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**ASSESSMENT OF ALTERNATIVE ASSUMPTIONS  
OF OUTLAYS AND REVENUES  
FOR THE INLAND WATERWAYS TRUST FUND**

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**Prepared for the  
Inland Waterways Users Board**

**Meeting No. 57  
Baton Rouge, LA  
March 27, 2008**

**QUALIFYING STATEMENT AND DISCLAIMER:**

This document presents revenue, outlays and balance projections for the Inland Waterways Trust Fund based on specified assumptions of growth in receipts and inflation, Treasury forecasts for interest rates and Corps of Engineer forecasts of potential outlays. These projections are for macro-planning purposes only. No final determination of the economic justification or environmental acceptability of projects, no final decision on the cost, size, or location of future projects shown, and no Administration or Corps of Engineers commitment to request funds to proceed with potential construction are implied with this analysis except for projects under construction or proposed for construction in the President's Budget.



# INLAND WATERWAYS TRUST FUND ANALYSIS

Prepared by the Institute for Water Resources  
March 10, 2008

## Background

The Inland Waterways Trust Fund Analysis is prepared using a macro template developed with the commercial spreadsheet software "Lotus 1-2-3" and adapted to run in a "Windows" operating environment. Dr. David Martinelli at West Virginia University developed the template, or "Trust Fund Model", under contract to the Institute for Water Resources.

The Trust Fund Model is a cash flow analysis spreadsheet designed to show the impacts to the Inland Waterways Trust Fund of changes in annual levels of funding for Corps of Engineers navigation projects. Anticipated outlays by year for each project now under construction, or proposed for construction, are entered into the model. A base year starting balance is entered from Trust Fund statements received from the Treasury Department. Generally, the ending balance for the most recent complete fiscal year is used. Assumptions are also made as to the Trust Fund revenue growth rate, inflation and interest rates. The model allows the user to then analyze the impact to the Trust Fund balance of a mix of projects under construction, authorized, or planned.

An analysis of the current status of the Inland Waterways Trust Fund is provided to the Users Board at each of its meetings. The intent is to provide the Board with an additional tool to accomplish its mission to provide inland waterway investment recommendations to the Secretary of the Army and to Congress.

## Assumptions for the Current Trust Fund Analysis

### Construction Program Scenarios

The following analysis of the Inland Waterways Trust Fund has been updated from the November 2007 presentation to the Board. It includes new Inland Waterways Trust Fund revenue assumptions associated with the President's Fiscal Year 2009 Budget Request. Additional revenues are essential to avoid a Trust Fund deficit if the amounts requested for ongoing projects cost-shared from the IWTF are appropriated by Congress. The project funding scenarios include Baseline, Modified Baseline, Capability and Modified Capability. **The Corps and OMB will not budget for construction projects unless Trust Fund revenues are projected to be sufficient to cover the fund's share of the requested appropriation. The key point to note from the FY 09 Budget Request is that additional revenues for the IWTF are essential to continue current construction contracts and to award new ones for the projects in the Baseline.**

1. **Tables 1A, 1B and 1C: Baseline and Modified Baseline Scenarios adjusted for FY 2009 President's Budget.** This scenario shows the impact of the Baseline project construction schedule developed in conjunction with the FY 09 President's Budget. The projects included in the Baseline program are shown in **Table 1A**. The program includes ongoing construction contracts carried into and awarded in FY 08, plus those contracts anticipated in FY 09. However, without additional revenues these FY 09 contracts cannot be awarded. **Table 1B** shows that without additional revenues to support the 09 program the IWTF goes into progressively more deficit through 2014. This would be a violation of law and will not be allowed to occur. Without additional revenues only ongoing construction contracts and those anticipated to be awarded in FY 08 could continue. These breakout as follows:

- Chickamauga Lock                      Cofferdam Construction
- Kentucky Lock & Dam                Bridge Superstructures
- L&Ds 2, 3, & 4                        Charleroi River Wall, Monongahela River
- Marmet L&D                              Lock Replacement
- McAlpine L&D                          1200' Lock & Access Bridge
- Olmsted L&D                             Dam Construction
- Markland L&D                          Fabricate 1st Miter Gate
- Mississippi L&D 3                      Spot Dike Embankments
- Mississippi L&D 11                    Stage III – Dam Rehab
- Mississippi L&D 19                    Upper Gates/Low Miter Gate
- Mississippi L&D 27                    Culvert Valves
- Emsworth L&D                          Main Channel Lift Gate/Scour Repair
- Robert C. Byrd L&D                  Mitigation
- Illinois Waterway, Lockport        Approach Dike Repair\*

Without additional revenues these planned **FY 09 contracts will not be awarded** for an indefinite period until such time as the TF balance recovers sufficiently to support funding:

- L&Ds 2, 3, & 4                        Charleroi River Chamber, Monongahela River  
Port Perry Bridge Relocation
- Emsworth L&D                        Main Channel Lift Gate options
- Markland L&D                        Miter Gates
- Illinois Waterway,                    Approach Dike Repair option, Lockport L&D\*
- L&D 11, Mississippi River        Stage III – Dam Rehab option
- Lower Monumental L&D, WA

\* Lockport rehabilitation not cost-shared from IWTF in FY 08. Lockport will be cost-shared from IWTF upon enactment of the legislation proposed by the Administration in the FY 2009 Budget.

In addition, no new contracts for further construction could be awarded for Chickamauga, Kentucky, Lower Mon 2-4, Emsworth or Markland beyond those underway or awarded in FY08.

With additional IWTF revenues, as proposed in the President's FY 09 Budget Request, these contracts would be awarded and future contracts would be initiated to continue construction of the projects listed in Table 1A. **Table 1C** shows a **Modified Baseline** revenue stream that is needed to support continued construction of the Baseline program. Revenues would need to reach \$200 million in 2010-11 to support the program, but could then ramp down in future years. However, this is assuming no other project continuations or new starts beyond those listed in the Baseline program.

2. **Tables 2A and 2B: Capability Scenario.** This scenario shows the Trust Fund impact of funding ongoing and planned projects on an optimum schedule, regardless of the Trust Fund balance. **Table 2A** shows the list of ongoing and candidate future projects with optimum start years. This list of projects includes newly authorized projects in WRDA 07, likely future major rehabilitations, and possible future new construction projects now under study. **Table 2B** shows the theoretical impact on the TF, which would reach a deficit of over \$1.8 billion by 2021 without additional revenues.
3. **Table 3A and 3B: Modified Capability Scenario.** This scenario shows an adjusted capability and candidate future projects construction schedule that avoids a Trust Fund deficit through increased revenues. Assuming TF revenues are increased and sustained at a level of \$200 million annually, ongoing construction projects could be completed along optimum schedules. Critical major rehabilitations at Lower Monumental, O'Brien, Smithland, John Day, Myers and LaGrange could be initiated between 2009 and 2013. In addition, authorized projects not yet started – including Myers, Greenup, Bayou Sorrel, lock modernizations on the Upper Mississippi River and Illinois Waterway, deepening of the McClellan-Kerr Arkansas River, and channel modifications along the Texas reach of the GIWW could all be initiated between 2013 and 2016. Other channel work in Texas and a number of major rehabilitations along the Ohio could proceed between 2016 and 2021, as well as modernization of the Upper Ohio projects at Emsworth, Dashields and Montgomery.

