

APPENDIX F

Navigation

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APPENDIX F

Navigation

F-1. Background. The Corps has had the navigation mission since 1824. The Corps plans, designs, operates and maintains projects that support 2.1 billion tons of commerce annually. Many of the projects provide other outputs such as Flood Risk Management, Hydropower, Water Supply, Ecosystem Restoration, Environmental Stewardship and Recreation. The Corps operates and maintains 926 navigation projects ranging from shallow draft harbors; coastal, inland, intra-coastal and navigation systems with 241 locks at 196 sites, to major deep draft ports.

F-2. Purpose. The Corps' Navigation goal is to provide safe, reliable, efficient, effective and environmentally sustainable waterborne transportation systems for movement of commerce, national security needs, and recreation. The purpose of this effort is to develop a risk informed, performance based budget for carrying out the Navigation mission.

F-3. Civil Works Program Objectives. The Corps Civil Works budget is discretionary and subject to funding constraints nation-wide. Therefore the Corps focuses on those projects that have the greatest risk of failure and provide the greatest economic, environmental, and public safety returns to the Nation. Navigation projects are categorized as high, moderate and low commercial navigation use. Funding is focused on the projects with a high or moderate level of commercial navigation use (coastal projects carrying at least one million tons of cargo and inland waterways with at least one billion ton-miles of traffic), which move 99 percent of the Nation's waterborne commercial cargo. Consideration is also given to those projects with high export and import values and contribution to the Harbor Maintenance Trust Fund. However, with few exceptions, even these projects do not receive sufficient funds to maintain authorized channel dimensions. For harbors, channels, and waterways with a low level of commercial use, the Corps considers a range of factors such as the need to operate and maintain locks; use of a harbor as a critical harbor of refuge or a subsistence harbor; whether the harbor or waterway supports public transportation, U.S. Coast Guard search and rescue operations, the national defense, or other Federal agency use; the reliance on marine and inland transportation for energy generation or home heating oil deliveries, and the level of commercial use (albeit less than a moderate level of commercial use). TABLE F-1 displays the Navigation program objectives and Performance Measures related to the current Civil Works Strategic Plan. The CW Strategic Plan was developed with an explicit assumption of an unconstrained resource environment to encourage an unconstrained assessment of the nation's water resources needs and potential Corps response. Preparation of the Budget Year (BY) Budget Request requires the recognition of a constrained budget environment and the ongoing effort to evolve better budget linked performance measures. TABLE F-2 displays the program objectives, performance measures and/or performance ranking and rating criteria which support and/or supplement TABLE F-1 program objectives and performance measures to reflect the near term realities of a constrained BY budget environment.

TABLE F-1	
Navigation Objectives and Performance Measures	
Program Objectives	Performance Measures
Invest in navigation infrastructure when the benefits exceed the costs.	<ul style="list-style-type: none"> - BCR (project specific measure) - Annual net benefits
Support sustainable regional, basin-wide, or watershed planning and activities in partnership with others.	<ul style="list-style-type: none"> - Percent of projects recommended in Chief's reports that apply watershed principles
Enhance Life-Cycle Infrastructure Management. Improve the reliability of water resources infrastructure using a risk informed asset management strategy.	<ul style="list-style-type: none"> - % of navigation asset inventory with recent structural/operational risk assessments, including SPRA assessments. - % of navigation asset inventory risk assessments that reveal a significant level of risk (including DSAC Class I, II and III projects). - Number of funded actions underway that address assets where there is a significant level of risk. - High risk buy-down and/or investment to risk reduction ratio (from ORA workbook, CWIFD (49 and 50))
Operate/manage navigation infrastructure to maintain justified levels of service, i.e. availability to commercial traffic of high use navigation infrastructure (waterways, harbors, channels).	<ul style="list-style-type: none"> - Risk and Reliability: Operational Condition Assessment and Impacts

F-4. Navigation Performance Measures.

a. Competition for Federal funds is very keen and getting tighter each year. In recent years, we have had to make very hard choices in distributing scarce Federal dollars. In a constrained funding environment, we must prioritize the many worthwhile investment opportunities and ongoing maintenance needs across the entire spectrum of projects. This means that we have to concentrate available resources on the highest priority projects in terms of reducing risk and providing optimal reliability to maximize benefits. In the Navigation program, we are directing funds primarily to those channels, harbors, and waterways systems and segments that provide the highest return from commercial navigation. The Corps' Navigation program is well established and valued, however our ability to continue to provide safe, efficient, and reliable navigation to our ports, waterways and harbors to meet the needs of current and future generations is dependent upon adequate investments. Such investments provide the necessary investigations of problems, development of solutions, timely implementation of authorized projects, reliable operation and availability of our infrastructure, preventative maintenance, facility modernization or improvement, and adequate data management information systems, which are all directed at increasing operational capabilities and efficiencies. The purpose of this budget guidance is to ensure the development of convincing rationale and justification of the budget request.

b. Accordingly, a nationwide perspective must be maintained to assure that available funding provides the greatest public benefit for the investment. The safety, security, and reliability of our existing, high performing infrastructure must be maintained; new investigations to assure high yield navigation investments are advanced; and projects that are under construction or rehabilitation must be brought on line quickly so that benefits may be achieved as soon as possible. Coastal ports and harbors and inland and

intra-coastal waterways have been and continue to be significant contributors to the national and international movement of commodities. A cursory review of the Corps navigation assets reveals that on a nationwide basis: Over 60% of all inland navigation locks have exceeded their original 50-year service life; our top 59 coastal ports have full project depth on average only 30 – 35 percent of the time, and only for the middle half of the channel; a substantial portion of the bridge inventory is approaching or has exceeded its service life; and our coastal jetties and breakwaters are deteriorating. In response, the Corps must pursue an on-going program to rehabilitate, modernize, or replace structures and components, and maintain channels exhibiting a deteriorating ability to meet system demands.

c. The Critical Infrastructure Protection and Resilience (CIPR) (former Critical Infrastructure Security Program (CISP)) priority goal is to facilitate security risk assessments at USACE CW critical infrastructure projects to identify and mitigate risks associated with vulnerabilities to manmade threats by implementing risk-informed, cost-effective, and sustainable protective programs. It is the intent of the CIPR program to complete twenty-five (25) security risk assessments at critical infrastructure projects, which include navigation locks, identified and prioritized through consequence-based screening efforts conducted on USACE's portfolio. The official list of critical projects is transmitted annually to the Command through a memorandum issued by the Director of Contingency Operations and Homeland Security. Implement high-priority vulnerability mitigation options to reduce security risks at five (5) high-risk critical projects. Develop twenty-five (25) targeted summaries (Comprehensive Facility Reports) of key information on selected dams and locks of regional or national significance to facilitate quick regional impact assessment reporting for natural hazards and manmade incidents. Conduct one (1) security training exercise involving a critical infrastructure project to identify, analyze, assess, and enhance regional preparedness and disaster resilience.

d. USACE has established the Dam Safety Program to ensure continued safe operation of USACE dam infrastructure. As a self regulated dam owner, it is crucial that a minimum standard of care is employed to protect the downstream public and benefits of the dam along with avoiding the associated infrastructure, environmental, and economic consequences of a potential dam failure. The program includes both routine actions (monitoring, recurring dam maintenance, training, operating interim risk reduction measures, emergency preparations and inspections) and non-routine actions (studies, major maintenance, interim risk reduction measures, and construction repairs). The combined routine and non-routine program components are important long-term investments to minimize risk to the public and maintain the benefits of the structure. The holistic USACE portfolio of dams shall be considered for non-routine risk informed prioritization, versus regional or district rankings. In cases where projects pose an unacceptable risk to public safety (DSAC 1, 2, 3), approved interim risk reduction measures (IRRM) shall be budgeted and implemented. Special coordination efforts with the district dam safety office is required to prioritize IRRM actions based on Dam Safety Action Classification (DSAC) status and the ability of the IRRM to reduce project specific risks.

e. To achieve the Navigation objectives in TABLE F-1, the following budget strategies and performance measures are established for the BY budget development. Each of the budget strategies and measures are designed to demonstrate that each budget item makes sense and contributes to the.

Navigation goals and supporting objectives

TABLE F-2	
Navigation Budget Performance Measures	
Budget Strategy	Ranking Criteria
Keep ongoing studies or PEDs going if likely to produce recommendation for project (I) or start new phase of studies or PED (I)	Date of Agreement – executed or expected Commercial tonnage increase % reduction in delay costs Years to complete Watershed study –y/n Benefit to Cost Ratio (BCR) – Feasibility & PED only Meet PED Completion Deadline
Complete ongoing construction to start getting benefits of high performing navigation projects (each contract should be separate line item) (C)	BCR Inland Waterways Users Board priority for Inland Waterways Commercial Tonnage Availability of Inland Waterways Trust Fund (IWTF) funding for Inland Waterways Years to complete Other Business Line purpose outputs
Initiate and complete rehabilitations (each contract should be separate line item) (C)	Inland Waterways Users Board priority for Inland Waterways Availability of Inland Waterways Trust Fund (IWTF) funding for Inland Waterways Relative risk of failure (OCA & DSAC) BCR Years to complete
Initiate and complete dam safety assurance/seepage control/static instability correction projects (C)	Relative risk of failure – risk compared to other Corps dams (portfolio risk assessment if available in BY) Critical loss of pool and /or navigation
Operations - Assure that projects perform as designed (O&M)	Cumulative benefits Cumulative O&M costs for above benefits (over set time period)
Maintenance - Make sure projects are safe to operate (managing risk) (O&M)	Navigation channel availability Lock closures exceeding 24 hours and one week duration due to mechanical failures – scheduled and unscheduled Risk Reduction and/or Investment to Risk Reduction Ratio from ORA Workbook CWIFD (49 and 50) Relative Risk Rating Cumulative benefits Cumulative O&M costs for above benefits (over set time period)
Fund adequate data collection (Remaining Items, I, C, O&M)	Consequence of inadequate data

F-5. Budget Screening Criteria.

a. New Start Definition – See Sub-Annex I-1 for studies and Sub-Annex II-2 for construction projects.

b. New Phase Definition - See Sub-Annex I-1.

c. Critical Infrastructure Protection and Resilience Ranking – Operating projects which have been screened using the Dams Consequence-Based Top Screen (CTS) methodology process shall serve as the framework for identification and prioritization of USACE critical projects assigned by HQUSACE. The CTS methodology represents a consistent portfolio-wide process to identify and characterize high-consequence facilities. The official list of screening and prioritization results for USACE Civil Works critical infrastructure projects is transmitted annually to the Command through a memorandum issued by the Director of Contingency Operations and Homeland Security. The relative criticality ranking of USACE Civil Works critical infrastructure projects using the CTS process informs which projects should be assigned a higher priority for scheduling security risk assessments (SRAs) and detailed blast damage analyses. These projects will represent the priority in funding SRAs through the implementation of the Common Risk Model for Dams (CRM-D) methodology

Some of the Critical Infrastructure Protection and Resilience (CIPR) Work Items/Activities:

- Consequence-Based Screening Efforts
- Security Risk Assessments
- Blast Damage Assessment Studies
- Consequence Analysis Studies
- Comprehensive Facility Studies
- Dam Security Exercises
- Security Personnel Training
- Security Patrol and Monitoring
- Security Equipment Maintenance
- Operating Interim Risk Reduction Measures
- Physical Security Inspections
- Physical Security Measures
- Protection/Operational Vulnerability Mitigation Measures
- Construction Retrofits and Hardening
- Protection (Security Surge) Measures

F-6. Increments.

a. Increment 1 definitions. For definitions of increments for the Investigations, Construction, and O&M accounts see Annex I, II and III, respectively.

