

Lower Monongahela River 2-3-4 Project Update Inland Waterways Users Board Meeting No. 94

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22 July 2020



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Lower Mon Bottom Line Up Front

- ✓ Current Schedule: No change since last update
 - ▶ December 2023 (Early Project Operational, 90% benefits)
 - ▶ January 2025 (Early Project Complete)

- ✓ Current Cost: **On Budget**
 - ▶ TEP – Total Estimated Price, assuming efficient funding, at \$1.08 Billion, \$1.23 Billion including all contingencies.

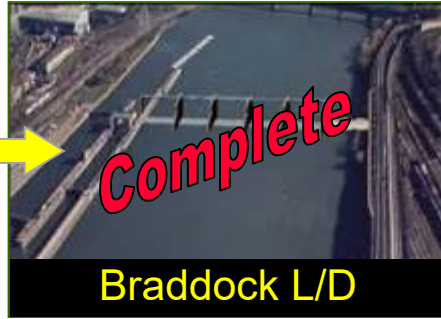
- ✓ Keys:
 1. *Continue to effectively manage work areas conflicts.*
 2. *Develop long-term Charleroi Land Chamber closure.*
 3. *Identifying known and potential future acquisitions.*

- ✓ Good news: M22-M27 Contract is substantially complete.

Lower Mon - Project Overview

Pre-Project Condition

Post-Project Condition



Major Project Features

- New Dam at Braddock
- New Locks at Charleroi
- Dredging
- Charleroi Dam Stilling Basin
- Removal of Locks and Dam 3
- Relocations

Financial

- 902 Limit: \$1.76 Billion
- Current Estimate at Completion **\$1.08 Billion**, including reasonable contingencies *1

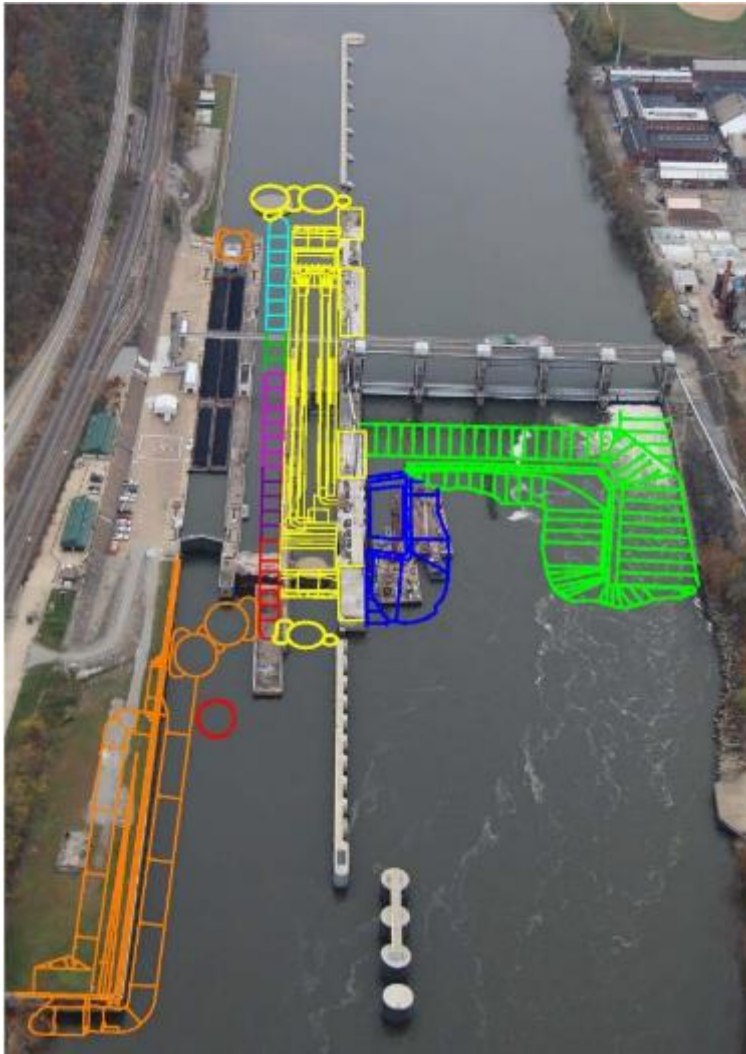
*1 does not include Land Chamber nor Port Perry Bridge

