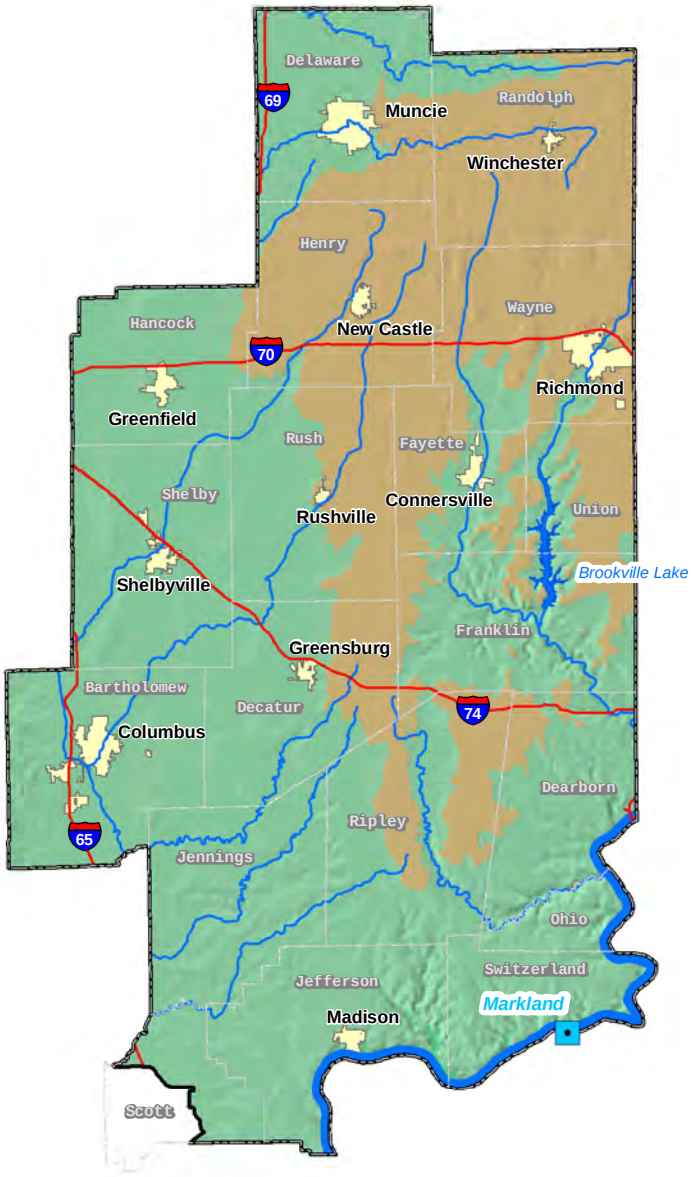
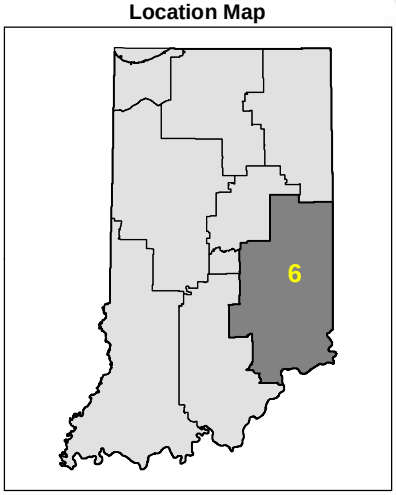
Congressional District: IN 06



Olmsted Locks & Dam

Dam Safety Program
(All COE Indiana Dams)

Location Map



Legend

- Project Name
- Interstate Highways
- Major Streams
- COE Reservoirs
- Major Cities
- Congressional District
- County Boundary
- Louisville District Civil Works Boundary

N W E S

US Army Corps of Engineers
Louisville District

Olmsted Locks and Dam Project

February 2016

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Official Title: Locks and Dam 52 and 53 Replacement Project (Olmsted Locks and Dam), IL and KY

Location: The project is located in Olmsted, IL near Ohio River Mile 964.4.

Purpose: Construct the new Olmsted Locks and Dam to replace Ohio River Locks and Dams 52 & 53. Demolish Locks and Dams 52 & 53 once Olmsted is operational.

Project Description and Background: The project consists of two 110' X 1200' locks adjacent to the Illinois bank, and a dam comprised of five tainter gates, 1400' of boat-operated wickets and a fixed weir. The proposed replacement structure will eliminate Ohio River Locks & Dams 52 & 53. Locks & Dams 52 & 53 were completed in 1929 and the temporary 1,200' long lock chambers were added in 1969 at Locks & Dam 52 and 1979 at Locks & Dam 53. The antiquated design and age of these structures make it impossible to meet current traffic demands without significant delays. The existing structures have deteriorated structurally and are overstressed during normal operating conditions. The temporary locks at Locks & Dam 52 & 53 have significantly passed their 15-year design life.