(1) Investigations (for studies and preconstruction, engineering, and design). Remaining Items (R&D, data collection, PAS, etc.) – initial level will be established by HQ.

(2) Construction (Includes: specifically authorized projects, major rehabilitation projects, dam safety assurance/seepage control/static instability correction projects, dredged material disposal facilities, sand mitigation, beneficial use, and CAP projects).

(3) Operation and Maintenance (O&M).

(a) Navigation Segments. Inland waterway operation and maintenance costs should be broken out by major waterway segment.

(b) The first increment will seek to provide the greatest benefit for the investment consistent with performance measures and sufficient to meet minimum legal responsibilities for operation, environmental

compliance and safety. Subsequent increments will provide additional benefits as measured by the performance measures. All increments must document performance according to the appropriate Business Lines criteria. The last increment for each project is the capability level. Operation increments will be submitted separately from maintenance increments. This means that for some projects there will be an operation line item and a maintenance line item in the initial level and subsequent levels.

(c) For each MSC's total combined amount among all Business Lines for operation and maintenance for Increments 1 and 2, see Sub-Annex III-2, TABLE III-2-3. This initial amount is for all the MSC's highest priority O&M requirements as prioritized below. Simple pro-rata allocations by district and/or project, or inclusion of low priority work packages and projects, will not result in the expected performance based budget and should not be done.

(d) Additional O&M criteria. (Definition of terms will follow)

- Sufficient to meet minimum legal responsibilities for operation, safety and environmental compliance, such as:

Subsistence Harbors

Caretaker activities

Critical Harbors of Refuge

Project Condition Surveys

Environmental Compliance requirements

- Multipurpose projects when those projects are included in the minimum programs of other business lines and not a separable element

- Work required by treaties

- Removal of Aquatic Growth

(Note: Items for Surveillance of Northern Boundary Waters previously included in the Navigation Business Line are now included in the Flood Risk Management Business Line.)

(e) Dam Safety Interim Risk Reduction Measures (IRRM). See Sub-Annex III-2 for further guidance. For IRRM work funded from the O&M account, the appropriate Work Category Codes (WCC) to use are 60131-60133 for Operations activities and 61130 for Maintenance activities for navigation.

(f) Critical Infrastructure Protection and Resilience (CIPR) Program. USACE has established the Critical Infrastructure Protection and Resilience (CIPR) Program (former Critical Infrastructure Security Program, CISP) to achieve a more secure and more resilient critical infrastructure portfolio by enhancing its protection capabilities in order to prevent, deter, or mitigate the effects of manmade incidents and improve preparedness, response, and rapid recovery in the event of an attack, natural disaster, and other emergencies. The CIPR program leads security risk assessment and prioritization efforts for USACE Civil Works portfolio of projects (conventional dams, navigation locks, and appurtenant structures) in order to enhance its protection and resilience. The program includes both routine activities (security and operations personnel training, security patrol and monitoring, routine security equipment maintenance, security risk assessments, blast damage assessment studies, dam security exercises, operating interim risk reduction measures, and physical security inspections) and non-routine activities (protection and operational interim risk reduction measures, physical security implementation, construction retrofits/hardening for vulnerability mitigation, surge in protective measures due to increased threat levels). NOTE: CIPR Program work

packages will be submitted in the Navigation budget to support critical infrastructure protection activities on navigation locks. For multi-purpose projects (CCS 300), work packages designated as CIPR Program Joint Cost work packages should be submitted under the Hydropower business line as described in Sub-Annex III-2. The new code IP has been designated in CWIFD for CIPR activities.

b. O&M Increment 1. Only critical routine and critical cyclical activities can be included in this increment. These activities are required to minimally operate or maintain the project and may not provide a full service operation. Routine activities are those that must be performed every year for example the operation of a lock, or are required to meet legal mandates, environmental (ESA/Biological Opinion) requirements, authorized mitigation requirements, and historic preservation. Cyclical activities are those that are required on a regular basis, but not each year. An example of a cyclical routine activity would be projects where dredging is needed on a regular recurring basis, but not every year, e. g. dredging is needed only every two years. Work packages in Increment 1 must be performance based and integral with a study/project with high outputs and consistent with ranking. What is included and what is not:

(1) Minimum lock Operations: Per identified IMTS approved levels of service. May not be full 24-hour or 7-day operation.

(2) Minimum routine lock maintenance: The minimum amount of maintenance that is required to allow the lock facility to function until funding from the next budget cycle becomes available. Would not be all maintenance needs. Please see the following list below:

- Minimum staff labor to operate facility (lock, dam, disposal site, harbor, etc...) commensurate with traffic: facility labor, contracting support, personnel and pay administrators, reports and records management, etc...

- Buoy/marker/signs placement and maintenance

- Emergency response

- Minimum staff labor for daily/routine maintenance of facility

- Disposal sites: drainage, permit issues, etc...

- Locks/dams: greasing operating machinery, repacking bearings, operation and preventative maintenance of equipment, debris/drift/snow removal, changing light bulbs, etc...

- Caretaker funding

- Routine maintenance of dredged material placement sites: Testing, sampling, drainage, permitting, etc...

- Real Estate for facility access: Inleasing, rights of entry, etc...

- Utilities

- Vehicles

- Uniforms

- Drug testing

- Medical Surveillance Program: Physicals

- Maintenance of safety equipment
- Instrumentation readings
- Routine maintenance and monitoring of security systems
- Program management
- Financial management
- Preparation of navigation notices
- Real Property accountability
- Existing Real Property Outgrants

- Water management control and gage maintenance: DCP maintenance, water quality, data collection and analysis, LRD support, etc...
- OMNI and LRH Navigation Center reimbursement
- Dam safety inspection/reports
- Bridge and Periodic inspection/reports

- Minimum supplies procurement: safety shoes, life vests, equipment parts, buoy/signs, toilet paper, paper, hydraulic oil, pencils, light bulbs, salt, toner, postage, disposal maintenance items, flashlights, etc...
- Minimum service contracts: grass cutting, cleaning, etc...
- Asset management
- Routine maintenance of radio and communication devices
- Security personnel and/or contracts

(3) Critical routine minimal level of dredging for high and moderate use segments of commercial deep draft, shallow draft and inland projects: Minimum levels of dredging are considered to be only the amount necessary to provide safe passage through/to the channel/harbor until funding from the next budget cycle becomes available. No advanced maintenance dredging.

(4) Minimal level of dredging for Subsistence Harbors: Does not include point of origin harbor.

(5) Minimal level of dredging for Critical Harbors of Refuge: Does not include all Harbors of Refuge.

(6) Caretaker funding for projects or segments not expected to be funded for maintenance. Caretaker work packages provide only for the most basic mission requirements for the project to be minimally operational such as: security and monitoring, dam safety program critical activities at the discretion of the District Dam Safety Officer, limited navigation channel surveys for public safety, minimum labor for lock/spillway operators for water control (not 24-hour operation), minimum preventive maintenance of the lock (lubrication of key components and minor repair only), and periodic operation of equipment, maintenance of river gauges for water control, labor for Engineering Division to manage water levels/assist with spillway gate movements for floods, droughts and other flows as required along the river system, and

environmental permits required to support navigation/water release activities and comply with applicable environmental laws. Funding for maintenance dredging or funding of lock maintenance is not to be included in caretaker work packages.

(7) Critical routine maintenance of dredged material placement sites for Item 3 above: Does not include non-routine maintenance of dredged material placement sites.

(8) Water/Environmental Certification for critical maintenance dredging for Item 3 above: Does not include all water quality or environmental certification needs.

(9) Minimum Project Condition Surveys (PCS) including low use: Does not include all anticipated PCS needs.

(10) Critical studies for high risk coastal structures: Does not include studies of all structures.

(11) Minimum debris/drift removal/obstruction removal at high use ports: Does not include all anticipated removal needs.

(12) Critical routine minimal level Removal of Aquatic Growth (RAG) for high use projects: Does not include all Removal of Aquatic Growth.

(13) Dam Safety Program. See Sub-Annex III-2 for further guidance.

(14) Critical Infrastructure Protection and Resilience (CIPR) Program Activities (former Critical Infrastructure Security Program (CISP)): Only critical routine and cyclical critical infrastructure protection activities to ensure USACE meets minimum fundamental security and protection standards as determined by the District Commander may be included in Increment 1. The District Commander recommendations will be provided through the District's Operations Chief to the Hydropower business line manager. Non-critical critical infrastructure protection activities shall be included in Increments 3 or lower. Priority and costs for the tasks vary for each project, due to differences in project age, size, reservoir operations, construction methods, features and performance history. Consequently, each District is responsible to develop program costs based upon their unique projects. Critical minimum routine activities may include the following as applicable:

(a) Security Training and Monitoring: Security Patrol and Facility Monitoring, Program Coordination, Annual Training for Security & Law Enforcement and Operations Personnel, Adequate Equipment for Security and Law Enforcement Personnel.

(b) Inspections and Assessments: The USACE Common Risk Model for Dams (CRM-D) risk assessment methodology will be used to conduct security risk assessments at USACE Civil Works projects. Annual Physical Security Inspections (PSI), Comprehensive Facility Assessments (CFR), Threat Assessments (TA), Blast Damage Assessments (BDA), and Common Risk Model for Dams (CRM-D) Security Risk Assessments (SRA). The District is responsible for funding the CRM-D SRA and PSI activities for their district CRM-D SRA and PSI Team. The District is also responsible for funding the BDA, to be performed by the U.S. Army Engineer Research and Development Center (ERDC) as part of the CRM-D SRA implementation. The Critical Infrastructure Protection and Resilience (CIPR) Program Manager will provide labor and travel funding to support a Risk Assessment Facilitator and Risk Assessment Team Cadre member who are both independent of the District, and shall be utilized to lead CRM-D SRA implementation activities. The tools to support all these activities are hosted within the Dams Security Analysis Tool (DSAT), centrally managed by the CIPR Program Manager office. The CIPR program will centrally fund and host annual DSAT training sessions to assist District staff in conducting CRM-D SRA implementation activities. The CIPR Program will also centrally fund and host CRM-D training sessions to assist District staff in conducting the CRM-D security risk assessments.

