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
Agenda

- Financials
- Project Overview
- Schedule
- Ongoing Construction at Charleroi
- Images of Charleroi Construction
- Scorecard
- “S” Curve
- Challenges
- Discussion
### Current Status of the Project

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

### Funding Overview

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

Remaining Balance:

|                          | $240,632,377 | $240,632,377 | $481,265,673 |

Remaining Balance Change From Last Meeting

- $1,513,033,001

Note:

- 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.

### Next Steps

- Award Charleroi River Chamber Completion (Base plus Options) Contract in FY2015
## Lower Mon - Project Costs ($million)

<table>
<thead>
<tr>
<th>Total Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorized Cost (1992)</td>
</tr>
<tr>
<td>Authorized Total Cost Inflated (Oct 2014)</td>
</tr>
<tr>
<td>Cost Forecast (Oct 2015)</td>
</tr>
<tr>
<td>Fully Funded Cost Forecast (Oct 2015)</td>
</tr>
</tbody>
</table>

- **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

- Major Project Features
  - New Dam at Braddock
  - New Locks at Charleroi
  - Dredging
  - Removal of Locks and Dam 3
  - Relocations
### Lower Mon - Project Schedule

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

- 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

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

* 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.
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
Locks and Dams 2, 3, and 4 Monongahela River Project
Time and Cost Scorecard – Thru June 2015

**Expenditures**

<table>
<thead>
<tr>
<th>Scheduled (Baseline)</th>
<th>Current Early</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned (BCWS)</td>
<td>$ 556.2 M</td>
</tr>
<tr>
<td>Earned (BCWP)</td>
<td>$ 570.6 M</td>
</tr>
<tr>
<td>Actual (ACWP)</td>
<td>$ 569.0 M</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>&gt;90% benefits</th>
<th>Total project</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAC(FF)</td>
<td>$1.2 B</td>
</tr>
<tr>
<td>EAC(FF)</td>
<td>$1.2 B</td>
</tr>
<tr>
<td>$2.73 B</td>
<td></td>
</tr>
</tbody>
</table>
| 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 April 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
ASSUMPTIONS
1) 2073 project completion is based on the project schedule included in the 2014 certified cost and schedule.
2) $2.7 Billion is the fully funded Total Project Cost (TPC) certified in 2014.
3) Contingencies includes future risks from the CSRA associated with EDC, S&A, land, and construction.
4) The schedule and estimate assume capability level funding will be provided after Olmsted is completed.
5) THIS IS A DRAFT BASELINE.
ASSUMPTIONS
1. This is a DRAFT BASELINE showing late schedule
2. 2029 project completion is based on assumed funding profile including risk. It is not certified.
3. $1.22 Billion is the fully funded total project cost forecast. It is not certified.

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
July 2015
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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