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Lower Mon - Project Schedule

Major Feature Construction	Last Reported Completion (Sep 2019)	Revised
Charleroi M22-M27	Jun 2020	July 2020
Charleroi Dam Stilling Basin	Nov 2022	
Charleroi River Chamber Completion (RCC)	Sep 2023	
Dredging Pool 3 TO 3 Award	July 2020	June 2020
Relocations	Variable	
Lock and Dam 3 Removal	Feb 2025	

Lower Mon – Charleroi Ongoing / Pending Construction Plan



Description	Last Reported Completion	Current Completion	Option Expires	% Complete
M22-M27	2020	Jan 2020	NA	98%
RCC Base	2023	Oct 2023	NA	99%
RCC Opt 1	2023	Oct 2023	NA	92%
RCC Opt 2	2023	Oct 2023	NA	72%
RCC Opt 3	2023	Oct 2023	NA	67%
RCC Opt 4	2023	Oct 2023	NA	1%
RCC Opt 5	2023	Oct 2023	NA	1%
Stilling Basin	2021	Nov 2022	Nov 2021	33%
Pool 3 Dredging (Y3)		April 2021	NA	1%

Notes:

- Risk informed RCC completion is 2027

- Remaining project features not shown on this slide:

- Pool Clearing (FY22 planned award)
- Lock and Dam 3 Removal (FY22 planned award)
- Relocations

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Charleroi Overall Construction Footprint



