Inland Waterways Users Board #73 – “Using ‘Risk Exposure’ for Development of Inland Navigation Life-Cycle Investment Strategies”

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The Journey Continues…
Delivering for the Present While Preparing for the Future

Subjective

Original Capital Projects Business Model
- Single “Top Level” Condition
- No Probabilities
- Only Annual Econ Impact

Risk Exposure Screening
- OCA Condition on 166K components
- Baseline Failure Curves
- Annual Econ Impact on Shipper and Carriers for Unsch Outages (1-365 days)

Objective

Life Cycle Portfolio AM
- OCA Ver 2.0
- Mature Failure Curves tied to Actual M&R Investments
- Reliability Event Trees
- Full IMTS “Systems” Analysis (Supply and Demand)
- Optimal Life Cycle Investment Strategies, PM to Recapitalization

Interim Step Improvements
- Continued collab and integration with Planning CX for Inland Navigation and Risk Management Center
- Move beyond Annual Econ impact to Benefits over extended Service Life

Strategic Internal and External Communications throughout!
- IWUB Updates and Feedback
- Biweekly Industry Conf Calls/Webinars/Feedback
- Face to Face as Required
- On Horizon…Review and Feedback on WRRDA Capital Investment Strategy Report
DRAFT Total Risk Exposure by Waterway
(Varying “Importance” of Different River Systems)

Note: “Waterway” Risk Exposure also driven by # of Projects

...and Potential to have the Highest Impacts on our Customers

...so let’s focus on the Operational Risk Exposure that has the highest potential to impact the navigation mission...
Current Operational Risk Exposure of the 15 “Very High Priority” Projects Exceeds the Rest of the IMTS COMBINED
“Very High Priority” AND “High Priority” Projects Account for > 75% of Current Operational Risk Exposure over entire IMTS!!

Indications of Priority Projects NOT in 2010 CPBM

* Current draft IMTS traffic forecasts indicate that there is not a capacity-driven need for any chamber expansions.

Summary of Initial Draft Results - Very High & High Priority

<table>
<thead>
<tr>
<th>Waterway</th>
<th># of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mississippi</td>
<td>12</td>
</tr>
<tr>
<td>Ohio</td>
<td>8</td>
</tr>
<tr>
<td>Illinois</td>
<td>6</td>
</tr>
<tr>
<td>GIWW</td>
<td>4</td>
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<tr>
<td>MKARNS</td>
<td>2</td>
</tr>
</tbody>
</table>
Status and Next Steps

- Developed Project Risk Profiles (Feature down to Component Level) for Very High and High Priority Projects
- Determine if the “Priority” Projects meet the Major Rehab Criteria (in the near term)?
  The “Project” is a Major project feature restoration which:
  1. consists of structural work on an inland navigation facility operated and maintained by the Corps of Engineers;
  2. will significantly extend the physical life of the feature;
  3. is economically justified by a benefit-cost analysis;
  4. will take at least 2 years to complete; and
  5. will require at least $20,000,000 or current threshold in capital outlays
- Verify Scope at MSC/District, apply Cost Center of Expertise Rough Order of Magnitude (ROM) Costs, adjust as required

Enables Development of a Strategic Integrated Life-Cycle Inland Navigation Investment Plan
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Questions?