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Planning Center of Expertise for Inland Navigation

***Inland Waterway Transportation  
Economics Program  
USACE Inland CoP Workshop  
September 2007***

Wes Walker, Huntington District  
LRD Navigation Planning Center



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# *Topics*

- ◆ Value
- ◆ Return on Investment
- ◆ Transportation Economics Program
- ◆ Rate Savings



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# *Value The Sages*

- ◆ Keeney – “Corps needs to focus on communicating the value of the waterways to the country.”
  - For your barber
  - For leadership
- ◆ Harder – “Value to the nation!” but...
  - How do we do it?
  - Who can do it?
  - What is it?



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# *Value Applied to waterways*

- ◆ Value is based on utility and recognition of rarity
  - Commercial value – availability of alternatives
  - Intrinsic value – natural settings
- ◆ Because value is reflected thru government policy, suggests navigation community:
  1. Should avoid degrading intrinsic value
  2. Should keep commercial value in public eye

# Balance!

**Recognize the  
Value**



**Deal with the  
Impacts**





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# Value Metrics

## ◆ Surrogate metrics

- Tons
- Ton-miles
- Total cargo value

## ◆ Regional (RED) value

- Jobs
- Earnings
- Taxes generated

## ◆ National (NED) value

- Transport savings
- Total social benefit:
  - Tourism/recreation
  - Highway congestion reduction
  - Air emission reduction
  - Accident reduction



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# *Return on Investments*

## *Value, Costs and ROI*

- ◆ Value of the asset - transportation savings + other social benefits
- ◆ Value of the investment
  - Benefits preserved or new benefits
  - Cost to preserve benefits or to gain new benefits
- ◆ Cost of the investment
  - Federal costs and private costs
  - Total social cost
- ◆ ROI – value of investment net of cost



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# *Return on Investments*

## *The Goal*

- ◆ Goal – Biggest bang for the buck Initiatives
  - Performance based budgeting - application
    - put money toward asset with highest metric value?
    - tonnage, ton miles, cargo value
  - Asset Management – inventory, assess, prioritize
- ◆ Prioritize investments – how?
  - Value (**BENEFIT**) of investment (not asset) and
  - **COST** of the investment
  - **BENEFITS NET OF COST**