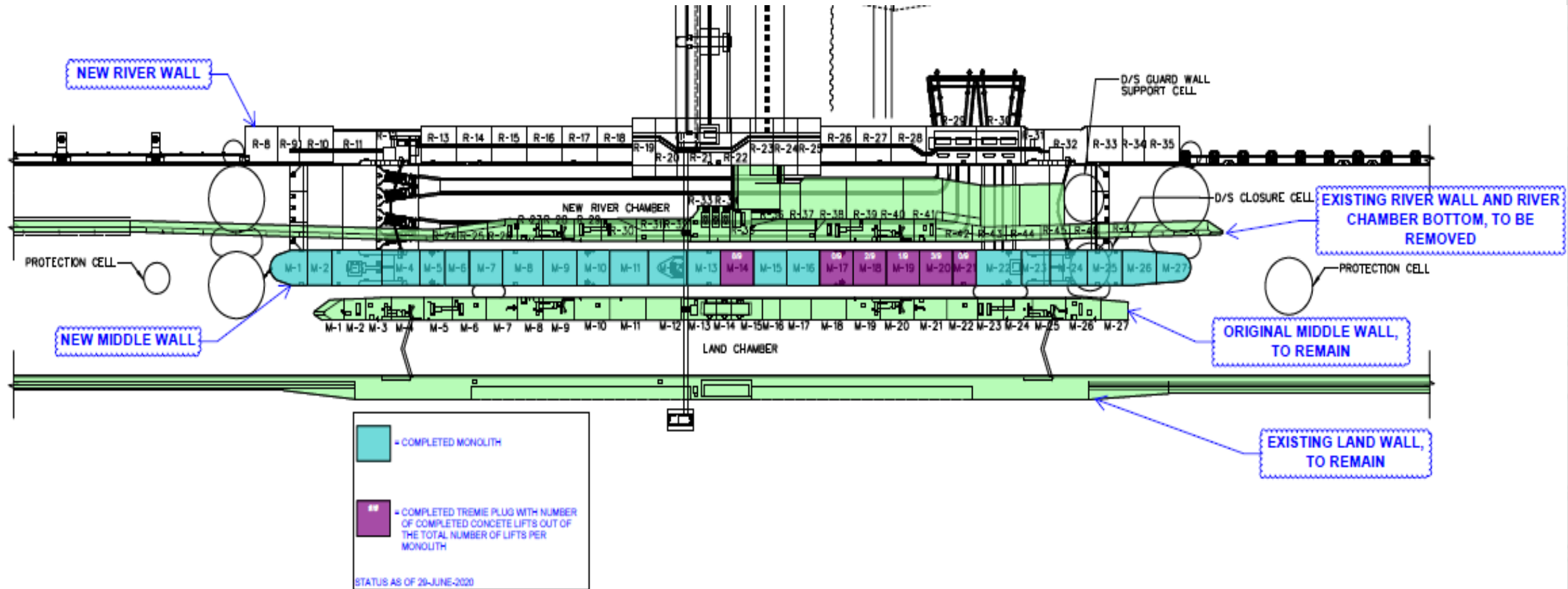
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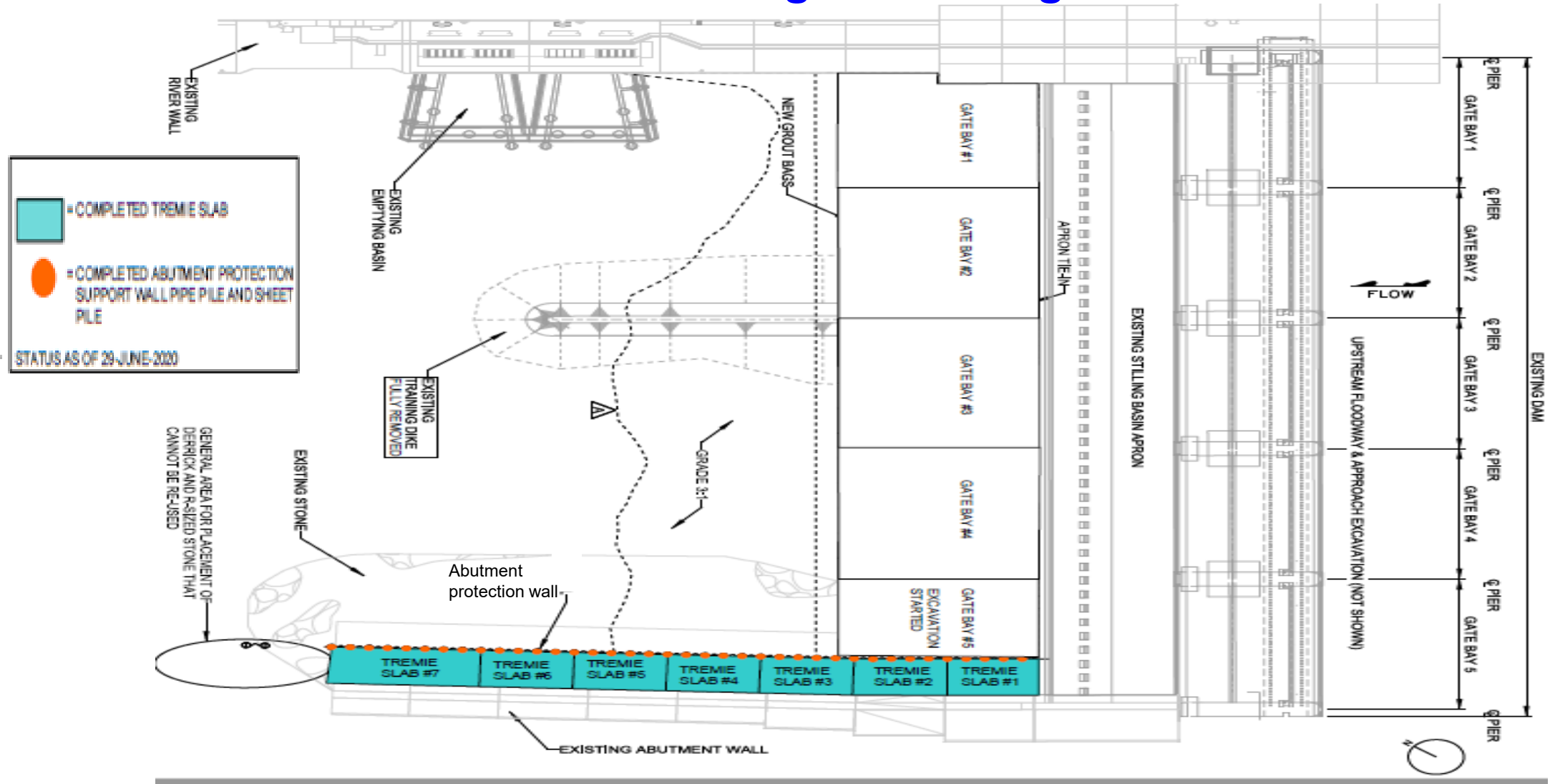


Charleroi Middle Wall Progress



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Charleroi Stilling Basin Progress