This strategic reach of the Ohio River provides a connection between the Mississippi River, Tennessee River and Cumberland River. More tonnage passes this point than any other place in America's inland navigation system. In 2011, 91 million tons (Locks & Dam 52), traversed this portion of the Ohio River. 25% of all coal shipped on the inland waterways transits Locks & Dam 52, destined for many of the 50 power plants located on the Ohio River System or the 17 power plants located in eight states on the Upper or Lower Mississippi River.

Project Status: The two 110' X 1200' locks and approach walls are complete. The fixed weir on the Kentucky bank is complete. As of 01 February 2016, all eighteen dam tainter gate shells are set and tainter gate #1 and #2 are erected. In the navigable pass section, eight of twelve paving blocks, the right boat abutment, and six of twelve navigable pass shells have been set in the river. Foundation pile driving operations for the navigable pass are underway. Current schedule is to be dam operational in October 2018 and project complete in March 2022.

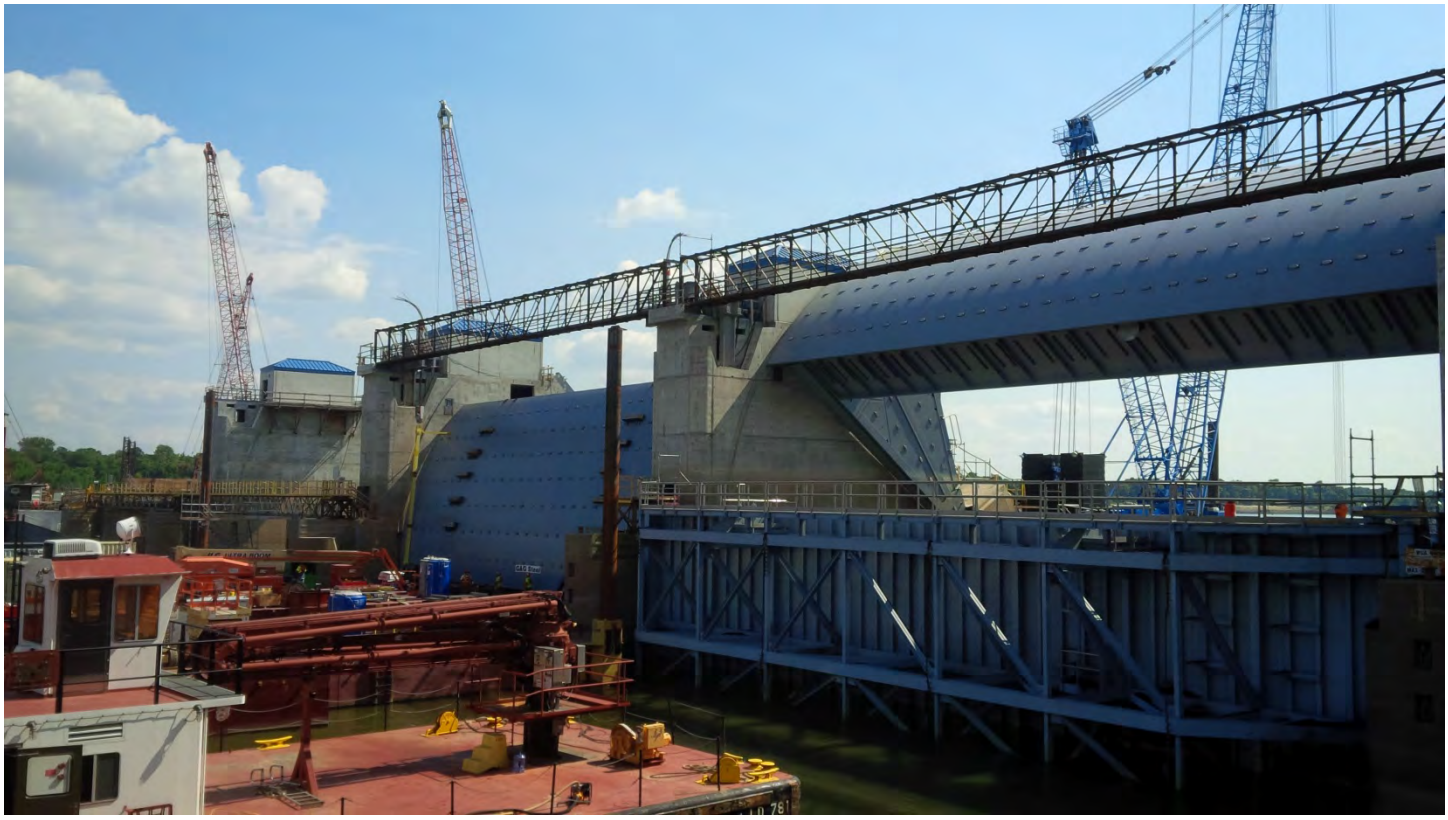
Summarized Financial Data

2012 PACR	$3,099,000,000
2014 Total Estimated Project Cost (NWW certified)	$3,098,573,000
Estimated Federal Cost	$2,047,852,000
Estimated Inland Waterways Trust Fund Cost	$1,050,721,000
Allocation thru FY16 including ARRA allocation thru 30 Sept 15	$2,227,402,000
FY 16 Budget/Capability	$180,000,000/$268,000,000
FY 17 Budget	$225,000,000
Benefit to Cost Ratio (at 7%)	3.4
Non-Federal Sponsor	N/A

The Olmsted Locks & Dam project was authorized by Section 3(a)(6) of the Water Resources Development Act (WRDA) of 1988. The project authorization was increased on 17 October 2013 as part of a Continuing Appropriations Act, 2014 for $2,918,000,000. The project was cost shared 50/50 with the Inland Waterways Trust Fund (IWTF) through FY2013. The FY2014 Omnibus Appropriation Act changed the split of IWTF and federal cost share to 25/75 for FY2014 only. Water Resources Reform and Development Act of 2014 changed the IWTF and federal cost share to 15/85 beginning 1 October 2014.

As of 01 February 2016, $2,123,787,491 has been expended on the project. The annual average benefits from the Olmsted project are approximately $640M.

Upcoming Actions: The Government and navigation industry stakeholders are exposed to significant increased economic risk given the failing condition of Locks & Dams 52 & 53. Accordingly, efficient completion of the Olmsted project construction is the only sustainable mitigation measure available. Continued capability funding is required to meet a dam operational date of October 2018. Without annual capability level funding in place, the dam operational date will likely slip one or more years reverting to the less than optimum operational timeframe of September 2020 contemplated in the PACR forgoing approximately $1.28B in benefits.



Tainter Gates #1 and #2

DAM SAFETY, INDIANA

February 2016

