Response to inquiries from "Ohio River Foundation - River at Risk"

Rumor – The Army Corps of Engineers studies recommend lock expansions.

Reality - The Ohio River Mainstem System Study (ORMSS) prioritizes lock maintenance, rehabilitations and reinvestments for the 19 locks on the Ohio River. ORMSS recommends precise reinvestments to maintain the Ohio River navigation from 2010-2070. The goal is to keep a system, one that has been in place a long time, operating properly so we are able to deliver coal to heat homes and goods to businesses to benefit the national economy.

ORMSS evaluates 1) Aggressive maintenance and component replacement 2) Major Rehabilitation and 3) New Construction. As lock components degrade, the study calculations indicate when and how they should be repaired or replaced to provide the maximum return on the investment of federal tax dollars.

The study combines engineering, economic and environmental data and research to determine the best way to improve or rehabilitate the system.

Rumor – The Corps of Engineers economic data is flawed.

Reality – The Ohio River Navigation Investment Model (ORNIM) is the economic model used in the ORMSS study. Oak Ridge National Laboratory, Oak Ridge, Tennessee, developed ORNIM for the Corps of Engineers specifically for the evaluation of alternative waterway improvements **for the Ohio River**. ORNIM integrates economic, engineering and environmental considerations into one suite of models. It is a state-of-the-art model.

Engineering considerations are linked through the Lock Risk Module (LRM), **economics** through the Waterway Supply and Demand Module (WSDM), and **environmental** considerations through the Navigation Predictive Analysis Technique module (NAVPAT). Finally, the Optimizer module in ORNIM assists in finding the best plan across our 19 lock sites and across time.

ORNIM has been technically reviewed by outside experts. These experts have found the model acceptable and consistent with existing Corps planning regulations. Texas A&M was one, for example.

Throughout the process, outside agencies have assisted or participated in ORMSS. These include each state's agency with jurisdiction over fisheries, U.S. Fish and Wildlife Service, U.S. EPA, U.S.G.S., area universities, contractors, The Nature Conservancy and the Ohio River Foundation.

Complete documentation of the review will be available with the draft report.

Ethical practices guide our work. As civil servants, we are proud of the work we are doing to service our country and its navigational needs.

Rumor – Transportation delays, lock repairs and lock closures are small disruptions that can be worked around.

Reality – Main lock chamber reliability needs to be increased. The nation requires a reliable navigation system - not relying on a "fix as fail" protocol which happens currently. ORMSS tells us that if the main chambers are reliable, it negates the need for auxiliary lock extensions under the current traffic forecast scenarios. Even a minimum level of reliability requires increases in maintenance or operations funds.

When lock closures increase due to an aging system, tows have to be broken down and two separate lockages must occur. This inefficiency results in congestions, long lines and lock delays which translates to economic losses and negative environmental consequences.

Delays to Commercial Tows During Recent Extended Ohio River Main Chamber Closures (1991-2003) source – Army Corps of Engineers

Project	Days of Closure	Number of tows locked	Beginning Date of Closure	End Dates of Closure	Average Delay per Tow (hours)
Greenup	52		9/8/03	10/31/03	
Willow Island	31	367	10/15/02	11/15/02	7.3
Meldahl	42	555	6/17/02	7/28/02	23.3
Montgomery	26	231	6/18/02 & 7/14/02	6/25/02 & 7/31/02	31.4
New Cumberland	54	630	10/17/02	12/9/02	6.7
Myers	24	367	10/9/01	11/1/01	35.6
Emsworth	17	179	11/1/01&11/13/01	11/9/01&11/21/01	17.3
Pike Island	31	429	4/24/00	5/24/00	5.7
Greenup	29	390	11/2/99	11/30/99	21.8
Willow Island	38	420	6/21/99	7/28/99	4.0
Markland	10	119	6/19/99	6/28/99	10.9
McAlpine	16	155	9/13/99	9/28/99	36.5
Greenup	19	285	6/1/98	6/29/98	30.8
McAlpine	29	235	8/1/97	8/29/97	100.0
Markland	40	535	7/18/94	8/27/94	20.3
McAlpine	12	138	11/14/93	11/26/93	55.7
Greenup	32	470	6/10/91	7/12/91	30.9

Rumor - The Corps should only repair a lock when something breaks.