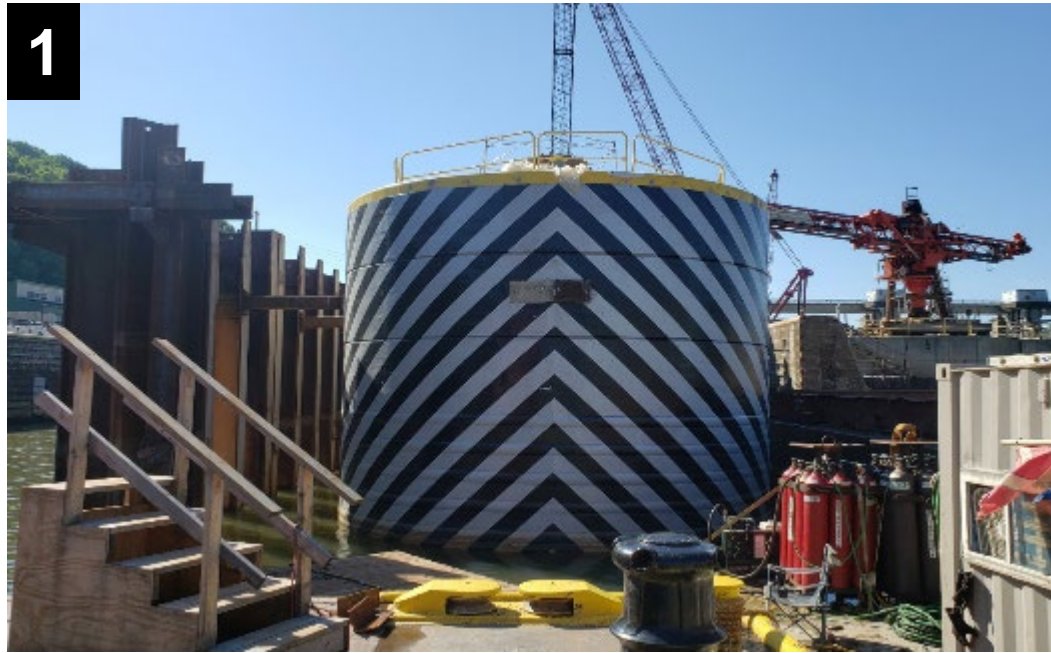
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Charleroi Construction – M22-M27 Contract Images



1 – Down Stream Bull Nose.

2 – M22 final lift preparation.

3- River Chamber side on the Middle Wall with sheet pile removed exposing the king piles.

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Charleroi Construction – RCC Contract Images