(c) Routine Physical Security Equipment Maintenance: Includes all costs to maintain and replace structural and/or physical improvements for facility protection and security associated with criminal and terrorist activities. Includes costs to maintain, repair or replace permanent or temporary vehicle barriers, fences, doors and gate locks, signage, lighting, communications equipment, intrusion detection and deterrence systems such as cameras and video surveillance equipment (closed-circuit television), alarms, and access control electronic systems.

(d) Memoranda of Understanding (MOUs) with State and local jurisdictions security and law enforcement supporting first response efforts.

(e) Emergency Preparedness: Annual update of Site-Specific Security Plan (SSP) and Rapid Recovery Plans (RRP) as appendices to the Dam Safety Emergency Action Plan (EAP). Security-scenario based training exercises (e. g. drills, workshops, table-top exercises, functional exercises, full exercises) to test plans and operational procedures every three (3) years.

(f) Coordination and support to U.S. Department of Homeland Security (DHS), designated Dams Sector-Specific Agency, in the implementation of critical infrastructure protection and resilience initiatives.

(15) Critical inspections, studies and routine repair for bridges determined to be critical for life safety, mission execution or compliance with Public Law. Does not include all bridges. See Sub-Annex III-2 for further guidance.

c. O&M Increment 2. Only critical non-routine activities may be included in this increment. Critical non-routine activities are those that must be accomplished to ensure project safety, and critical maintenance actions that are required to keep the project operating and delivering benefits. Non-routine activities are actions that are "project like" in that they are a unique action with a specific beginning and end. Examples of non-routine actions would be the replacement of wire ropes or valves, or the repair of failing lock, dam, or bridge components. This increment includes major maintenance (MM), as will fit, when combined with Increment 1 activities, within the overall limit of the 75% constraint. Each non-routine activity must be shown separately to allow individual funding decisions based on the performance metrics and must be shown in priority order by District and MSC Rank. Increment must be performance based and integral with a study/project with high outputs and consistent with ranking.

(1) Critical on-going non-routine maintenance.

(2) On-going major maintenance of high and moderate use projects or segments: could include new major maintenance.

(3) Critical non-routine maintenance of dredged material placement sites at high and moderate use commercial deep draft, shallow draft and inland projects or high and moderate use segments of projects.

(4) Construction of Dredged Material Disposal Facilities (DMDFs) for high and moderate use segments of commercial deep draft, shallow draft, and inland projects are no longer included in O&M and should be budgeted under Construction.

(5) Critical studies to complete Dredged Material Management Plans (DMMP) for construction of dredged material placement sites for high and moderate use segments of commercial deep draft, shallow draft and inland projects.

(6) On-going major rehabilitation studies of high and moderate use projects, which could include new major rehabilitation studies.

(7) Critical non-routine repair for bridges. Does not include all bridges. See Sub-Annex III-2 for further guidance.

(8) Critical non-routine dam safety maintenance and repairs to reduce the highest risk contributors for Dam Safety Action Classification (DSAC) I and II projects. See Sub-Annex III-2 for further guidance.

(9) Critical Infrastructure Protection and Resilience (CIPR) Program Activities (former Critical Infrastructure Security Program (CISP)), critical non-routine activities to include:

(a) Critical non-routine critical infrastructure protection activities to ensure USACE meets minimum fundamental security and protection standards. The determination of the recommended steady-state security posture for USACE dams will be based on a completed CRM-D security risk assessment.

(b) Risk-reduction measures, to include implementation of physical security, protection and operational vulnerability mitigation options to reduce security risks at high-risk critical projects based on CRM-D SRA implementation.

(c) Support implementation of additional security presence and protective measures requirements at critical infrastructure projects due to increased National or regional threat levels.

d. O&M Increment 3. This increment includes only critical routine operation and maintenance activities, for up to 25% above the minimal budget level, that are defined by the state of the practice and are needed to sustain public safety and the expected future benefits of the project. This will generally include critical activities that qualified for Increments 1, but exceeded the 75% limit. This still may not represent full service levels. Dam Safety work items identified as DSAC III can be included in this increment. Costs for preparing reports for major maintenance (MM) and major rehabilitations (MR) can be included in this increment. MM and MR activities must have approved reports before they can be budgeted for implementation under the O&M Account for MM and under the Construction Account for MR. Each Increment 3 activity must be shown separately to allow funding decisions based on the performance metrics, and must be shown in priority order by the District and MSC Rank. Increment must be performance based and integral with a study/project with high outputs and consistent with ranking. This may include:

(1) Critical Advanced Maintenance dredging on high and moderate use projects. Does not include all advanced maintenance.

(2) Critical minimal level of dredging and operations of low use projects that have commerce, commercial fishery, multi-agency requirements, U.S Coast Guard search and rescue, and/or public transportation.

(3) Removal of Aquatic Growth for other high and moderate use projects.

(4) Other Project Condition Surveys (PCS) including low use beyond Bare Bones annual routine level.

(5) Additional critical dredging, debris removal, lock operation and maintenance, and bridge maintenance.

(6) Critical Infrastructure Protection and Resilience (CIPR) Program Activities (former Critical Infrastructure Security Program (CISP)): Additional minimum critical routine and non-routine activities for critical infrastructure projects may be included in Increment 3 or lower.

e. O&M Increment 3.5. This increment includes only critical non routine operation and maintenance activities for up to 25% above the minimal budget level, that are defined by the state of the practice and are needed to sustain public safety and the expected future benefits of the project. This will generally include critical activities that qualified for Increments 2, but exceeded the 75% limit. Inland navigation projects are required to use the non-routine maintenance application provided in the Operational Risk Assessment (ORA) workbook for critical non-routine maintenance, major maintenance, and major rehabilitation activities

(see glossary for definitions); which will provide the Risk Reduction and Investment to Risk Reduction Ratio values to meet Performance Measures in Tables F-1 and F-2.

f. O&M Increment 4. This increment includes critical operation and maintenance activities, above critical work in Increments 1 through 3, that are defined by the state of the practice and are needed to sustain the expected future benefits of the project. In most cases, activities in this increment will support continuing the level of service that users, customers, stakeholders, and others have come to expect and depend on for sustaining public safety and economic, environmental and social benefits. Multiple Increment 4 activities should be submitted that reflect the logical pieces of routine or non-routine activities beyond the 5-year average level shown in TABLE III-2-3. Each Increment 4 activity must be shown separately to allow funding decisions based on the performance metrics, and must be shown in priority order by the District and MSC Rank. Increment must be performance based and integral with a study/project with high outputs and consistent with ranking.

g. O&M Increment 4.5 O&M Increment 4.5. This increment includes critical non routine operation and maintenance activities above critical work in Increments 1 through 3 that are defined by the state of the practice and are needed to sustain the expected future benefits of the project. In most cases, activities in this increment will support continuing the level of service that users, customers, stakeholders, and others have come to expect and depend on for sustaining public safety and economic, environmental and social benefits. Inland navigation projects are required to use the non-routine maintenance application provided in the Operational Risk Assessment (ORA) workbook for critical non-routine maintenance, major maintenance, and major rehabilitation activities (see glossary for definitions); which will provide the Risk Reduction and Investment to Risk Reduction Ratio values to meet Performance Measures in Tables F-1 and F-2.

h. O&M Increment 5. Routine activities that have a high expected return on investment that enable greater levels of performance in future years should be included in this enhanced or capability Increment. Each Increment 5 activity must be shown separately to allow funding decisions based on the performance metrics, and must be shown in priority order by the District and MSC Rank. Increment must be performance based and integral with a study/project with high outputs and consistent with ranking.

i. O&M Increment 5.5 . Non routine activities that have a high expected return on investment that enable greater levels of performance in future years should be included in this enhanced or capability Increment. Inland navigation projects are required to use the non-routine maintenance application provided in the Operational Risk Assessment (ORA) workbook for non-routine maintenance, major maintenance, and major rehabilitation activities (see glossary for definitions); which will provide the Risk Reduction and Investment to Risk Reduction Ratio values to meet Performance Measures in Tables F-1 and F-2.

F-7. Performance Based Budget Increment(s). Add additional budget items for logical, needed increments that contribute to the program goals. Ranking will be based on ranking criteria shown in TABLE F-15 Navigation Budget Ranking Criteria – Submission Matrix listed at the end of this appendix. The basis for adding increments in terms of budget request for a project will be based on the demonstrable beneficial impact on increasing average annual net benefits by accelerating project completion, or improved performance, additional outputs or increased reliability in the BY. There are three key performance measures that will be considered: (1) reduction in years to completion, (2) increase in annual net benefits, and (3) BCR for PEDs, construction, and rehabilitations.

F-8. Risk Assessment of Navigation Assets. A risk assessment involves identifying sources of potential conditions, assessing the likelihood or confidence level that they will occur and the associated consequences. The BY budget continues to improve on USACE asset management efforts with the Navigation, Hydropower and Flood Risk Management business lines using a common format to address risk. For this BY, the Relative Risk Rankings will continue to use the 1 through 25 and 1 through 5 rating scales, where 1 is the most critical need, to coincide with the DSAC and Levee Safety Action Classification (LSAC) rating scales of I through V. Navigation assets are established under 4 groups: (1) Inland and intra-coastal Navigation, (2) Navigation Channels and Harbors, (3) Coastal Navigation Structures (CNS) including jetties, breakwaters, and training works, and (4) Bridges. There will be five levels of

Probability/Condition/ Structural Damage and five levels of Consequences/Economic Impact/Functionality associated with each of the Navigation asset groups. These will be used to obtain a Relative Risk Ranking value found in TABLE F-3 for all navigation categories. The Relative Risk Ranking Matrix values will be applied to each budget work package and will be generated automatically in CWIFD except for (1) inland and navigation structures, which will come from the Operational Condition Assessment (OCA) and Risk process and (2) bridges which will come from the OCA and risk process described in Annex III and contained within the Corps of Engineers Bridge Inventory System (CEBIS). In addition to the Relative Risk Ranking 1 through 25, OMB has requested uniform rankings for consistency across Business Lines. Therefore, the Relative Risk Rankings in TABLE F-3 will be converted to 1 through 5 rankings as shown in TABLE F-4. The 1 through 5 rankings will be automatically generated in CWIFD from the 1 through 25 Rankings, except for inland and Intra-coastal navigation structures, which will come from the OCA and Risk process. These classifications will provide the initial basis for capturing the true state of the infrastructure or component thereof. In addition, these classifications provide the foundation for managing USACE infrastructure uniformly and consistently using lifecycle asset management principles, systems and risk-informed condition indices for operating and maintaining projects while embracing the concept of high performance priority goals. It is critical that an honest, defensible assessment and evaluation of each project be made, by technically qualified personnel, for the ranking process in order to accurately provide a snapshot of where scarce resources need to be allocated. Therefore, OCAs must be used for all non-routine inland Intra-coastal and budget work packages for navigation structures and the CNS Tier 1 District Condition Assessment Tool must be used for all Coastal Navigation Structures.

a. Inland and intra-coastal Navigation Projects. Inland Navigation consists of navigation locks, dams, and channels that combine to determine system availability for movement of commercial goods. In FY 10, Asset Management developed, trained and deployed the national Operational Condition Assessment (OCA) process in all MSC's with inland and navigation. The companion OCA Administrative Tool was used by Districts to define the components that make up their locks, dams, and structures. The administrative tool has all the inland and Intra-coastal navigation projects pre-built into its database and users then selected their project and answered simple questions about the makeup of their project (e.g. how many lock chambers, date in service of each lock chamber, etc.) After this the user was presented a set of screens that walks them through all the different subsystems that make up a lock and dam and allowed them to select components and subcomponents that make up their project. Multi-disciplinary and multi-District MSC OCA teams then performed the actual on the ground project site operational condition assessment process within their MSC. The OCA condition results are then entered into the OCA Data Collection Tool, which is built on the previously determined subsystems, components and sub-components at that project site.

