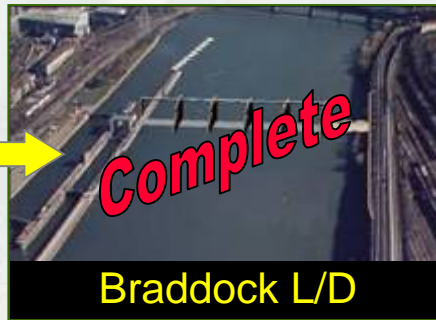
Note: This new slide reflects the uncertified cost forecast to achieve over 90% of project benefits. Cost/schedule recertification is scheduled for FY2016 at which time this table data could be updated and a new baseline established.



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 (Aug 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 | 16-Sep-15 | 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.

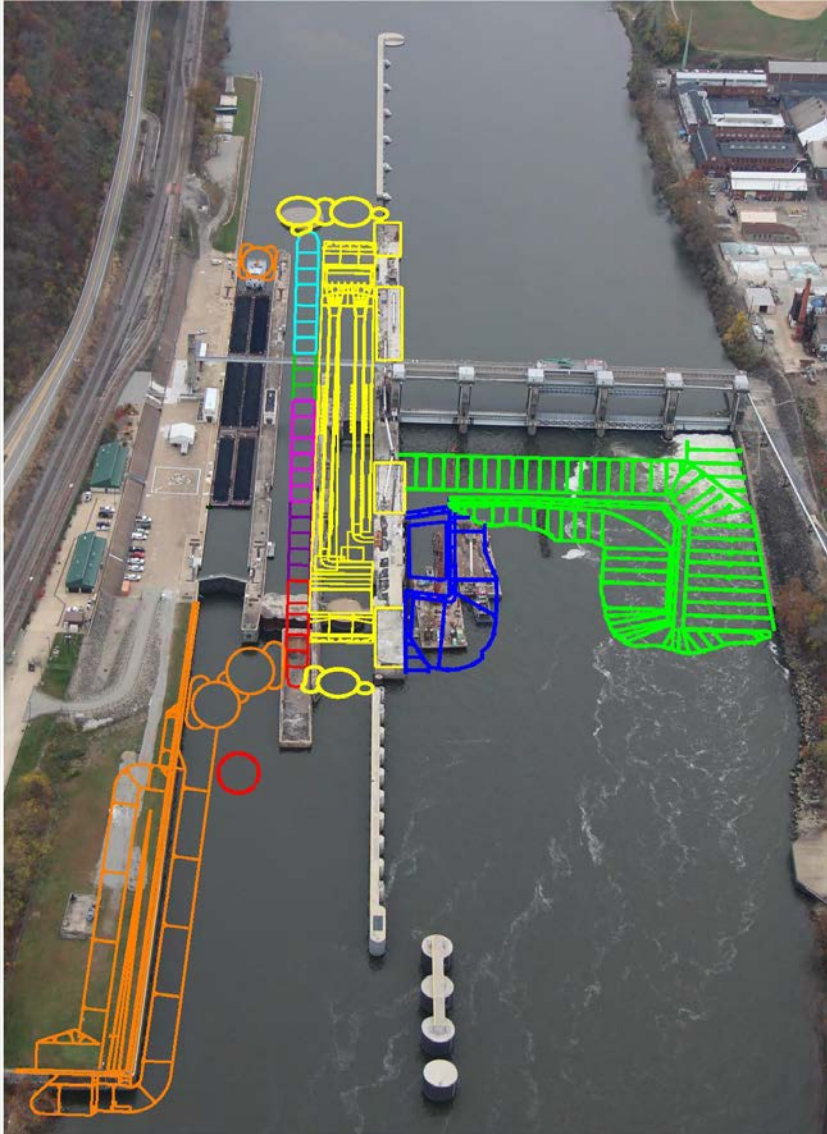
* 2 Dates are achievable based on the most efficient funding profile.