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Official Title: Corps of Engineers Dam Safety Program; Indiana Dams - Dam Safety Portfolio Risk Management

Project Phase: Routine Dam Safety Inspection and Assessment/Risk Studies

Summarized Financial Data: The Dam Safety Risk Studies are part of a national program with funds distributed by the Corps of Engineers (COE) Headquarters Dam Safety Office on a priority basis

Project Location: Brookville Lake Dam, Cagles Mill Lake Dam, CM Harden Lake Dam, Mississinewa Lake Dam, Monroe Lake Dam, Patoka Lake Dam, J.E. Roush Lake Dam & Markle Levee, and Salamonie Lake Dam (See next pages for site specific information)

Non-Federal Sponsor: N/A

Study and Program Information: During normal operations, these dams are routinely inspected daily, weekly, and monthly by COE operations staff and annually by Louisville District dam safety staff. The dam also receives a comprehensive inspection every five years by a multi-discipline team of Louisville District engineers.

The COE has instituted a "risk informed" dam safety program. The initial step was conducting a Screening Portfolio Risk Assessment (SPRA). A team of engineers conducted a screening level review of the dam's construction, performance history, and instrumentation to evaluate current dam behavior, as well as economic consequences and the population at risk of potential dam failure. After the initial screening, the risk is re-evaluated every ten years as part of a routine Periodic Assessment (PA) in conjunction with the 5 year comprehensive site inspection. The findings are reviewed by the Senior Oversight Group and a Dam Safety Action Classification (DSAC) rating is assigned based upon confirmed or unconfirmed dam safety issues and the combination of life or economic consequences should failure occur. The DSAC ratings are used to prioritize further study to confirm the proposed dam safety issues. If the DSAC rating is 1 through 3, an Interim Risk Reduction Measures (IRRM) Plan is established while further investigations are conducted and/or remedial actions are implemented as necessary.

The first study phase is an Issue Evaluation Study (IES) which confirms the dam safety issue. If more information is necessary to confirm the issues, an IES Phase II study may be undertaken to gather the necessary data to reduce the uncertainty. The results of these studies are presented to the COE Risk Management Center (RMC) and the Dam Senior Oversight Group (DSOG). The results may indicate the need to progress to the next phase of study or reduce the DSAC rating for the dam. If the case is made that the dam is in need of remedial construction then the project moves to the Dam Safety Modification Report (DSMR). The DSMR analyzes potential remedial construction elements to determine the best "fix" to reduce the overall project risk. These studies and remedial construction are prioritized based upon the relative risk estimates at each stage to best make use of the available funding and resources.