(1) Navigation Lock Components. The BY non-routine maintenance work packages for navigation lock components will be derived from the OCA Tool. The subsequent risk and consequence work from the national PDT determined component importance factors for mission and safety for all of the components in the inland navigation inventory. Therefore, TABLE F-5 has been superseded by the more detailed work of the national Inland Risk PDT and will not be used for the non-routine maintenance work packages.

(2). Condition Classification and Assessment. Begins with a determination of which components are critical (potential to halt navigation) and which are non-critical (limited potential to halt navigation). Predicted component conditions should be determined by completed Operational Condition Assessments for inland and intra-coastal navigation structures. The OCA process for performing operational condition assessments as mentioned above can be illustrated in Figure 1 below. Detailed descriptions of the process OCA teams used to implement the OCAs can be found on the Asset Management site at: <https://cops.usace.army.mil/sites/AM/default.aspx>. Go to the web site, click on "Shared Documents" in the top of shaded far left column, open the "Category: OCA Inland Navigation" folder, and then select "OCA INAV Training Manual - OCA Software User Guides v1.2". The condition rating from the OCAs are then combined with the component importance factors (mission and safety) (as determined by the national risk PDT) to determine a "condition classification" which enables gradation within the condition axis of the 5x5 matrix to better assist in investment decisions. For channels and other items where OCAs are not available, predicted component conditions should be assessed by a review of surveys, multi-disciplined inspection reports, on-site reviews, rating criteria, and/or Facilities and Equipment Maintenance (FEM)

operation and maintenance records (when available) and projected to the end the BY-1. The predicted condition of the component is a critical factor in determining the risk of unscheduled closures. Output of the process is shown in TABLE F-5 below. The latest OCAs must be used to determine the Probability/Condition rating for each non-routine maintenance work package for inland and intra-coastal structures for the BY budget preparation. In addition, the economic consequences generated by the OCAs will be used to populate the Consequence column for non-routine maintenance work packages for inland and Intra-coastal structures. Project condition classifications for budget requests shall be developed for each project/maintenance budget work package in accordance with TABLES F-5. The consequence/economic impact category for channels and structures is to be selected from TABLE F-6. The TABLE F-5 and TABLE F-6 values are then used to determine 1-25 value in TABLE F-3.

(3) Consequences of diminished Navigation feature performance are computed for each budget line item that could result in an unscheduled closure or diminished channel depth and/or width. For inland and intra-coastal navigation structures, the OCA process will establish the initial transition from tonnage to economic consequence of unscheduled closure. The economic consequences will be a function of the probability of failure of the components and the economic impacts as determined by the Inland Navigation Center of Expertise in LRH and calculated from the OCA risk process. Note that these values will initially be considered as an "annual" economic impact factor for this baseline process.

(4) OCA Tool for Development and Input for inland and intra-coastal navigation structures work packages. For this BY the Corps will use an interim solution, an Excel Workbook that provides the basic functional capability of the OCA Tool. The workbook is available via the website: <https://assetmanagement.usace.army.mil/oca/budgetdev/Login.aspx> for download and use in developing integrated budget work packages. Users will be required to register and then use CAC authentication to download their respective District's inland and intra-coastal navigation projects from the central OCA Tool national database. Each District workbook will have all data required from the OCA database in a separate tab for each navigation project site. The workbook will also include an Instructions Tab as well as a Summary Tab to manage your work packages. The Inland **Navigation OCA/ORR must be used to develop performance measures for inland navigation non-routine maintenance budget packages for the BY. Note that, in addition to non-routine Work Packages in Increment 2, three new Increments have been established; 3.5, 4.5 and 5.5 to provide specific visibility of the Work Packages associated with the Risk Reduction and Investment to Risk Reduction Ratio performance measures in Tables F-1 and F-2.**

		TABLE F-3 - Navigation 1-25 Relative Risk Values Matrix				
		Condition Classification				
		F	D	C	B	A
Consequence	Condition	Failed	Inadequate	Probably Inadequate	Probably Adequate	Adequate
		Consequence/Economic Impact	I	1	2	4
II	3		5	8	12	16
III	6		9	13	17	20
IV	10		14	18	21	23
V	15		19	22	24	25

	High Relative Risk
	Med-High Relative Risk
	Medium Relative Risk
	Low Relative Risk
	Minimal Relative Risk

		TABLE F-4 - Navigation 1-5 Relative Risk Index Matrix				
		Condition Classification				
		F Failed	D Inadequate	C Probably Inadequate	B Probably Adequate	A Adequate
Consequence/Economic Impact	Consequence					
	I	1	1	2	2	3
	II	1	2	2	3	4
	III	2	2	3	4	4
	IV	2	3	4	4	5
	V	3	4	4	5	5

ILLUSTRATION F.1
(For Illustration Purposes Only)

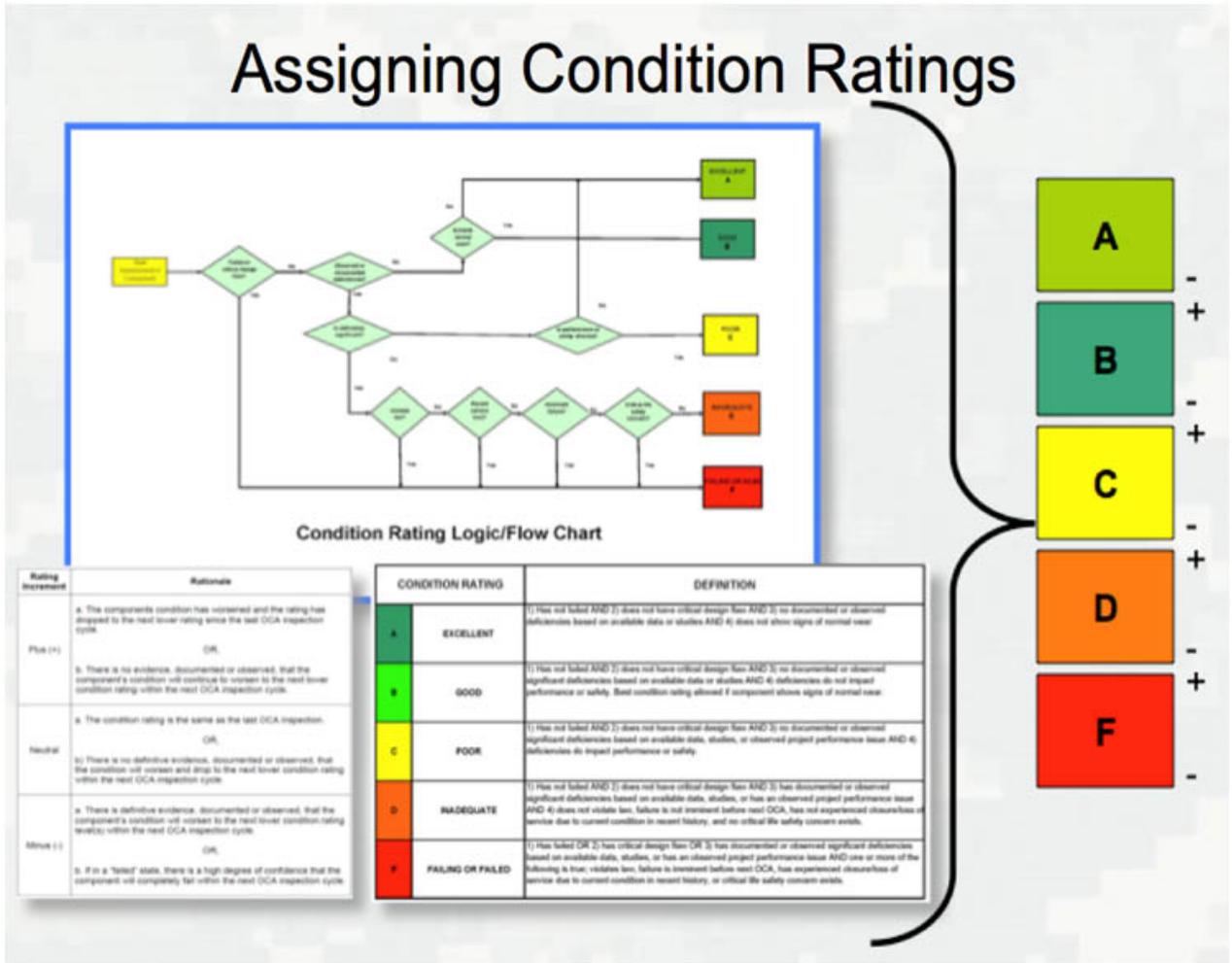


TABLE F-5		
Inland and Intra-coastal Navigation Condition Classification, Except Non-routine Structures using the OCA Workbook		
Condition Classification		Condition Description
GOOD	A	ADEQUATE (Failure unlikely within budget cycle)
MODERATE	B	PROBABLY ADEQUATE (Less than 50% probability of failure within budget cycle)
POOR	C	PROBABLY INADEQUATE (Failure could occur within budget cycle)
FAILING	D	INADEQUATE (High probability for failure within budget cycle)
FAILED	F	FAILED (Already failed or failure will occur within budget cycle)