* 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. **MG Peabody officially directed deferment of the Port Perry Bridge and the Charleroi Land Chamber by memorandum dated 10 August 2015.**



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



- Emptying Basin – Planned Complete FY 2016 (96% complete)
- M22-M27 – Planned Complete FY 2018 (17% 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

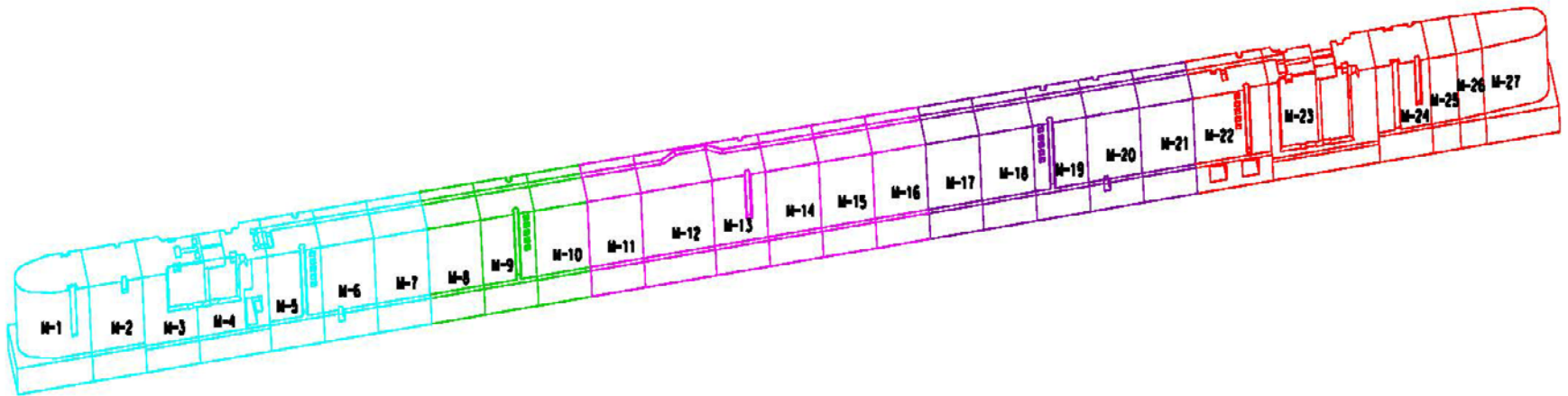
Completion date of the Charleroi River Chamber could be as late as 2027 if not awarded efficiently.

Remaining project features not shown on this slide:

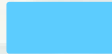
- Dredging
- Pool Clearing
- Lock and Dam 3 Removal
- Relocations



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 – Precast segment transport; 2 – Precast Segment set-down. M22-M27 Contract: 3 – Tremie hopper & tube; 4 – Tremie placement King Pile



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

Time and Cost Scorecard – Thru October 2015

Expenditures

Planned (BCWS) \$ 591.8 M
 Earned (BCWP) \$ 576.2 M
 Actual (ACWP) \$ 579.2 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 **October 2015**
 2015 SPI=0.98, CPI=1.00

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: \$ 0.579 Billion

Milestones Status for the Next 6 Months

Charleroi Emptying Basin Substantial Completion: December 2015

Charleroi River Chamber Completion (RCC): Actual Award 16 Sep 2015

Concrete Production for RCC: Obligate November 2015

| | | Gantt Chart | | | | | | | | | | | | 06-Apr-15 |
|---|-------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------|
| Activity Name | Activity ID | 2015 | | | | | | | | | | | | 2016 |
| RCC RTA (LRD CW400) | RCC 19620 | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | |
| Open bids | RCC 19820 | | | | | | | | | | | | | |
| Award (Early) Milestone | RCC 23920 | | | | | | | | | | | | | |
| River Chamber Contract Award (HQ CC800) | RCC 24020 | | | | | | | | | | | | | |