**Table 1A: Inland Waterways Trust Fund Schedules  
Baseline Program Under FY09 Budget Request  
Program Assumes Increase in IWTF Revenues Enacted  
(Mar 08)**

Project	Start Year	End Year	Construction Duration (Years)	Total Trust Fund Draws	Total Project Cost
R Byrd	1987	2009	23	191.8	383.5
Winfield	1989	2007	19	118.2	236.3
Olmsted	1991	2017	27	1013.0	2026.0
Mon 2-4	1995	2013	19	396.7	793.3
McAlpine	1996	2009	14	215.0	430.0
UM 24 Rhb	1996	2008	13	43.3	86.7
Kentucky	1996	2014	19	331.8	663.5
Marmet	1996	2009	14	200.6	401.3
UM 3 Rhb	1998	2008	11	35.2	70.4
Inner Hbr	1999	2015	17	402.0	804.0
UM 11 Rhb	2002	2009	8	23.4	46.8
UM 19 Rhb	2003	2008	6	14.7	29.5
Chickamauga	2003	2013	11	182.3	364.5
Markland Rhb	2008	2011	4	15.3	30.5
UM 27 Rhb	2008	2012	5	16.9	33.8
Emsworth Rhb	2008	2013	6	77.5	155.0
LwMonumtl	2009	2011	3	12.3	24.6
Lockport Rhb	2009	2013	5	66.2	132.4

Note: Lockport rehabilitation not cost-shared from IWTF in FY 08. Lockport will be cost-shared from IWTF upon enactment of the legislation proposed by the Administration in the FY 2009 Budget.

**Table 1B: Inland Waterways Trust Fund Cash Flow  
Baseline Program Under 09 Budget Request  
No Change in Fuel Tax (Mar 08)**

Year	Estimated	Tax	Interest	Year-End
	Outlays	Revenues	Earnings	Balances
	(\$Millions)			
1990	117.3	62.8	26.2	292.8
1991	148.6	60.5	21.2	225.9
1992	122.7	69.9	13.7	186.7
1993	74.5	78.6	7.5	198.3
1994	75.7	88.4	9.3	220.2
1995	94.8	103.4	13.3	242.1
1996	85.5	108.4	15.6	280.6
1997	89.5	96.4	17.0	304.6
1998	76.9	91.1	18.3	337.1
1999	88.2	104.4	17.4	370.6
2000	102.4	99.6	20.0	387.8
2001	110.2	112.7	20.9	411.2
2002	106.2	95.3	12.4	412.6
2003	112.7	89.5	9.5	399.0
2004	114.7	90.8	6.9	382.0
2005	139.8	91.3	7.7	341.2
2006	189.0	80.8	9.4	236.5
2007	198.9	91.1	14.6	143.3
2008	216.0	89.0	5.5	21.7
2009	166.6	90.2	1.0	-53.7
2010	192.5	91.3	0.0	-154.8
2011	205.5	92.5	0.0	-267.8
2012	197.7	93.7	0.0	-371.7
2013	154.4	94.9	0.0	-431.1
2014	94.7	96.2	0.0	-429.7
2015	62.5	97.4	0.0	-394.7
2016	62.5	98.7	0.0	-358.6
2017	47.0	100.0	0.0	-305.6
2018	0.0	101.3	0.0	-204.3

**Table 1C: Inland Waterways Trust Fund Cash Flow  
Baseline Program Under 08 Budget Request  
Revenues Adjusted to Avoid a TF Deficit (Mar 08)**

Year	Estimated	Tax	Interest	Year-End
	Outlays	Revenues	Earnings	Balances
	(\$Millions)			
1990	117.3	62.8	26.2	292.8
1991	148.6	60.5	21.2	225.9
1992	122.7	69.9	13.7	186.7
1993	74.5	78.6	7.5	198.3
1994	75.7	88.4	9.3	220.2
1995	94.8	103.4	13.3	242.1
1996	85.5	108.4	15.6	280.6
1997	89.5	96.4	17.0	304.6
1998	76.9	91.1	18.3	337.1
1999	88.2	104.4	17.4	370.6
2000	102.4	99.6	20.0	387.8
2001	110.2	112.7	20.9	411.2
2002	106.2	95.3	12.4	412.6
2003	112.7	89.5	9.5	399.0
2004	114.7	90.8	6.9	382.0
2005	139.8	91.3	7.7	341.2
2006	189.0	80.8	9.4	236.5
2007	198.9	91.1	14.6	143.3
2008	216.0	89.0	5.5	21.7
2009	166.6	145.0	1.0	1.2
2010	192.5	200.0	0.1	8.7
2011	205.5	200.0	0.5	3.7
2012	197.7	195.0	0.2	1.3
2013	154.4	155.0	0.1	2.0
2014	94.7	95.0	0.1	2.4
2015	62.5	90.0	0.1	30.0
2016	62.5	90.0	1.6	59.1
2017	47.0	90.0	3.1	105.1
2018	0.0	90.0	5.5	200.6