TABLE F-6	
Inland and Intra-coastal Navigation Consequence/Economic Impact Category for Channels and Structures	
Consequence Category	Consequence Rating Criteria
1	<p>Maximum risk to mission For Channels: Highest economic loss; Over 5 billion ton-miles. <i>Economic level thresholds are in development.</i> For Structures: Highest economic loss determined by ORA Workbook and is function of normalized risk and economic data from the National Risk PDT for both National IMTS and its river system. Catastrophic Impact on Personnel and/or End User Safety Minimum Acceptable Operations Service Level (see definitions) Violates Federal/Statutory law Shutdown of energy generation or distribution facilities for national public use with no alternative modes of transportation (e. g. power plants and oil distribution facilities)</p>
2	<p>High risk to mission Critical Impact on Personnel and/or End User Safety For Channels: High economic loss; Between 3 billion and 5 billion ton-miles. <i>Economic level thresholds are in development.</i> For Structures: High economic loss determined by ORA Workbook and is a function of normalized risk and economic data from the National Risk PDT) for both National IMTS and its river system. Violates State Law Diminished cost efficiency of energy generation or distribution facilities for national public use with higher cost alternative modes of transportation (e. g. power plants and oil distribution facilities)</p>
3	<p>Moderate risk to mission Significant Impact on Personnel and/or End User Safety For Channels: Moderate economic loss; Between 1 billion and 3 billion ton-miles. <i>Economic level thresholds are in development.</i> For Structures: Moderate economic loss determined by ORA Workbook and is a function of normalized risk and economic data from the National Risk PDT for both National IMTS and its river system. Violates Local law</p>
4	<p>Low risk to mission Minor Impact on Personnel and/or End User Safety For Channels: Low economic impact; Between 500 million and 1 billion ton-miles. <i>Economic level thresholds are in development.</i> For Structures: Low economic impact determined by ORA Workbook and is a function of normalized risk and economic data from the National Risk PDT for both National IMTS and its river system. Violates DOD/Army/USACE Regulations or Policy</p>
5	<p>Negligible risk to mission No Impact on Personnel and/or End User Safety For Channels: Least economic; Under 500 million ton-miles. <i>Economic level thresholds are in development.</i> For Structures: Least economic impact determined by ORA Workbook and is a function of normalized risk and economic data from the National Risk PDT for both National IMTS and its river system. No Legal Impact</p>

5. The Critical Infrastructure Protection and Resilience (CIPR) Program (formerly the Critical Infrastructure Security Program, CISP) leads security risk assessment and prioritization efforts for USACE Civil Works portfolio of projects (conventional dams, navigation locks, and appurtenant structures) in order to enhance their security, protection, and resilience. The CIPR program supports the Corps Navigation Business Line through screening, identification, prioritization, and characterization of critical infrastructure projects to facilitate the assessment of security risks and address key vulnerabilities to manmade incidents by implementing protective programs to minimize consequences. The Dams Consequence-Based Top Screen (CTS) methodology is used to identify and prioritize critical infrastructure projects within USACE's Civil Works portfolio. The official list of screening and prioritization results for USACE Civil Works critical infrastructure projects is transmitted annually to the Command through a memorandum issued by the Director of Contingency Operations and Homeland Security. The relative criticality ranking of USACE Civil Works critical infrastructure projects using the CTS process informs which projects should be assigned a higher priority for scheduling security risk assessments (SRAs) and detailed blast damage analyses. These projects will represent the priority in funding SRAs through the implementation of the Common Risk Model for Dams (CRM-D) methodology. The CRM-D methodology takes into account the unique features of dams and navigation locks (including hydropower plants) and provides a systematic approach for evaluating and comparing risks to terrorist threats across the Corps portfolio. The CRM-D methodology considers risk as a function of three parameters: threat – the likelihood of an attack being attempted against the target; vulnerability – the susceptibility of the target to being compromised by the attack, given that it is attempted; and consequences of the attack, if successful. The systematic quantification of risk reduction will assist USACE hydropower asset managers in measuring progress toward mitigating physical security risks to its critical facilities and justify the development of budget requirements to address these.

- The security posture will vary from project to project. The determination of the recommended steady-state security posture for USACE dams will be based on a completed CRM-D security risk assessment. The CRM-D methodology facilitates the calculation of return on investment by systematically quantifying the risk reduction effects of potential security upgrades at a project site.
- The CRM-D security risk assessments address the DoD and DA Standard 6 Vulnerability Assessments (VA) requirement for USACE Civil Works projects. These VAs, which are an integral component of the CRM-D security risk assessments, shall be defined as Tier 1 Vulnerability Assessments.
- The CIPR Program will centrally fund and host CRM-D training sessions to assist District staff in conducting the CRM-D security risk assessments.

b. Navigation Channels and Harbors—Navigation channels and harbors provide the movement of commercial goods for the world economy. The 59 coastal ports with over 10 million tons of cargo per year operated at an average middle half width channel availability of 30% to 35%. This restriction results in tidal delays for import/exports and missed opportunities. A concentrated effort to improve the channel half-width availability will commence with a deliberate tracking program implemented to illustrate successful investment.

(1) Condition Assessment. Asset Management principles provide a uniform condition assessment of each component. The predicted condition of the component is a critical factor in determining the risk of unscheduled closures. Channel condition is determined from the latest hydrographic surveys or published hydrographic survey reports and projected to the end of BY-1 based on historical information. The condition level is determined from TABLE F-7 below. The Channel Availability Percentage refers to the amount of time the channel is available/needed at maintained depths. Does not include channel availability due to tidal fluctuations. The percentage listed under the condition description listed below refers to the middle half channel availability that would occur just prior to receiving the BY funding increment. Illustration F.2 defines the four sections of a channel where shoaling can occur and is used to differentiate the critical need for dredging versus dredging for the ideal conditions. "Half Channel Availability" in Table F-7 refers to having the area between the two quarter points as shown in Illustration F.2 available for vessel passage. Tables together form the basis of the "Relative Risk" based

methodology which supports the Corps risk-informed direction for making investment decisions and provide the information to populate TABLE F-3, Navigation Relative Risk Ranking Matrix. The "Relative Risk Ranking" values are determined from TABLE F-3 using both the "Probability/Condition" classification and the "Consequence/Economic Impact" category values established for each project or budget item; Matrix values will be used in making informed and wise investments, minimizing risk and providing maximized benefits to the public

TABLE F-7		
Navigation Channels and Harbors Condition Classification		
Condition Classification		Condition 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

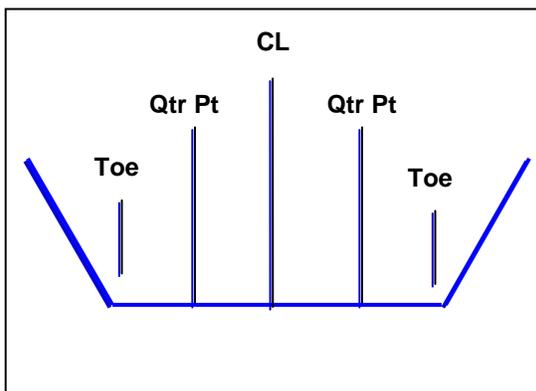
(2) Condition Assessment. Consequences of diminished Navigation feature performance. These are computed for each budget work package that could result in diminished channel depth and/or width. Each consequence or economic impact listed below is independent of each other. For a work package to qualify for a particular consequence level it only has to satisfy one of the listed consequences. Energy distribution facilities refer to harbors that serve as principal import/export ports of coal, natural gas, and other products required to produce energy. Life Safety Impacts include impacts to subsistence harbors and critical harbors of refuge. Harbors of refuge are defined by Section 175.400 of Title 46 (Shipping), Chapter I (Coast Guard) of the Code of Federal Regulations to mean "a port, inlet or other body of water normally sheltered from heavy seas by land and in which a vessel can navigate and safely moor." Communities that depend on their harbor for economic survival because they provide the principal means of receiving essential goods and services because there is no practical alternative means of delivery; i.e. no roads, are known as having "Subsistence Harbors". For work packages that fit into more than one consequence level, choose the consequence level that most closely fits the work package. The consequence level is determined by TABLE F-8.

TABLE F-8	
Navigation Channels and Harbors Consequence/Economic Impact Category	
Consequence Category	Consequence Rating Criteria
1	Demonstrated ¹ highest economic impact or >10 million Tons Imminent life safety impact Court Decree Mandated Action (to include environmental) DoD Strategic Ports Shut down of Energy Distribution Facilities with no alternate modes of transportation
2	Demonstrated ¹ high economic impact or 5 - 10 million Tons Probable life safety impact Alternate modes of transportation exist for Energy Distribution Facilities, but at a higher cost than water borne transportation
3	Demonstrated ¹ moderate economic impact or 1 - 5 million Tons Possible life safety impact
4	Low economic impact ¹ or <1 million Tons No life safety impact
5	Negligible economics (Recreation Harbors, No commercial Activity) No life safety impact.

¹ Thresholds and basis for economic impact are under development. One measure of economic impact can be demonstrated using rate savings benefits, transportation cost savings, or damages avoided.

ILLUSTRATION F.2

Channel Availability



c. Coastal Navigation Structures (CNS) consist of jetties, breakwaters, and training works that protect coastal navigation channels. Between FY 11 and FY 13, Asset Management developed and deployed the CNS Tier 1 District Condition Assessment process and companion Administrative Tool. All existing condition CNS ratings and supporting information must be entered directly into the CNS Tier 1 District

Condition Assessment Tool by the Districts. All rating values, except for the Relative Risk Ranking Matrix values (Table F-3 and F-4), must also be manually entered in CWIFD by the District from the CNS Tier 1 District Condition Assessment Tool (CNS Tier 1 Tool) into CWIFD. The assigned ratings and supporting information, submitted through the CNS Tier 1 Tool and CWIFD, will be reviewed for completeness and for technical consistency by the Regional Asset Manager (RAM) and a national CNS Asset Management (CNSAM) QA/QC Team.

(1) All ratings entered into the CNS Tier 1 Tool will be based on existing conditions.

(2) The Tier 1 effort identifies the structures that pose the greatest threat to national navigation needs. To accomplish this, the CNS Tier 1 Tool has been developed to ensure all structures are identified, and to record the structural condition and functional condition of each structure. This tool requires CAC registration and may be accessed at <https://assetmanagement.usace.army.mil/tools/> (Bottom of Navigation column, expand "Coastal" header to access "Tier 1 Screening" weblink).

(3) A senior coastal engineer in cooperation with a field inspector and a navigation project Operations Manager must edit the CNS Tier 1 Tool; updating all required information. The District should review the list of projects and structures for completeness and accuracy, and edit if necessary. CNS Tier 1 data required for all projects includes:-Structure Type, Structural Condition Rating (SCR) (TABLE F-9), Functional Condition Rating (FCR) (TABLE F-10), Subjective Risk Assessment (TABLE F-13), Consequence/Economic Impact Rating (Table F-12), Primary Authorized Purpose, CWIS number, Latitude, and Longitude of project. If available, P2 and FEM number(s) should also be inserted. For all structures with an SCR of D or F AND an FCR of C, D or F, the District staff are required to identify and include supporting information in the CNS Tier 1 Tool, using the dropdown "Show/Modify Remarks" dialog boxes. If the District has already received approval and funding for repair of a CNS, they are required to acknowledge this and describe the type/extent of planned or in-progress repair(s) in the "District Comments" column of Tool. Component conditions should be assessed by a review of surveys, inspection reports, on-site reviews, rating criteria, and operation and maintenance records (when available). Assessments must be conducted as a cooperative effort between Engineering and Operations personnel. District Condition Rating (DCR) (Table F-11) is auto-populated in the CNS Tier 1 Tool. Data from CNS Tier 1 Tool can be exported to Excel and provided to Programs for copying into CWIFD.

