US Army Corps of Engineers®

# Coastal Structures Workshop

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# Corps Navigation Mission

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**Provide safe, reliable, efficient, effective and environmentally sustainable waterborne transportation systems for movement of commerce, national security needs, and recreation.**

# Navigation Program

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## Customer Expectations

- Reliability
- Channel Availability
  - Depth and Width
- Lock Availability (Inland)
  - Scheduled and Unscheduled Lock Closures

# Navigation Assets

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- Coastal Projects
- Inland River Systems
- Bridges
- Navigation Support Structures
  - Jetties
  - Breakwaters
  - River Training Works
- Fragile Infrastructure
- Funding
  - Annual Operation and Maintenance
  - Non-routine Maintenance

# Performance Based Budget

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| Consequence / Economic Impact | Probability / Condition | | | | |
|---|---|---|---|---|---|
| | F | D | C | B | A |
| 1 | Extreme Risk | Extreme Risk | High Risk | High Risk | Moderate Risk |
| 2 | Extreme Risk | Extreme Risk | High Risk | Moderate Risk | Low Risk |
| 3 | High Risk | High Risk | Moderate Risk | Low Risk | Low Risk |
| 4 | High Risk | Moderate Risk | Low Risk | Low Risk | Negligible Risk |
| 5 | Moderate Risk | Low Risk | Low Risk | Negligible Risk | Negligible Risk |

# Inland - Condition

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| Condition | Level | Description |
|---|---|---|
| **Good** | **A** | Adequate (Failure unlikely within budget cycle) |
| **Moderate** | **B** | Probably Adequate (< 50% probability of failure within budget cycle) |
| **Poor** | **C** | Probably Inadequate (Failure could occur within budget cycle) |
| **Failing** | **D** | Inadequate (Failure likely to occur within budget cycle) |
| **Failed** | **F** | Failure (Already failed or failure will occur during budget cycle) |

# Coastal - Condition

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| Condition | Level | Description |
|---|---|---|
| **Good** | **A** | 95% at Half Channel Availability at maintained Depth |
| **Moderate** | **B** | 75% at Half Channel Availability at maintained Depth |
| **Poor** | **C** | 50% at Half Channel Availability at maintained Depth |
| **Failing** | **D** | 25% at Half Channel Availability at maintained Depth |
| **Failed** | **F** | 0% at Half Channel Availability at maintained Depth |

# Bridges - Condition

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| Condition | Level | Description |
|---|---|---|
| **Good** | **A** | Fully operational at design loading and capacity Bridge Condition Rating greater than 80 pts |
| **Moderate** | **B** | Bridge Condition Rating greater than 65 pts |
| **Poor** | **C** | Operational at reduced capacity or load; Bridge Condition Rating greater than 50 pts |
| **Failing** | **D** | Bridge is posted for load restrictions; Bridge Condition Rating greater than 35 pts |
| **Failed** | **F** | Not operational Bridge Condition Rating less than 35 pts |

# Structures - Condition

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| Condition | Level | Description |
|---|---|---|
| **Good** | **A** | Failure to the point navigation will be measurably impacted is unlikely within budget cycle; Project fully accomplishing its intended purpose |
| **Moderate** | **B** | Low risk of failure to the point navigation will be measurably impacted within budget cycle |
| **Poor** | **C** | Medium risk of failure to the point navigation will be measurably impacted within budget cycle |
| **Failing** | **D** | High risk of failure to the point navigation will be measurably impacted within budget cycle |
| **Failed** | **F** | Condition severely restricts or halts navigation within budget cycle |

# Consequences

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| Nav Asset Group | | Description |
|---|---|---|
| **Inland** | | USACE Mission Failure (inability to pass traffic); Economic Impact (Ton-Miles) |
| **Coastal** | | Economic Impact (Tons) |
| **Bridges** | | Life Safety; USACE Mission Failure; Average Daily Traffic (ADT) |
| **Structures** | | Life Safety and Economic Loss (tons) |
| | | |