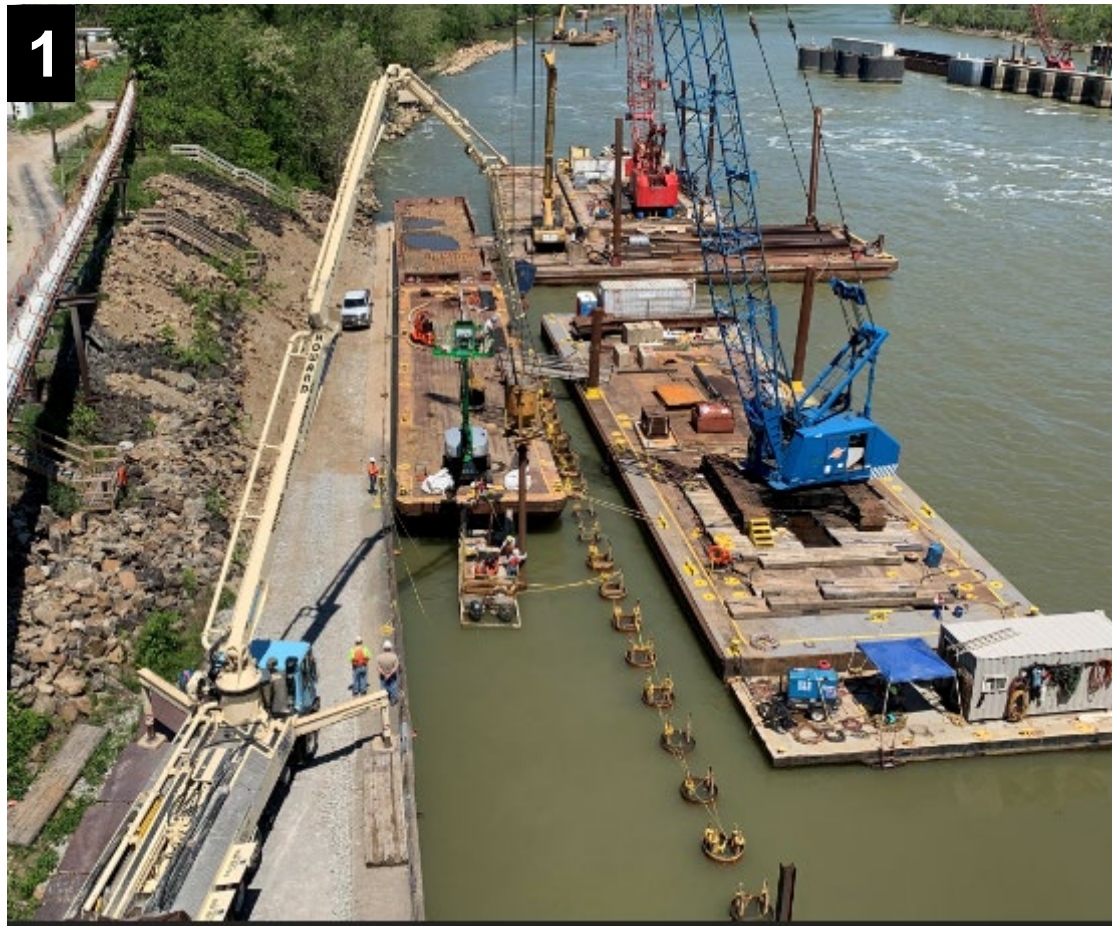


1 – Option 3 cofferbox dewatered with tremie seals.

2 – Option 3 cofferbox with the first lifts place for M21 and M19.

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Charleroi Construction – Stilling Basin Contract Images



1 – Left abutment protection wall pipe pile tremie placement.

2 – Left abutment protection wall pipe pile tremie placement.

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

Current Project Estimate*1: \$1.23B (\$2.76B)	ARRA	CG	IWTF	Total
Allocations through FY2016:	\$68,261,203	\$338,640,646	\$338,640,652	\$745,542,501
FY17 Allocation:	NA	\$41,005,000	\$41,005,000	\$82,010,000
FY18 Allocation:	NA	\$48,150,000	\$48,150,000	\$96,300,000
FY19 Allocation:	NA	\$44,606,606	\$44,606,606	\$89,213,213
FY20 Allocation: (Final Funding)	NA	\$55,648,769	\$55,648,769	\$111,298,000
Total Allocations to Date:	\$68,261,203	\$472,402,253	\$472,402,258	\$1,124,363,248
Remaining Balance:		\$54,735,874	\$54,735,874	\$109,471,747
Remaining Balance Change From Last Meeting:				

Changes: Received FY20 Allocation of \$111M; Received \$298K reprogram from Emsworth

Funding Overview

- Original Authorized Cost: \$556M
- 902 Limit: \$1.76B
- ARRA Funding (FY09-FY15): \$68.3M
- Engineering & Design Cost: \$694M*2
- Supervision & Admin Cost: \$183M*3
- Mitigation: \$12M
- Fully Funded Estimate: \$2.76B

Next Steps

- Removal of L/D 3 design continues with 60% ATR in July

Current Status of the Project

- Charleroi M22 – M27 – Complete, all mass concrete placed.
- Charleroi RCC – All options awarded. Tremie seals complete in Option 3 coffer box and currently placing mass concrete.
- Pool 3 Dredging Task Order 3 Awarded June 2020. Two dredging rigs mobilized.

*1. Total Project Cost update – May 2018. Cost for 90% of project benefits increased from \$1.22B to \$1.23B. Total project cost increased from \$2.73B to \$2.76B.

*2. \$694M includes all Engineering & Engineering During Construction, including \$473M for the Charleroi Land Chamber, \$378 million of which is inflation.

*3. \$183M includes all construction contract Supervision and Administration, including \$120M for the Charleroi Land Chamber, \$102 million of which is inflation.