(4) The CNS Structural (Table F-9) and Functional (Table F-10) condition ratings are combined in a 5x5 matrix using Table F-11 to develop a District Condition Rating (DCR). The DCR for existing condition is auto-populated in the CNS Tier 1 Tool. Consequences, of diminished CNS feature performance, are based on criteria defined in TABLE F-12. Subjective Risk Assessment (TABLE F-13) is a District estimate of the risk of future degradation of the structure during the next two (2) years. The District must explain any expected change in condition and the expected incremental change, as represented by Subjective Risk Assessment in the "District Comments" column of the CNS Tier 1 Tool.

(5) To maintain consistency with the current Budget process, the District Condition Rating (TABLE F-11) is used to determine the "Condition Classification" axis of the Relative Risk Values Matrix (TABLE F-3). District Condition Rating (Table F-11) for a structure's existing condition should be entered into Table F-15 as the PRIOR-CONDITION ASSESSMENT CLASS (35). A with BY request estimate of DCR should be entered into Table F-15 as the WITH PY REQUEST-CONDITION ASSESSMENT CLASS (42).

(6) Consequences (TABLE F-12), are used to complete the "Consequences/Economic Impact" axis of TABLE F-3. Consequences (Table F-12) for a structure's existing condition should be entered into Table F-15 as the PRIOR-CONSEQUENCE CATEGORY (37). A with BY request estimate of Consequences should be entered into Table F-15 as the WITH PY REQUEST-CONSEQUENCE CATEGORY (44).

All Condition and Consequence ratings must be manually copied from the CNS Tier 1 Tool into CWIFD using the appropriate Navigation Budget Ranking Criteria – Submission Matrix columns. Values will NOT auto-populate in CWIFD. To ensure consistency between the CNS Tier 1 Tool and CWIFD, for CNS only, all "PRIOR" (Prior to PY) data elements will be defined based on existing condition All "WITH PY

REQUEST” data elements will be estimated assuming the PY budget work package is funded and the existing condition rating(s) is/are adjusted accordingly. CNS Tier 1 Tool only requires “existing condition” related input. CWIFD requires both “existing condition” and “WITH PY REQUEST” related inputs.

(7) As part of the continuing development of the CNS AM process, future CNS Operational Condition Assessments / Operational Risk Assessments (OCAs/ORAs) will be prioritized using the condition analysis, from the Tier 1 Structural and Functional Condition Ratings, in combination with consequences using the ERDC Coastal Structures Management, Analysis, and Ranking Tool (CSMART) to rank the coastal navigation structures in terms of those with the greatest risk. Metrics include, but are not limited to, total annual commercial tonnage, annual commercial fish landings, cruise and ferry passengers, and project classifications such as Harbor of Refuge and Subsistence Harbor. An ERDC Technical Note describing the data sources and ranking methodology used by CSMART in more detail is available at <http://chl.erdcl.usace.army.mil/library/publications/chetn/pdf/chetn-iii-80.pdf>.

TABLE F-9 Coastal Navigation Structures Structural Condition Rating (SCR) Table	
Insignificant damage or defects – A	<p><u>1. There is no evidence that the structure has a critical design flaw or has been significantly damaged.</u></p> <p>Only small areas of the structure show signs of deterioration, which is considered to be insignificant. 2. Loss or deterioration of any material composing the structure is limited to very few units. 3. There is no change in the geometry of the structure. There are no apparent areas of settlement or displacements of the structure's alignment and slopes. The head, the root, and any corner or spurs of the structure show no change. 4. There is no exposure of any other critical material or elements of the structure. 5. The foundation of the structure is sound and there is no evidence of scour or loss of supporting substrate around the base of the structure.</p>
Minor damage or defects - B	<p><u>1. Deterioration is visible but the structure appears to be sound and repairs are not indicated.</u></p> <p>Minor deterioration is noted over small areas of the structure. 2. In deteriorated areas, less than approximately 10% of the of any material composing the structure shows signs of deterioration, and less than approximately 10% of any type of the material composing the structure has been lost. 3. The geometry of the structure shows limited change. The crest elevation may have been reduced by less than 10% of the structure's above MLLW profile, and the crest width may have slightly decreased. Minor displacement of the structure's alignment and side slopes is evident. The head root, and corners or spurs of the structure show no more change than other sections of the structure. 4. The noted deterioration does not expose any other critical materials composing the structure. 5. Foundations components are sound but slight scour may exist near the toe of the structure.</p>
Moderated damage or defects—C	<p><u>1. The structure is showing deterioration that may require repair in the near future.</u></p> <p>2. Moderate deterioration of materials is noted over many areas of the structure. A moderate amount (10-20%) of materials composing the structure shows signs of deterioration, and a moderate amount (10 - 20%) of any material composing the structure has been lost. 3. The geometry of the structure is showing significant change in some areas. The structure's cross section is losing crest elevation and/ or crest width. Some areas of the structure may have settled, collapsed, or eroded to an extent that other portions of the structure are exposed or left unsupported. In the damaged area, the above MLLW cross sectional profile area may be reduced by 20 to 50%. The crest width may reduce up to 1/3 of its original width at the elevation of the original crest, but repairs would be possible by replacing a few armor units. A moderate amount of displacement in the structure's alignment and slopes is present (often as a result of lost or slumping material on one side of the structure causing the centerline of the structure to shift or due to units sliding down the side slopes). Bridging of armor stones may also be occurring. The extent of these displacements renders the structures stability to be vulnerable. The head(s) may have receded by 10-20 % of its original length. The root is still firmly attached to the shore, but scour or flanking may exist at the trailing end of the structure. Corners or spurs of the structure may have slightly greater damage than the rest of the structure. 4. In the deteriorated regions, minor amounts of other critical materials composing the structure are now exposed but there is no evidence of the exposed material being lost or damaged. 5. Foundation components of the structure may be starting to show deterioration by changing in shape or movement of the base material or by corrosion. Evidence of scour at the toe of the structure or under the structure is present.</p>
	<p><u>1. An extensive portion of the structure has deteriorated to a condition that repairs are indicated.</u></p>

<p style="text-align: center;">Seriously Degraded -- D</p>	<p>2. Deterioration of materials is noted over a significant area of the structure. A significant amount (20-40%) of materials composing the structure shows signs of deterioration, and a significant amount (20-40%) of any material composing the structure has been lost. 3. The geometry of the structure is significantly changed. The above MLLW cross-section profile area may have been reduced to >50% of its original above MLLW profile. Some area of the structure have settled, collapsed or eroded to an extent that, in the damaged area, no portion of the crest is still located at the original elevation and the resulting crest has lost 70% of the above MLLW crest elevation (crest elevation is at MLLW or a few feet above MLLW). A significant amount of displacement in the structure's alignment and slopes is present. Bridging of stones is likely. Sliding of the armor units may be present as well as displacement of the armor units. The head(s) has receded by 20-40% of its original length. The root is still attached but flanking of the tail occurs for about 1/3 the length of the trailing end. The extent of these displacements renders the structure unstable. 4. Deterioration exposes significant amount of other critical materials composing the structure and there is evidence that under layer material and substructure components are being damaged or lost. 5. The foundation could exhibit failure modes over short distances (100 ft) to include scour and erosion around the toe and under the structure, lost substrate material, major subsidence, reduced thicknesses or diameters by approximately 15% for support members, and buckling or failure of piles.</p>
<p style="text-align: center;">Completely Degraded -- F</p>	<p><u>1. General failure with extensive deterioration indicates repair is needed for a major section of the structure.</u></p> <p>2. More than 50% of materials composing the structure show signs of extreme deterioration, and more than 40% of any material composing the structure has been lost. 3. The geometry of the structure clearly shows that much of the structure is lost or severely damaged. Significant lengths (>300 ft) of the structure have settled, collapsed, or eroded to an extent that the expected crest elevation has been reduced to at or below the MLLW level. The structure appears to be a pile of armor stones or units rather than an engineered structure. The structure may flex or structural material may be mobile under hydrodynamic forces. An extreme amount of displacement in the structure's alignment and slopes is present. The extent of the displacement renders the structure critically unstable. 4. The deterioration exposes significant amounts of other critical materials composing the structure, and there is evidence that under layer material and substructure components are being damaged or lost over long (>300ft) sections of the structure. 5. There is evidence that the underwater portions of the structure are severely degraded over long sections (>300 ft) of the structure. The foundation could exhibit failure modes over long distances (>300 ft) to include scour and erosion around the toe and under the structure, lost substrate material, major subsidence, reduced thicknesses or diameters by approximately 25% for support members, and buckling or failure of piles.</p>

Level of Functionality	<p style="text-align: center;">TABLE F-10 Coastal Navigation Structures Functional Condition Rating (FCR) Table</p>
Full -- A	No notable impact, project performing as designed.
Sufficient -- B	(1) Infrequent or periodic limitations on navigability, or (2) minor/periodic increases in dredge quantity
Reduced -- C	(1) Less than 10% of the time, design vessels cannot navigate or operate within authorized limits; (2) O&M dredging requirements in the Entrance and Bar Channel have increased less than 10%, as compared to the long-term average annual rate.
Severely Degraded -- D	(1) 10-20% of the time, design vessels cannot navigate or operate within authorized limits; (2) O&M dredging requirements in the Entrance and Bar Channel have increased 10-20%, as compared to the long-term average annual rate.
Completely Degraded -- F	(1)-20-40% of the time, design vessels cannot navigate or operate within authorized limits; (2) O&M dredging requirements in the Entrance and Bar Channel have 20-40%, as compared to the long-term average annual rate.

TABLE F-11
Coastal Navigation Structures Matrix for District Condition Rating

Structural Condition Rating (SCR)

Functionality Condition Rating (FCR)		F	D	C	B	A
	F	F*	F*	F	F	F
	D	F*	D*	D	D	D
	C	D*	D*	C	C	C
	B	D	C	B	B	B
	A	C	B	B	A	A

* Additional information is required – submit using dropdown “Show/Modify Remarks” dialog box in CNS Tier 1 District Condition Assessment Tool. This table applies a heavier weighting to the FCR value than to the SCR value in combining the two ratings, to determine a combined value or District Combined Rating (DCR), thus valuing the function of navigation over the structural integrity of the structure.

**TABLE F-12
Coastal Navigation Structures
Consequence/Economic Impact Category**

Consequence Category	Consequence Rating Criteria
I	<ol style="list-style-type: none"> 1. Demonstrated highest economic impact¹ 2. Imminent life safety impact 3. Critical to safe navigation by commercial vessels at High Use Navigation Project (>10 million tons) 4. Critical to safe navigation at DoD Strategic Ports
II	<ol style="list-style-type: none"> 1. Demonstrated High economic impact¹ 2. Probable life safety impact. 3. Probable impacts to subsistence harbors/critical harbors of refuge. 4. High economic loss (5 - 10 million Tons) 5. Alternate modes of transportation exist for Energy Distribution Facilities, but at a higher cost than waterborne transportation
III	<ol style="list-style-type: none"> 1. Demonstrated Moderate economic impact¹ 2. Possible life safety impact. 3. Possible impacts to subsistence harbors/critical harbors of refuge. 4. Moderate economic loss (1 – 5 million Tons)
IV	<ol style="list-style-type: none"> 1. Low economic impact¹. 2. Little impacts to subsistence harbors/critical harbors of refuge. 3. Low economic impact (<1 million Tons) 4. No life safety impact
V	<ol style="list-style-type: none"> 1. Negligible economic impact. No impacts to subsistence harbors/harbors of refuge. 2. Negligible economics (Recreation Harbors, No commercial Activity) 3. No life safety impact.