**Table 2A: Inland Waterways Trust Fund Schedules  
Capability Program and Candidate Future Projects  
Optimum Construction Schedules Without Revenue Constraints  
(Mar 08)**

Project	Start Year	End Year	Construction Duration (Years)	Total Trust Fund Draws	Total Project Cost
				(\$ Million)	
R Byrd	1987	2009	23	191.8	383.5
Winfield	1989	2007	19	118.2	236.3
Olmsted	1991	2017	27	1013.0	2026.0
Mon 2-4	1995	2013	19	396.7	793.3
McAlpine	1996	2009	14	215.0	430.0
UM 24 Rhb	1996	2008	13	43.3	86.7
Kentucky	1996	2014	19	331.8	663.5
Marmet	1996	2009	14	200.6	401.3
UM 3 Rhb	1998	2008	11	35.2	70.4
Inner Hbr	1999	2017	19	311.3	804.0
UM 11 Rhb	2002	2009	8	23.4	46.8
Chickamauga	2003	2013	11	182.3	364.5
UM 19 Rhb	2003	2008	6	14.7	29.5
UM 27 Rhb	2008	2012	5	16.9	33.8
Emsworth Rhb	2008	2013	6	77.5	155.0
Markland Rhb	2008	2011	4	15.3	30.5
Lockport Rhb	2009	2013	5	66.2	132.4
LwMonumtl	2009	2011	3	12.3	24.6
JT Myers	2010	2019	10	171.2	342.3
UM 3 Rhb2	2010	2017	8	23.7	47.5
Greenup	2010	2016	7	122.7	245.4
Smithland Rhb	2012	2015	4	12.5	25.0
Matagorda	2012	2012	1	9.1	18.3
Bayou Sorrel	2012	2016	5	4.5	9.0
GW HI/BR	2012	2012	1	7.9	15.8
Racine Rhb	2012	2015	4	12.5	25.0
John Day Rhb	2012	2015	4	12.5	25.0
GIWW TX Mods	2012	2014	3	5.3	10.6
Myers Rhb	2012	2015	4	20.9	41.8
UM-IWW Sys	2012	2029	18	1091.5	2183.0
MK Ark R 12Ft	2012	2017	6	86.0	172.0
LaGrange Rhb	2012	2012	1	24.6	49.2
O'Brien Rhb	2012	2014	3	10.5	21.1
E-D-M	2015	2022	8	375.0	750.0
GW BR/PC	2015	2019	5	7.5	15.0
Calcasieu	2015	2020	6	30.0	60.0
Hannibal Rhb	2016	2019	4	12.5	25.0
GW PC/CC	2016	2019	4	2.6	5.1
GW Brazos	2017	2021	5	18.8	37.5
Meldahl Rhb	2017	2020	4	12.5	25.0
Pike Is Rhb	2018	2021	4	12.5	25.0
GW Colorado	2018	2022	5	18.8	37.5
GW SB/HI	2019	2023	5	25.0	50.0
Belleville Rhb	2019	2022	4	12.5	25.0
Cannelton Rhb	2020	2023	4	12.5	25.0
Newburgh Rhb	2021	2024	4	12.5	25.0

**Table 2B: Inland Waterways Trust Fund Cash Flow  
Capability Program and Candidate Future Projects  
Optimum Schedules, No Change in Fuel Tax (Mar 08)**