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	30-May-16	2023	2025
Charleroi Emptying Basin	1-Oct-95	30-Sep-13	11-Nov-15	2023	2025
Charleroi River Chamber (M22-M27)	1-Oct-95	15-Aug-14	FY 2020 S	2023	2025
Charleroi Dam Stilling Basin	1-Oct-95	30 Oct -18	FY 2023 S	2023	2025
Charleroi River Chamber Completion	1-Oct-95	16-Sep-15	FY 2023 S	2023	2025
L/D 3 Removal	2020 S	2022 S	FY 2025 S	2023	2025
Dredging	1-Oct-95	29-Sep-17	FY 2021 S	2023	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 (early schedule).
- * 3: Project benefit and close out dates are based on the most efficient funding profile & breaching of Dam 3. Early contract completion for Dam 3 removal extends into 2025.
- 4. Charleroi dam stilling basin completion is scheduled for November 2022.

Actual

"S"= Scheduled

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Lower Monongahela River Project

Time and Cost Scorecard (Data Date of 30 June 2020)



Expenditures

	No Contingency	Contingency Included
Planned (BCWS)	\$912.0M	\$732.3M
Earned (BCWP)	\$853.8M	\$944.9M
Actual (ACWP)	\$861.9M	\$861.9M
	CPI = 0.99	CPI 1.10

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

Target:

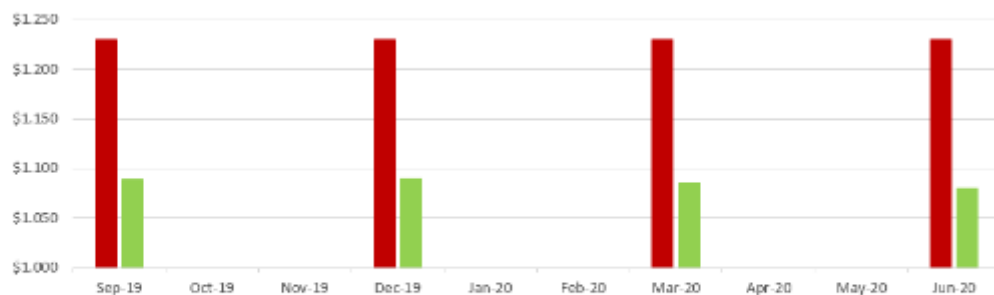
Actual as compared to Planned: (<1% = Green); (>1% and <3% = Yellow); and (>3% = Red)

Values shown reflect project sunk cost of \$550.6M thru FY 2014.

EAC = \$1.08 B TPC = \$1.23 B

Budget

Lower Mon Project TEP Trend



	Sep-19	Dec-19	Mar-20	Jun-20
■ Baseline Cost with Risk	\$1.230	\$1.230	\$1.230	\$1.230
■ TEP (billions)	\$1.089	\$1.090	\$1.086	\$1.080

■ Baseline Cost with Risk ■ TEP (billions)

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Schedule

(Baseline)/(Current Early)

Operational (Realize over 90% of project Benefits) 2027 / 2023

Project Complete 2029 / 2025



Major Activity Schedule

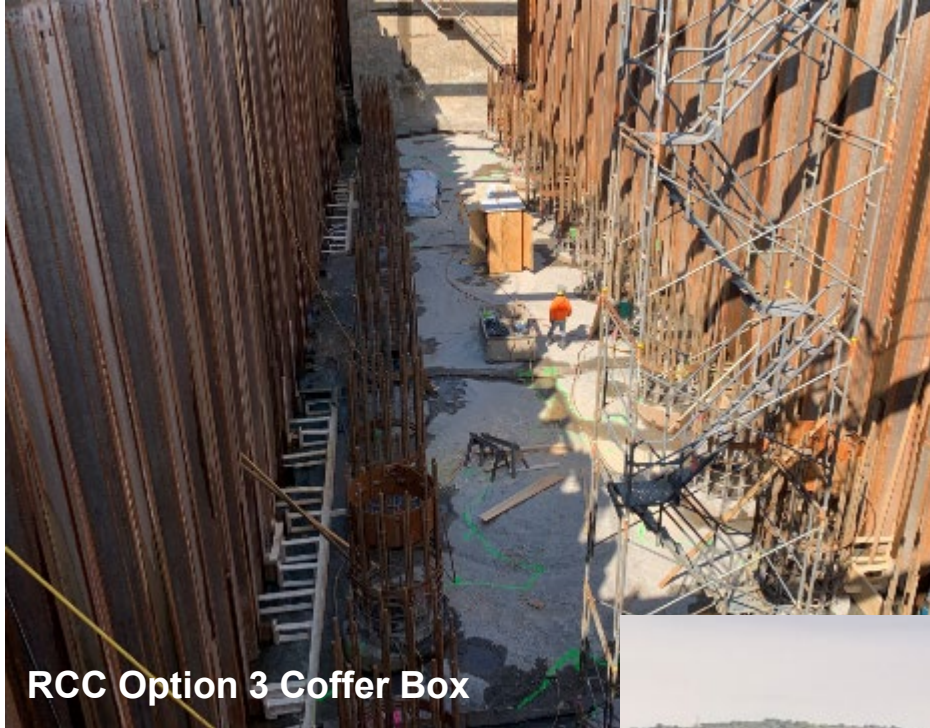
Activity	Baseline	Current
Dredging T.O.3 Award	30 Sep 2019	2 June 2020 (A)
L/D 3 Removal 95% Design	31 Jan 2021	31 Jan 2021
Middle Wall Complete	29 Feb 2021	29 Feb 2021
Miter Gates and Misc. Metals Painting Complete	31 Oct 2022	31 Oct 2022