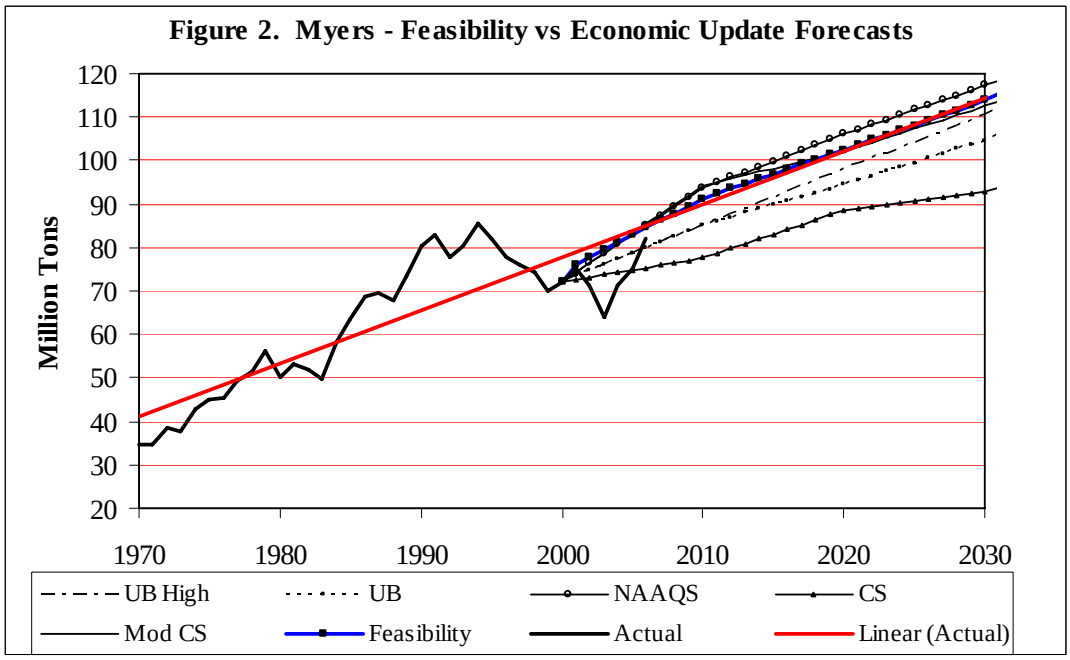
Reality – An ounce of prevention is worth a pound of cure. As you buy up in rehabilitations and reliability, you buy down costs associated with closures which incidentally, can exceed $9 million dollars – as McAlpine did in 2004 – for *one*

unforeseen closure. Another example would be Greenup where costs to the navigation industry exceeded $40 million. *This is money that is lost, not reinvested or ever recouped.*

Rumor – Growth of water traffic on the Ohio River is stagnant or non-existent.

Reality – There has been a steady growth of water traffic on the Ohio River over the past 63 years. On the average, the ORMSS study forecasts average annual growth rates of 0.5 to 1.03 percent through 2060.

This chart below reflects forecasts for Myers traffic. The acronyms represent forecasts under five traffic demand scenarios for coal using two different economic growth forecasts and three different environmental regulation assumptions. The expectation is that traffic will fall within these scenarios.



UB High	Utility Based High
UB	Utility Based
NAAQS	National Air Quality Standards
Mod CS	Modified Clear Skies
CS	Clear Skies

Rumor – The Myers and Greenup lock extensions aren't needed.

Reality – The Myers and Greenup locks were studied and a Corps interim report concluded that lock extensions were needed at each location.

The chart below cites Myers lock closures since 1989. Maintenance, repairs and component replacements are performed during closures.

Date	Location	Chamber	Days chamber closed
Aug 89	J.T. Myers	Main	44
Aug 90	J.T. Myers	Main	30
Dec 90	J.T. Myers	Main	17
Sep 93	J.T. Myers	Main	1
Jun 95	J.T. Myers	Main	12
May 96	J.T. Myers	Main	6
Mar 97	J.T. Myers	Main	13
Aug 98	J.T. Myers	Main	1
Jul 00	J.T. Myers	Main	1
Aug 00	J.T. Myers	Main	11
Sep 01	J.T. Myers	Main	40
Mar 03	J.T. Myers	Main	53
Jul 03	J.T. Myers	Main	2
Aug 03	J.T. Myers	Main	27
Apr 04	J.T. Myers	Main	47

Rumor – The Corps of Engineers forecasts are incorrect.

Reality - Forecasting by definition involves risk. Risk is minimized by building on long-term forecasts, what actually has transpired and on decades of experience. The Corps of Engineers has the technical expertise and experience in its arsenal of data, models and resources to accurately forecast a range of scenarios which we predict coal delivery will fall within ORMSS. The Corps also works with experts in the field of energy forecasting, Hill & Associates.

Rumor – The Corps of Engineers and environmental groups are at cross purposes and differ on the purpose the Ohio River should serve.

Reality – The Corps of Engineers has used ORMSS to look holistically at both environmental sustainability and economic benefits of the Ohio River. Environmental groups and state and federal agencies represented by more than 45 individuals with interest in ecosystem protection and restoration actively participated throughout the study. Members of this Interagency Working Group (IWG) not only reviewed material developed by the Corps, but helped develop the scope of studies and assessment of impacts.

The Corps and its environmental partners are in agreement that the values of the waterway are priceless not only for commerce, but also for the river's inherent environmental attributes. To demonstrate this, the ORMSS and its System Investment Plan, and the environmental impact statement included objectives that would provide a balance between economic and ecosystem improvements now and into the future.

Rumor – There are other ways to move commodities than the river.

Reality – There will always be critics of navigation. River transportation is the most cost-efficient, environmentally sound and safe transportation mode available for bulk commodities. The goods are going to move one way or the other. The question we need to ask ourselves, is how.