# Reliability – Navigation Locks

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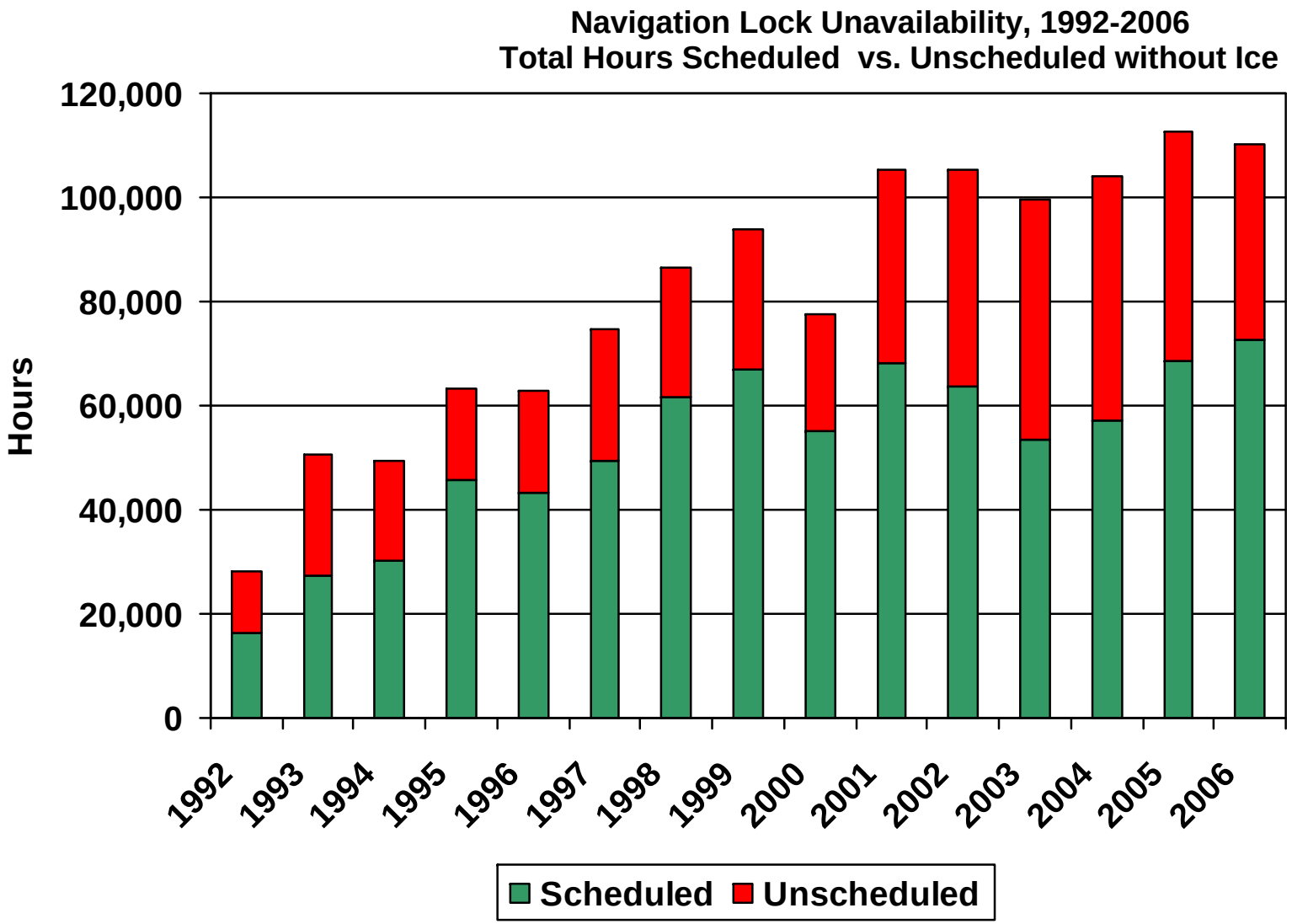

# Lock Reliability

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- Corps wide Navigation Lock condition assessment
- Prioritized list of maintenance needs
- Reliability Goal
  - Unscheduled lock closures can be reduced
    - With proper assessments
    - With adequate funding
  - Five Year Development Plan: less than 20,000 hours of unscheduled closures
  - FY09 pursue first year of incremental improvement

# Channel Availability - Coastal

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- **Level of Service Standard**
  - Full project depth
  - Half project width, 95% of the time
- **Channel availability trend**
  - FY 2005: 38%
  - FY 2006: 35%
  - FY 2007: 31%
  - FY 2009 – 2013: get to 95%
  - FY 2009 Improvement Increment

# FY09 Budget Development

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- Initial effort to conduct Corps wide navigation lock condition assessment
- Grouped lock components by impacts of failure
  - Results in inability to pass traffic
  - Delays traffic
  - Would not impact passage of traffic
- Very subjective, but good first effort
- FEM will improve the quality data for decision making

# Future Budget Development

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- Incremental improvements
- Consistent format between Navigation, Hydropower and Flood Risk Management programs
- Use a matrix approach with likelihood of failure and consequences of failure
- Improve lock condition assessment
- Tonnage, to be replaced by economic impact in the future

# Future Direction

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- Report what we are able to accomplish with the funds provided
  - Achieve appropriate levels of risk
  - Achieve level of performance
- Transparent process – stakeholders, public, OMB and Congress
- America's Infrastructure must become a National priority

# Workshop Expectations

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- **Establish Nationwide consistent approach to condition assessments**
  - **Funds for evaluations**
  - **Funds for repair/rehab**
- **Raise the Bar, transitioning from Subjective to Objective:**
  - **Conditions**
  - **Consequences**

# Conclusion

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## The Bottom Lines

- **Investing in the Navigation system is investing in economic development**
- **America's Infrastructure must become a National priority**