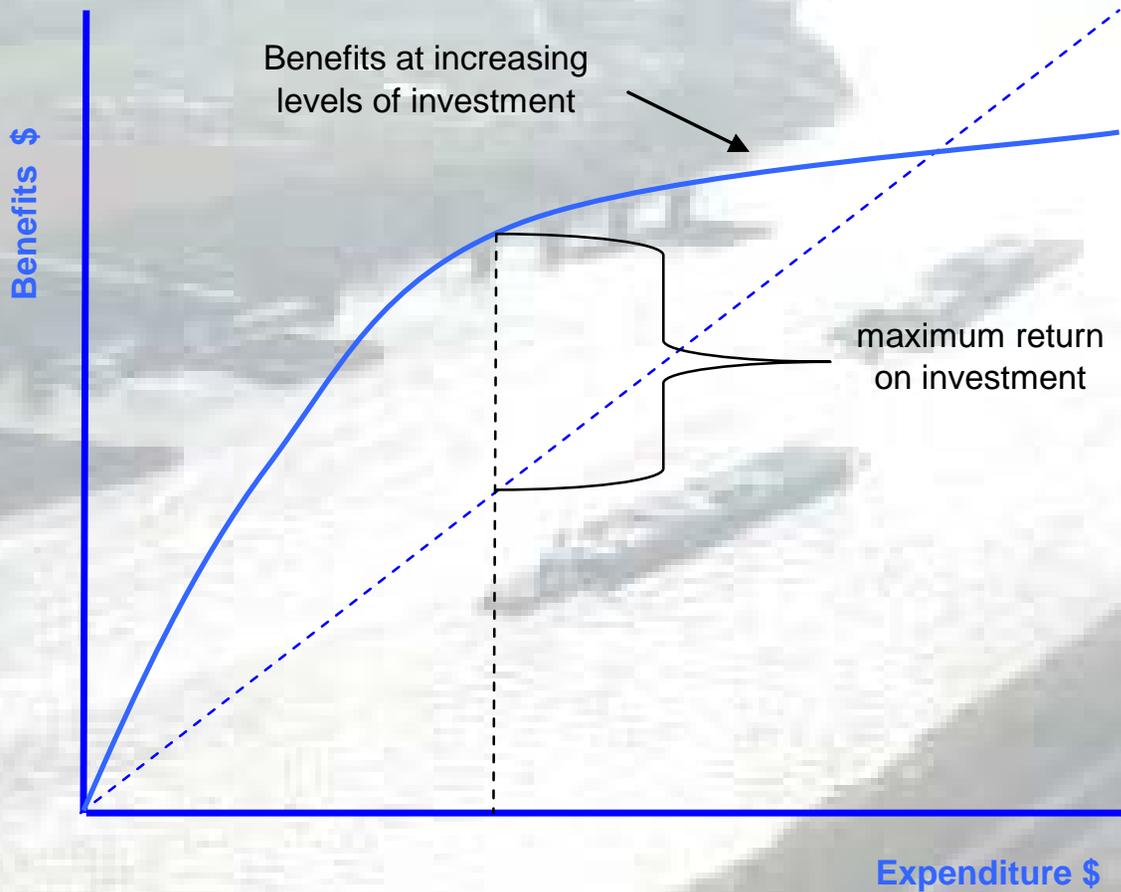


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# Benefits vs. Expenditures

## O&M Investments

### Identifying the Maximum Return on Investment





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# *Return on Investment*

## *Benefits net of cost*

### ◆ Challenges, especially at national level

- Is basic benefit (rate savings) data available?
- Is benefit data comparable across projects?

- ● Can benefit data be linked to investment costs?
- Condition, likelihood, consequences, econ impacts
  - Can this data be developed across projects?
- Can we measure, can we count the non-traditional benefits?
  - Can we measure regional benefits?



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# *Transportation Economics*

## *LRD Program*

- ◆ First steps at ROI – work in-progress
- ◆ Based on premise that:
  1. Transportation rate savings gives us:
    - Value of ports and rivers
    - Cap on benefits of any investment
  2. O&M investments designed to preserve these benefits
  3. Benefit estimates need to be tied to incremental investment decisions



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# *Transportation Economics*

## *Status in LRD*

- ◆ Great Lakes - Look-up table for benefits lost due to shoaling – GLLOPM
- ◆ Ohio River System - look-up table for durations of main chamber closure
- ◆ Necessary but not sufficient, also need:
  - Condition & likelihood of degraded performance
  - Consequences (repair cost/closure days) of degraded performance
  - Use tables to estimate economic impact



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# *Transportation Economics*

## *Where we need to go*

- ◆ Condition assessments & likelihood of needing to invest in preserving benefits
- ◆ Consequences of degraded jetties, breakwaters, & confined disposal facilities
- ◆ A full accounting of the impact of main chamber closures
- ◆ Consequences of auxiliary lock closures & dam performance degradation of various levels
- ◆ Identifying linkage to regional economy



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# *Transportation Economics*

## *How do we get there?*

- ◆ Research and development
  - Lock closure responses
  - Breakwater, jetty, confined disposal consequences
  - Simulation model refinements (NaSS, WAM BPP)
  - Regional economic model (potential NETS effort)
- ◆ Apply tools we have to the problem (GLLOPM, ORNIM, NAVPAT II) – demonstrate capability
- ◆ Replace the TVA navigation function
  - Transportation rates & shipper response to closure
  - Regional analysis



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# *Rates Savings Replacing TVA*

- ◆ TVA will no longer support work for outside agencies
- ◆ PCXIN/IWR/MVD effort to leverage talent & expertise of regional university centers
- ◆ Initial plan is to use Marshall University's Marine Transportation Center to manage work of other university centers



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# *Rate Savings Regional Concept*

- ◆ National coverage of inland river systems
- ◆ Utilize regional universities by home basin
  - Univ of Toledo – Great Lakes
  - Univ of Tennessee – Ohio/ Tenn-Tom/ GIWW-E
  - North Dakota State U – Upper Miss/Illinois/  
Missouri rivers
  - Texas A&M – Low Miss/Red/Arkansas/GIWW-W
  - ??? – Columbia/Snake and west coast



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# *Rate Savings Deployment schedule*

## ◆ FY08

- Rules of engagement
- Transfer data and models
- Training

## ◆ FY09

- Begin responding to rate research needs
- Ohio, Great Lakes, others as interested
- Other research (like regional economics)



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## *For Further Information*

- ◆ Institute Water Resource's navigation R&D effort

Website: [www.corpsnet.us](http://www.corpsnet.us)

- ◆ Planning Center of Expertise for Inland Navigation (PCXIN)

Website: <http://inlandwaterways.lrh.usace.army.mil>



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*QUESTIONS OR COMMENTS?*