¹ Thresholds and basis for economic impact are under development. One measure of economic impact can be demonstrated using rate savings benefit, transportation cost savings, or damages avoided.

TABLE F-13 Coastal Navigation Structures Subjective Risk Assessment	
Rating	Risk Scale (%)*
1	0-10
2	11-30
3	31-50
4	51-70
5	71-100

* Percent chance that one or more of the following will occur in next two (2) years (rating should not address performance issues associated with design deficiencies):

- (1) Functional Condition Rating Only decreases to D or F,
- (2) Exposure of Core or Foundation component(s) that would result in accelerated degradation.

h. Bridges. See Sub-Annex III-2 for guidance.

F-9. Asset Based Budget. In order to further development of the USACE asset management program, the BY Budget will:

a. link operation and maintenance costs to major assets using the constructed asset's Feature Codes. Two columns were added for the FY 11 Budget submission to the Business Line spreadsheets to link the work packages with constructed assets. Column 8, Primary Feature Code, should be populated with the Feature Code for the major constructed asset that the budget work package supports. Column 9, Additional Feature Codes, would list additional Feature Codes associated with other real property assets that the work package will address. These will typically be associated with operations and "little m" maintenance.

b. Use a Facilities and Equipment Maintenance Work Order Number.

(1) USACE has begun an Asset Management Program that is described in SECTION 1, paragraph 6. i. and 6. j. and in SECTION 2, paragraph 3. of this EC. As part of this program, a Facilities and Equipment Maintenance Work Order Number (FEM WON) has been established.

(2) A FEM WON is an alpha-numeric field from the FEM (Facilities and Equipment Maintenance) program that is a unique identifier connecting the budget work package to the budget execution system.

(3) A FEM WON is required for all non-routine maintenance budget work packages in CWIFD in increments 2 thru 9 (for all BLs and above) and should be assigned at the appropriate asset level. **Note that a new column (#13) has been established in CWIFD for entering the FEM WON.** Selection of the specific work order numbering schema is at the discretion of the activity submitting the budget work package.

(4) Additionally, it is **required** that in FEM the Work Order:

(a) Description should mirror the work package description and be preceded by "FY15 NRWP."

(b) The FEM work order long description field should contain exactly the same information as the budget work package description

(c) Type should be "NRWP," Non-routine Work Package and

(d) The Command Work Type should be Deferred Maintenance (DM).

(5) For budget work packages that cover more than one project site (i.e., are "bundled") a parent FEM WO shall be created that conforms to the above requirements and specifies as Work Order Site the parent location of the bundled work package. Parent locations of bundled work packages do not need to be associated with specific assets, and are typically at the District level.

(6) Each project site shall create a specific FEM WO assigned at the appropriate asset level that reflects their portion of the bundled work package and conforms to the requirements above. These specific work orders shall be linked to the parent FEM WO using the 'Related Records' tab on the parent WO.

F-10. Special Considerations or Special Rating Criteria.

a. Funding for minimum fleet dredges follows the dredge. If the requirements for the minimum fleet dredge do not materialize, the funds programmed for the dredge will be reprogrammed to other minimum fleet dredging requirements.

b. Rehabilitation Construction will be included as unique line items in the Construction account.

c. Rehabilitation studies will be included as unique line items, not hidden in a general Operation line item for the parent project, marked with the appropriate Phase and Activity codes.

d. Dredged Material Disposal Facilities (DMDFs) will be included as unique line items in Construction, with the appropriate Phase, Activity, and Category/Class/Subclass (CCS) codes. If the Program Name for the DMDF is not the same as the Program Name for the project(s) the DMDFs serve, the Program Name of the project(s) served by the DMDF shall be included in the Project Description column of the DMDF work package. The work package for the O&M project served by the DMDF shall include a statement in the Remarks column stating the need for the DMDF. These items migrated to O&M from Construction in the FY 07 cycle and migrated from O&M back to Construction for FY 11 and need to remain identifiable.

e. Sand Mitigation Projects will be included as unique line items in Construction, with appropriate Phase, Activity, and CCS codes. These items migrated to O&M from Construction in the FY 07 cycle and migrated from O&M back to Construction for FY 11 and need to remain identifiable.

f. Ecosystem Restoration projects in part or in whole previously budgeted in the Ecosystem Restoration Business Line for Construction were moved to O&M in FY 07. These projects migrated back to Construction for FY 11 and will be budgeted in the Ecosystem Restoration Construction Account for the BY.

g. If projects are linked to other projects and execution of a work package for one project requires funding of a work package for another project, either within the Navigation business line or within another business line, or if a project has associated work in multiple appropriations, a statement shall be included in the remarks column indicating the association with the corresponding work package in the other business line or appropriation. For instance, if a work package for dredging project A is requested in the Navigation business line relies on funding a work package for the dredged material placement area, beneficial use site, or tipping fee budgeted in a different appropriation or business line, both work packages would have

comments in the Remarks column indicating that the two work packages are linked and both must be funded.

h. Work for advancement of LRRs, GRRs, and other authorized project reformulation study efforts undertaken on authorized projects in the construction and investigations account must be budgeted and prioritized as **separate BL/account work packages in CWIFD** with a Phase Activity Code of "LR" (LRRs), "GR" (GRRs) or "RR" (other decision documents such as reformulation documents).

F-11. Ten Year Development Plans.

a. Each year the navigation asset condition assessments will be reviewed and updated to reflect work accomplished and changes to condition and therefore priority. For inland river systems a prioritized maintenance list will be developed. For example, based on funding assumptions if only Increments 1 and 2 are funded. Districts, MSC's and HQ will be able to establish O& M program glide paths. See Paragraph 11 of the Main part of this EC. Similar process will be developed for the coastal ports and harbors and will be better defined when channel condition assessment criteria are finalized for use in the BY+1 budget development process.

b. End State Performance target: For all navigation channels the goal is to attain and maintain channel availability at the justified level of service for the target years. For inland navigation the goal is to halt the trend of increasing navigation lock outages and maintain lock availability at the FY 01-02 baseline level on a national basis.

c. Ongoing Construction funded efforts will be a consideration in overall funding, however a similar backlog of work in this program is anticipated beyond the FY 17 5-year horizon.

F-12. Definitions. The following definitions refer to the O&M criteria.

a. High-Use Projects – those deep and shallow draft coastal navigation projects with 10 million tons or greater, and those waterways with three billion ton-miles or greater, based on the latest five-year average waterborne commerce statistics.

b. Moderate-Use Projects – those deep and shallow draft coastal navigation projects with one to 10 million tons, and those waterways with one to three billion ton-miles, based on the latest five-year average waterborne commerce statistics.

c. Low-Use Projects – those deep and shallow draft coastal navigation projects with less than one million tons, and those waterways with less than one billion ton-miles, based on the latest five-year average waterborne commerce statistics.

d. Project Condition Surveys (PCS) – those hydrographic surveys needed to determine the budget year conditions of projects in caretaker status or that are not funded separately in the BY. This work does not include testing, sampling or any other activity that should be included in a specific project funded budget package. The PCS items will be by state and will indicate the total number of projects that could be surveyed and the number of projects that will be performed as part of the line item. All PCS will not be included in a single line item.

e. Water/Environmental Certification – those activities needed to acquire certification in the BY to allow dredging to proceed that are not funded separately in the BY. This work does not include any activity that should be included in a specific project funded budget package. The Certification items will be by state and will indicate the total number of projects that could be certified and the number of certifications that will be performed as part of the line item. This will be handled like the PCS line items. All Certifications will not be included in a single line item.

f. Subsistence Harbors – those harbors that are dependent upon the navigation project as their principal means of receiving goods and services, and for which alternative means of delivery are not practicable. i.e. no roads to the community. An example would be Tangier Island off the coast of Virginia or small Corps projects in Alaska and Hawaii. This does not include point of origin harbors.

g. Critical Harbors of Refuge – those harbors that offer safe haven to boaters that represent the sole site for protection based on public safety. Authorization or designation as a Harbor of Refuge does not automatically make a harbor critical. The criticality of the harbor will be categorized based on the following criteria and listed in TABLE F-15 – Navigation Budget Ranking Criteria – Submission Matrix.

Category 1 – Critical

1. Presence of USCG S&R Station and Commercial Fishing Fleet with nearest Harbor of Refuge located greater than 50 miles away, or
2. Nearest Harbor of Refuge is located greater than 100 miles away.

Category 2 – High

1. Presence of USCG S&R Station and Commercial Fishing Fleet with nearest Harbor of Refuge located greater than 35 but less than or equal to 50 miles away.

Category 3 – Medium

1. Presence of USCG S&R Station, or
2. Presence of Commercial Fishing Fleet and nearest Harbor of Refuge located greater than 35 but less than or equal to 100 miles away.

Category 4 – Low

1. Presence of Commercial Fishing Fleet and nearest Harbor of Refuge located greater than 20 but less than or equal to 35 miles away.

Category 5 – Acknowledged

1. Nearest Harbor of Refuge is located greater than 50 but less than or equal to 100 miles away.

h. Caretaker Activities – There are navigation systems and projects that will not be funded. Some minimal level of funding will be required to place these projects in a caretaker mode. We should address concern for the public's health and safety, environmental impacts resulting from full cessation of operations and how best to address them, review legal requirements placed on that project and ensure that litigation issues are addressed in a caretaker plan, review any unintended consequences on other waterways, and establish a communication plan to include messages, FAQ, roll out strategy, web site information, and draft media release. Caretaker status is an extremely low level of funding for minimal effort.

i. Critical Infrastructure: Critical infrastructure refers to those systems and assets, whether physical or virtual, so vital that the incapacity or destruction of such may have a debilitating impact on the security, economy, public health or safety, environment, or any combination of these matters, across any Federal, State, regional, territorial, or local jurisdiction (USA Patriot Act of 2001). Well functioning infrastructure systems are vital to the nation's prosperity and well-being. Critical infrastructure must be planned, funded, designed, constructed, and operated as a system that is appropriately integrated with all other interdependent systems. Critical infrastructure systems must also be resilient and sustainable throughout the system's life cycle. The systems must be properly maintained, operated, and modified, as necessary, to perform effectively under changing conditions.