Year	Estimated	Tax	Interest	Year-End
	Outlays	Revenues	Earnings	Balances
	(\$Millions)			
1990	117.3	62.8	26.2	292.8
1991	148.6	60.5	21.2	225.9
1992	122.7	69.9	13.7	186.7
1993	74.5	78.6	7.5	198.3
1994	75.7	88.4	9.3	220.2
1995	94.8	103.4	13.3	242.1
1996	85.5	108.4	15.6	280.6
1997	89.5	96.4	17.0	304.6
1998	76.9	91.1	18.3	337.1
1999	88.2	104.4	17.4	370.6
2000	102.4	99.6	20.0	387.8
2001	110.2	112.7	20.9	411.2
2002	106.2	95.3	12.4	412.6
2003	112.7	89.5	9.5	399.0
2004	114.7	90.8	6.9	382.0
2005	139.8	91.3	7.7	341.2
2006	187.2	80.8	9.4	236.5
2007	198.9	91.1	14.6	143.3
2008	215.5	89.0	5.5	22.2
2009	166.6	90.2	1.1	-53.2
2010	216.5	91.3	0.0	-178.3
2011	252.3	92.5	0.0	-338.2
2012	422.9	93.7	0.0	-667.4
2013	352.3	94.9	0.0	-924.7
2014	293.1	96.2	0.0	-1121.6
2015	266.6	97.4	0.0	-1290.8
2016	256.8	98.7	0.0	-1448.9
2017	247.6	100.0	0.0	-1596.5
2018	173.7	101.3	0.0	-1668.9
2019	175.6	102.6	0.0	-1741.9
2020	147.0	103.9	0.0	-1785.0
2021	125.3	105.3	0.0	-1805.0
2022	99.5	106.6	0.0	-1797.8
2023	73.7	108.0	0.0	-1763.5
2024	65.3	109.4	0.0	-1719.4
2025	62.1	110.9	0.0	-1670.7
2026	62.1	112.3	0.0	-1620.5
2027	62.1	113.8	0.0	-1568.9
2028	62.1	115.2	0.0	-1515.8
2029	62.1	116.7	0.0	-1461.3
2030	0.0	118.2	0.0	-1343.0

**Table 3A: Inland Waterways Trust Fund Schedules  
Modified Capability Program With Increased Revenues  
Schedules Adjusted to Avoid a Trust Fund Deficit  
(Mar 08)**

Project	Start Year	End Year	Construction Duration (Years)	Total Trust Fund Draws	Total Project Cost
(\$ Million)					
R Byrd	1987	2009	23	191.8	383.5
Winfield	1989	2007	19	118.2	236.3
Olmsted	1991	2017	27	1013.0	2026.0
Mon 2-4	1995	2013	19	396.7	793.3
McAlpine	1996	2009	14	215.0	430.0
UM 24 Rhb	1996	2008	13	43.3	86.7
Kentucky	1996	2014	19	331.8	663.5
Marmet	1996	2009	14	200.6	401.3
UM 3 Rhb	1998	2008	11	35.2	70.4
Inner Hbr	1999	2020	22	319.0	804.0
UM 11 Rhb	2002	2009	8	23.4	46.8
UM 19 Rhb	2003	2008	6	14.7	29.5
Chickamauga	2003	2013	11	182.3	364.5
UM 27 Rhb	2008	2012	5	16.9	33.8
Emsworth Rhb	2008	2013	6	77.5	155.0
Markland Rhb	2008	2011	4	15.3	30.5
Lockport Rhb	2009	2013	5	66.2	132.4
LwMonumtl	2009	2011	3	12.3	24.6
O'Brien Rhb	2010	2012	3	10.5	21.1
Smithland Rhb	2013	2016	4	12.5	25.0
GIWW TX Mod	2013	2015	3	5.3	10.6
Bayou Sorrel	2013	2017	5	4.5	9.0
John Day Rhb	2013	2016	4	12.5	25.0
UM 3 Rhb2	2013	2020	8	23.7	47.5
Myers Rhb	2013	2016	4	20.9	41.8
LaGrange Rhb	2013	2015	3	24.6	49.2
JT Myers	2013	2022	10	171.2	342.3
Matagorda	2013	2015	3	9.1	18.3
GW HI/BR	2014	2016	3	7.9	15.8
Greenup	2014	2020	7	122.7	245.4
GW PC/CC	2016	2019	4	2.6	5.1
GW BR/PC	2016	2020	5	7.5	15.0
Calcasieu	2016	2021	6	30.0	60.0
MK Ark R 12Ft	2016	2021	6	86.0	172.0
UM-IWW Sys	2016	2033	18	1091.5	2183.0
Meldahl Rhb	2018	2021	4	12.5	25.0
GW Brazos	2018	2022	5	18.8	37.5
GW Colorado	2018	2022	5	18.8	37.5
Hannibal Rhb	2018	2021	4	12.5	25.0
Pike Is Rhb	2019	2022	4	12.5	25.0
E-D-M	2019	2026	8	375.0	750.0
GW SB/HI	2020	2024	5	25.0	50.0
Belleville Rhb	2020	2023	4	12.5	25.0
Cannelton Rhb	2021	2024	4	12.5	25.0
Newburgh Rhb	2021	2024	4	12.5	25.0
Racine Rhb	2021	2024	4	12.5	25.0