Project Location: Brookville Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2007
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): Completed 11 March 2009
* The findings of the Phase 2 Issue Evaluation Study (IES) risk analysis were presented to the Risk Management Center (RMC) in November 2011 and to the Dam Senior Oversight Group (DSOG) in February 2012. The RMC and DSOG agreed with the report recommendation that the project be reclassified to a DSAC 4 based on the results of the risk analysis.

Where We Are Now: Remedial construction is not warranted at this time and the dam was re-classified to a DSAC 4. The project is following the routine O&M surveillance and monitoring program.

Project Location: Cagles Mill Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2007
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): N/A since it is DSAC 4
* IES (Issue Evaluation Study): Not required since it is a DSAC 4

Where We Are Now: Routine O&M surveillance and monitoring program.

Project Location: Cecil M Harden Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2009
* DSAC (Dam Safety Action Classification) Rating: Class 3
* IRRMP (Interim Risk Reduction Measures Plan): Completed 30 June 2010
* The findings of the Issue Evaluation Study (IES) risk analysis were presented to the Risk Management Center (RMC) in September 2013 and to the Dam Senior Oversight Group (DSOG) in October 2013. The RMC and DSOG agreed with the report recommendation that the project be reclassified from a DSAC 2 to a DSAC 3 based on the results of the risk analysis. Another recommendation was to pursue subsurface exploration and instrumentation at the ridgeline and dam abutments.

Where We Are Now: Remedial construction is not warranted at this time and the dam was re-classified to a DSAC 3. A Scope of Work and estimate is being prepared for subsurface exploration and instrumentation at the ridgeline and dam abutments. This work will be performed when funding is available. This structure has been reprioritized in the risk study queue.

Project Location: Mississinewa Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2009
* DSAC (Dam Safety Action Classification) Rating: Class 2
* IRRMP (Interim Risk Reduction Measures Plan): Completed 27 July 2010
* IES (Issue Evaluation Study): As a result of the 2014 Periodic Assessment, the dam was downgraded to a DSAC 2 rating. The IES Phase 2 was initiated in August 2015. The IES Report will address concerns with unacceptable foundation conditions and associated seepage in order to remove uncertainty and lower project risk. This will determine if the work needs to continue to complete a full Dam Safety Modification Report (DSMR).

Where We Are Now: IES Phase 2 work was initiated in August 2015. Additional field surveys will be performed this FY and a Drilling and Instrumentation Plan is being developed. The drilling and instrumentation are scheduled for completion in June 2016.

Project Location: Monroe Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2006
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): N/A since it is DSAC 4
* IES (Issue Evaluation Study): Not required since it is a DSAC 4

Where We Are Now: Routine O&M surveillance and monitoring program.

Project Location: Patoka Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2008
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): Completed 30 April 2009
* IES (Issue Evaluation Study): The IES was initiated in February 2014. The IES terminated at an early stage and a Semi Quantitative Risk Assessment (SQRA) was completed in August 2015. The DSAC rating was changed from a DSAC 2 to a DSAC 4. Remedial construction is not warranted at this time. This structure has been reprioritized in the risk study queue.

Where We Are Now: Routine O&M surveillance and monitoring program.

Project Location: J.E. Roush Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2005
* DSAC (Dam Safety Action Classification) Rating: Class 3
* IRRMP (Interim Risk Reduction Measures Plan): Completed 6 November 2007
* The findings of the Dam Safety Modification Report (DSMR) were presented to the Risk Management Center (RMC) in March 2010 and the Dam Senior Oversight Group (DSOG) in June 2010. Based on the reviews, the study was converted from the existing DSMR to a Phase 2 Issue Evaluation Study (IES).
* The findings of the Phase 2 IES risk analysis were presented to the RMC in March 2013 and to the DSOG in April 2013. The RMC and DSOG agreed with the report recommendation that the project be reclassified to a DSAC 3 based on the results of the risk analysis. Other recommendations were to continue the increased instrumentation monitoring and collecting of performance data and to update the current IRRMs.

Where We Are Now: Remedial construction is not warranted at this time and the dam was re-classified to a DSAC 3. This structure has been reprioritized in the risk study queue.

Project Location: Salamonie Dam, IN

Project Status:

* SPRA (Screening for Portfolio Risk Analysis): 2005
* DSAC (Dam Safety Action Classification) Rating: Class 4
* IRRMP (Interim Risk Reduction Measures Plan): Completed 6 November 2007
* The Dam Safety Modification Report (DSMR) was reviewed by the Risk Management Center (RMC) in March 2010 and the Dam Senior Oversight Group (DSOG) in June 2010. Based on the reviews, the title of the study was changed to an Issue Evaluation Study (IES). The report was revised and the IES was completed in April 2011. The DSOG re-classified this dam from a DSAC 2 to a DSAC 4.

Where We Are Now: Remedial construction is not warranted at this time and the dam was re-classified to a DSAC 4. This structure has been reprioritized in the risk study queue.