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Discussion



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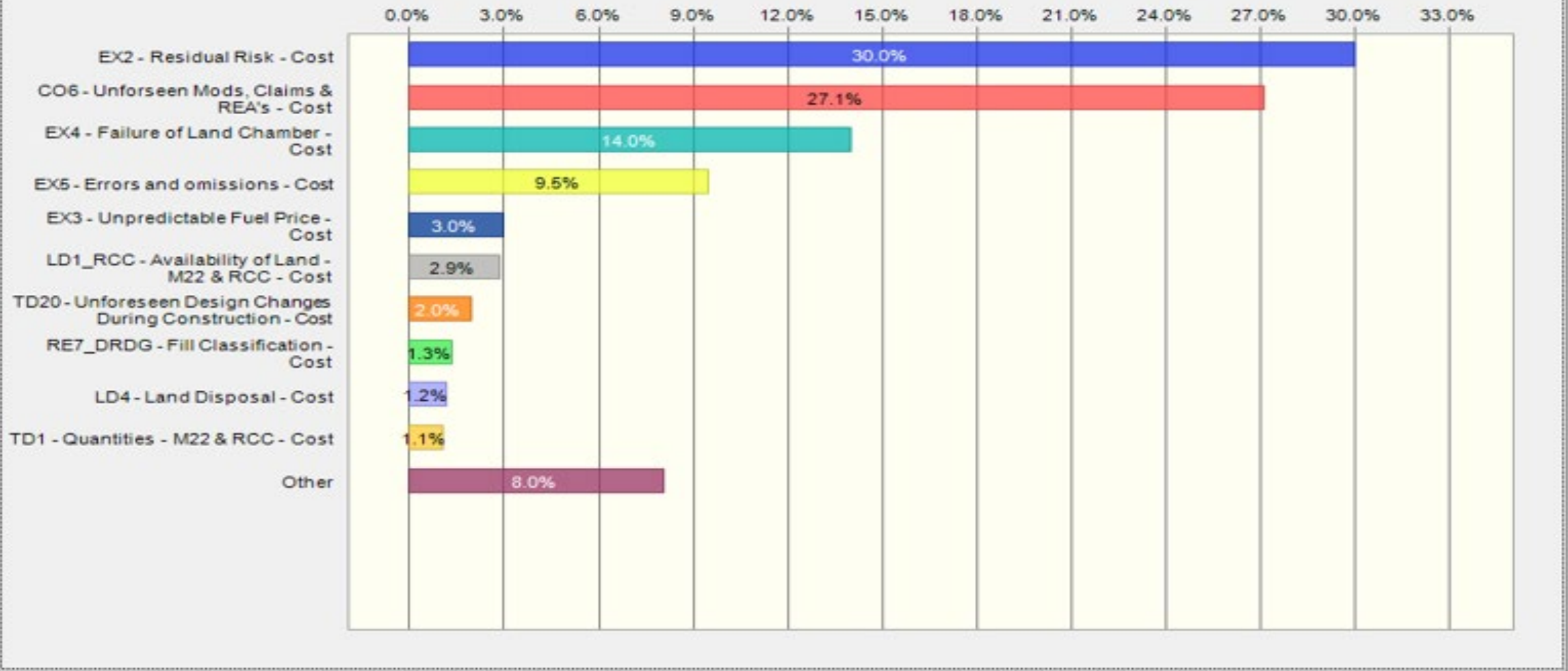
Lower Monongahela River 2-3-4 – Back Up Slides