Lower Mon “S” Curve

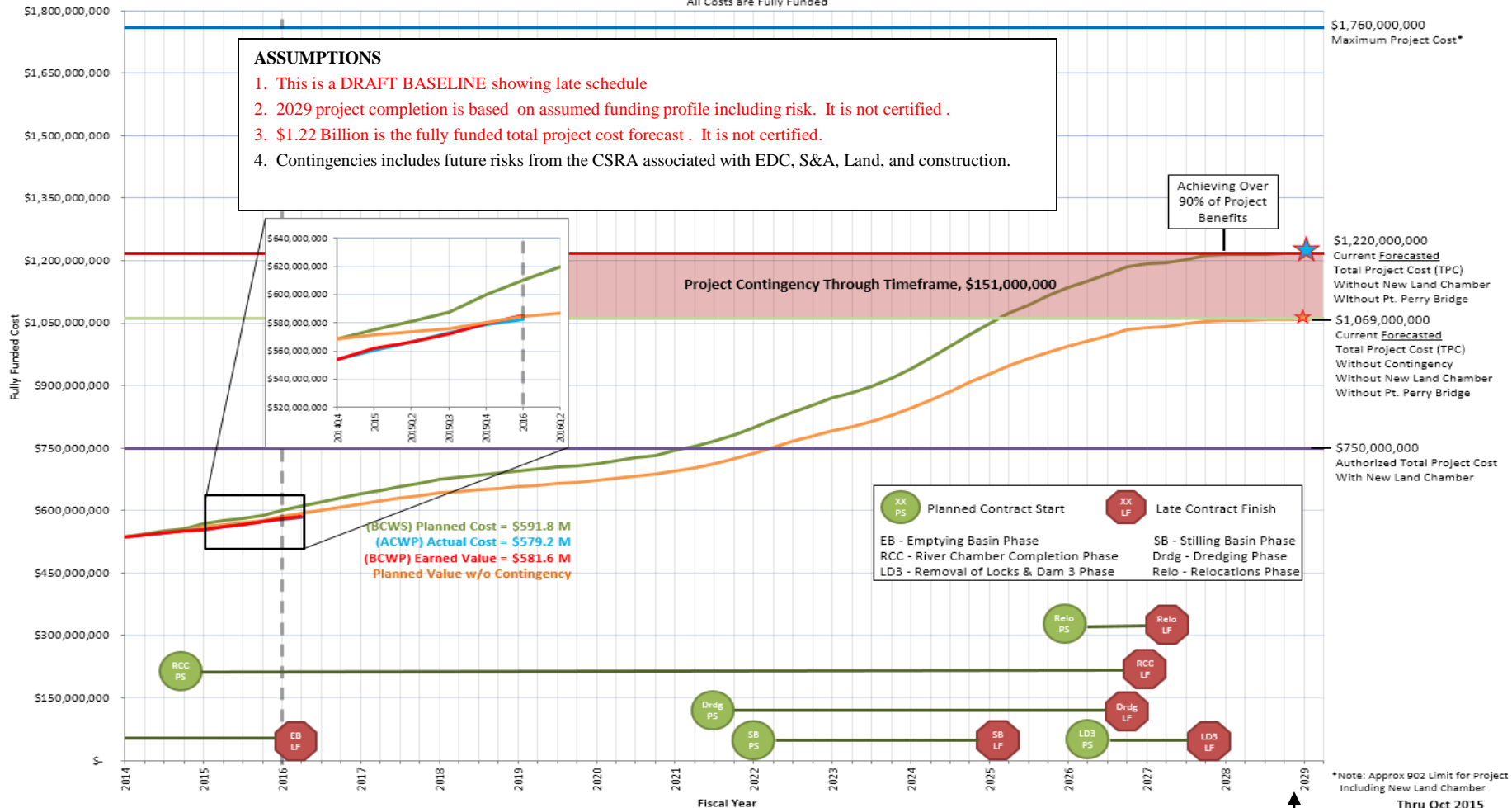
or the Port Perry Bridge

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 (near completion)
 - M22-M27 Contract
 - River Chamber Completion Contract
 - Dredging Contract (future contract)
 - Stilling Basin Contract (future contract)



Lower Mon – Discussion/Questions