**Table 3B: Inland Waterways Trust Fund Cash Flow  
Modified Capability Program With Increase Revenues  
Schedules Adjusted to Avoid a Trust Fund Deficit (Mar 08)**

Year	Estimated	Tax	Interest	Year-End
	Outlays	Revenues	Earnings	Balances
	(\$Millions)			
1990	117.3	62.8	26.2	292.8
1991	148.6	60.5	21.2	225.9
1992	122.7	69.9	13.7	186.7
1993	74.5	78.6	7.5	198.3
1994	75.7	88.4	9.3	220.2
1995	94.8	103.4	13.3	242.1
1996	85.5	108.4	15.6	280.6
1997	89.5	96.4	17.0	304.6
1998	76.9	91.1	18.3	337.1
1999	88.2	104.4	17.4	370.6
2000	102.4	99.6	20.0	387.8
2001	110.2	112.7	20.9	411.2
2002	106.2	95.3	12.4	412.6
2003	112.7	89.5	9.5	399.0
2004	114.7	90.8	6.9	382.0
2005	139.8	91.3	7.7	341.2
2006	187.2	80.8	9.4	236.5
2007	198.9	91.1	14.6	143.3
2008	215.5	89.0	5.5	22.2
2009	166.6	150.0	1.1	6.7
2010	196.1	200.0	0.3	10.9
2011	209.1	200.0	0.6	2.4
2012	201.3	200.0	0.1	1.3
2013	197.8	200.0	0.1	3.6
2014	162.6	200.0	0.2	41.2
2015	161.0	200.0	2.2	82.4
2016	244.9	200.0	4.3	41.8
2017	242.8	200.0	2.2	1.2
2018	201.1	200.0	0.1	0.1
2019	198.5	200.0	0.0	1.6
2020	199.8	200.0	0.1	1.9
2021	179.9	200.0	0.1	22.2
2022	171.1	200.0	1.2	52.2
2023	155.1	200.0	2.7	99.9
2024	133.1	200.0	5.2	172.0
2025	99.6	200.0	9.0	281.3
2026	80.9	200.0	14.7	415.1
2027	62.1	200.0	21.7	574.7
2028	62.1	200.0	30.1	742.6
2029	62.1	200.0	38.8	919.3
2030	62.1	200.0	48.1	1105.3
2031	62.1	200.0	57.8	1300.9
2032	62.1	200.0	68.0	1506.8
2033	62.1	200.0	78.8	1723.5
2034	0.0	200.0	90.1	2013.6