Risk Bar Charts

Project Cost Risk Factors

Contribution to Variance View

Sensitivity: All Risks - Single Forecast



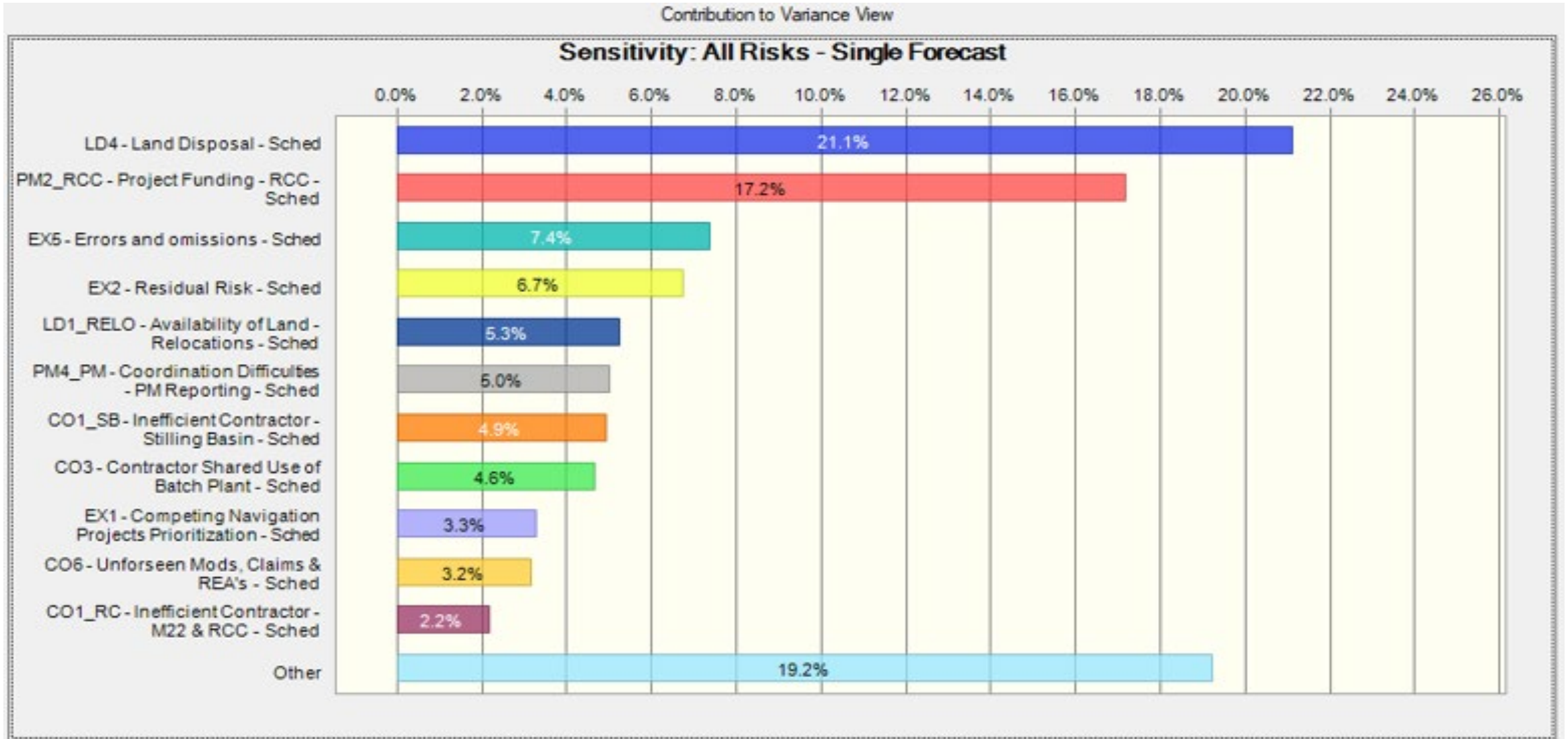
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Project Schedule Risk Factors



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