F-13. Low-Use Commercial Navigation Projects.

a. There are two performance indicators that flag work as Low-Use navigation features. These are: (1) Waterway project has less than one billion ton-miles of commercial cargo annually and (2) harbor projects have less than one million tons of commercial cargo annually. Activities meeting criterion (1) will be included as a low-use waterway segment, and activities meeting criterion (2) will be included as a low-use harbor channel. Use the additional performance criteria provided in TABLE F-14 for assisting in the evaluation of activities and projects.

b. Navigation System Funding Needs. See the discussion for O&M Systems in Annex III (O&M). Operation and Maintenance projects including Navigation projects will be combined in systems. For example, the South Oregon Coast Ports will be combined as appropriate in the Pacific Northwest System (PNW). The linkage of individual projects in a systems evaluation must be done in a rational way. This is not a gambit to get additional funds for projects that do not merit it.

TABLE F-14
Low-Use Channels and Waterways Screens and Indicators
per Project or Waterway

	SCREEN	SCREEN	Indicators	Indicators	Indicators	Indicators	Indicators
	Minimum						
Low-Use Coastal Nav channels	<1 million tons	5-Year Avg cost per ton	Supports Public Transportation	Public Health and Safety	BCR, caretaker	Results of investment	Commercial fishery outputs
Low-Use Inland Waterway segments	< 1 billion ton-miles	5-Year Avg cost per ton	Multipurpose Values	Public Health and Safety	BCR, Caretaker	Investment Issues	

Low-Use Harbor Channels Minimum:

- Supports public transportation (ferries, tour boats);
- Ensures boater safety (inlet dredging to reduce breaking wave hazards);
- Project costs yield outputs/benefits exceeding costs;
- Purpose should reflect results of investment (the "So what?").
- Supports some commercial fishery output;

Low-Use Waterway Segments Minimum:

- Compute BCR based on transportation savings (average tons per year table);
- Supports other business line purposes (Flood Risk Management, Hydropower, Recreation, Environmental, Water Supply, etc.);
- Port investment status (recent or planned port expansion/investments);
- Commercial tonnage trends upward;
- Ensures basic public health and safety;
- Caretaker costs for non-budgeted segments.

F-14. Joint Costs. See Sub-Annex III-2 for Joint Activities - Joint Costs. All Joint costs will be submitted in CWIFD under the Hydropower Business Line. The appropriate share of Joint Cost work packages will be distributed to the appropriate business lines once the budget submission is uploaded for HQUSACE review and prioritization.

F-15. Watershed Studies. Watershed studies are multi-objective/multipurpose and encompass a relatively large geographic area. As a minimum, the study area must encompass the region of an 8 digit HUC. Following the reconnaissance study, a study may proceed as a watershed assessment using 75-25 cost-sharing (leading to a watershed management plan) in accordance with Sec. 729 or as a feasibility study accomplished in a watershed context in accordance with the standard feasibility study process and 50-50 cost-sharing when implementation of a Corps project is anticipated.

The key attributes of a watershed assessment, leading to a watershed management plan are as follows:

a. The study results in the identification of a combination of recommended actions (a Watershed Management Plan) to be undertaken by various partners and stakeholders in order to achieve local, tribal, regional, and national water resources management goals identified in the study and may or may not identify further budgetable Corps studies or implementation projects. The plans will be multi-objective and multi-purpose.

b. Team thinking about water resources development and management in the context of multiple purposes rather than single purposes is required. This facilitates the search for comprehensive and integrated solutions to a variety of issues.

c. The study provides a means for improving opportunities for public and private groups to identify and achieve common goals by unifying on-going and future efforts.

d. Leveraging resources, including cost shared collaboration, and integrating programs and activities within and among Civil Works programs, and with other Federal, tribal state and non-governmental organizations, are critical factors.

F-16. Navigation Criteria Matrix – TABLE F-15. Below are the data elements and definitions for the embedded Navigation Criteria Matrix (Excel worksheet).

a. Note that dollar amounts should be in thousands (\$000), EXCEPT the columns for BUDGET REQUEST - FED and BUDGET REQUEST - IWTF. Waterborne Commerce data should also be in thousands, but this data are already rounded to thousands in OMBIL and Waterborne Commerce data sources.

b. Unique Entries. Fields marked with an * are expected to be different for each increment amount. It would be expected that additional funds would show improvement in appropriate performance indicators. Other items would be the same for the same CWIS numbers *and hopefully will populate automatically*.

c. Criteria Matrix Data Elements and Definitions.

Col #. Column Title: Definition.

(1) thru (32) are common elements for all business lines and all accounts. The description and definitions of the common elements can be found in the Glossary at the end of this EC.

(33) CURRENT BUDGET – IWTF: IWTF amount.

(34) BUDGET REQUEST - IWTF*: The Inland Waterways Trust Fund amount requested for this increment; for C the sum of all Federal (Corps) and IWTF increments for this CWIS will be its capability. Each increment should provide measurable positive contributions to the applicable business line performance measures. Amount should be full dollar amount rounded to nearest thousand.

(35) PRIOR - CONDITION ASSESSMENT CLASS*: The condition assessment (A, B, C, D or F) of the budget item, based on risk assessment analysis, at the time of or just prior to BY budget year. Reference the Relative Risk Index Matrix and Condition Classification Guidelines in the business line

budget EC Appendix, see applicable Tables in Para. F-9, output from OCA Workbook for inland and navigation structures, or Sub-Annex III-2 for bridges.

(36) PRIOR – RELATIVE CONDITION CLASSIFICATION VALUE: for inland and navigation structures this value will come from the OCA workbook and is a function of the above condition class and the related component importance factors developed by the national risk PDT.

(37) PRIOR – CONSEQUENCE CATEGORY*: The consequence assessment (I, II, III, IV or V) of the budget item, based on risk assessment analysis, at the time of or just prior to BY budget year. Reference the Relative Risk Index Matrix and the Consequence/Economic Impact Rating Criteria in the business line budget EC Appendix, see applicable Tables in Para. F-9, output from OCA Workbook for inland navigation, or Sub-Annex III-2 for bridges.

(38) PRIOR – RELATIVE ANNUAL ECONOMIC IMPACT VALUE (NATIONAL): for inland and navigation structures this value will come from the OCA workbook and is a normalized function of the economic closure costs as related to the entire IMTS and the probability of failure for the respective components. This value represents only the annual benefits.

(39) PRIOR – RELATIVE ANNUAL ECONOMIC IMPACT VALUE (RIVER SYSTEM): for inland and navigation structures this value will come from the OCA workbook and is a normalized function of the economic closure costs as related to the specific river system and the probability of failure for the respective components. This value represents only the annual benefits.

(40) PRIOR - RELATIVE RISK VALUE (1-25)*: The value (1-25) obtained from the Relative Risk Values table in the business line budget EC Appendix after applying the prior Condition Classification and Consequence/Economic Impact assessment values. This value will be generated automatically in CWIFD. See Paragraph F-9, output from OCA Workbook for inland and navigation structures, or Sub-Annex III-2 for bridges.

(41) PRIOR – RELATIVE RISK MATRIX INDEX (1-5)*: The value (1-5) obtained from the Relative Risk Matrix in the business line budget EC Appendix after applying the prior Condition Classification and Consequence/Economic Impact assessment values. This value will be generated automatically in CWIFD. See Paragraph F-9, output from OCA Workbook for inland and navigation structures, or Sub-Annex III-2 for bridges.

(42) WITH BY REQUEST – CONDITION ASSESSMENT CLASS*: The condition assessment (A, B, C, D or F) that is anticipated or estimated for the budget item assuming the BY budget work package is funded. Reference the Condition Classification Guidelines in the business line budget EC Appendix, see applicable Tables in Paragraph F-9, output from OCA Workbook for inland and navigation structures, or Sub-Annex III-2 for bridges.

(43) WITH BY REQUEST - RELATIVE CONDITION CLASSIFICATION VALUE: for inland and navigation structures this value will come from the OCA workbook and is a function of the above condition class and the related component importance factors developed by the national risk PDT.

(44) WITH BY REQUEST – CONSEQUENCE CATEGORY*: The consequence assessment (I, II, III, IV or V) that is anticipated or estimated for the budget item assuming the BY budget work package is funded. Reference the Consequence/Economic Impact Rating Criteria in the business line budget EC Appendix, see applicable Tables in Paragraph F-9, output from OCA Workbook for inland and navigation structures, or Sub-Annex III-2 for bridges.

(45) WITH BY REQUEST – RELATIVE ANNUAL ECONOMIC IMPACT VALUE (NATIONAL): for inland and navigation structures this value will come from the OCA workbook and is a normalized function of the economic closure costs as related to the entire IMTS and the probability of failure for the respective

components that is anticipated or estimated for the budget item assuming the BY budget work package is funded. This value represents only the annual benefits.

(46) WITH BY REQUEST – RELATIVE ANNUAL ECONOMIC IMPACT VALUE (RIVER SYSTEM): for inland and navigation structures this value will come from the OCA workbook and is a normalized function of the economic closure costs as related to the specific river system and the probability of failure for the respective components that is anticipated or estimated for the budget item assuming the BY budget work package is funded. This value represents only the annual benefits.

(47) WITH BY REQUEST – RELATIVE RISK VALUE (1-25)*: The value (1-25) obtained from the Relative Risk Values table in the business line budget EC Appendix after assuming the BY budget work package is funded and the anticipated or estimated Condition Classification and Consequence/Economic Impact assessment values are applied. This value will be generated automatically in CWIFD. See Paragraph F-9, output from OCA Workbook for inland and navigation structures, or Sub-Annex III-2 for bridges.

(48) WITH BY REQUEST – RELATIVE RISK MATRIX INDEX (1-5)*: The value (1-5) obtained from the Relative Risk Matrix in the business line budget EC Appendix after assuming the BY budget request is funded and the anticipated or estimated Condition Classification and Consequence/Economic Impact assessment values are applied. This value will be generated automatically in CWIFD. See Paragraph F-9, output from OCA Workbook for inland and navigation structures, or Sub-Annex III-2 for bridges.

(49) RISK REDUCTION (\$1,000's) - Value to be taken from Column CF in the Inland Navigation Budget Workbook Summary worksheet. Risk Reduction is defined as the delta between "Prior Year" and "With PY Request" for actual economic risk reduction, measured in \$ impact to industry. (Note, the economic impacts are from the PCXIN and included in the Inland Navigation Workbook calculations).

(50) INVESTMENT TO RISK REDUCTION RATIO - Value to be taken from Column CG in the Inland Navigation Budget Workbook Summary worksheet. The Risk Reduction Ratio is the Risk Reduction (\$1,000's)/Federal (Corps) Budget Request for the work package (\$1,000's)

(51) AMOUNT NEXT CONTRACT*: Required for all items in Construction. Provide the total amount of the next new contract. Enter the total value of the contract in thousands

(52) CONTINUING CONTRACT EARNING*: Required for all continuing contracts, including both "true" and "special" continuing contracts. Provide the BY earnings for all continuing contracts continuing from the previous year. This number will change as additional items are included in the budget request for an individual continuing contract. Enter NA if this line item is not a Continuing Contract.

(53) CONTINUING CONTRACT VALUE: Required for all continuing contracts including both "true" and "special" continuing contracts. Enter the total value of the contract in thousands. Enter NA if this line item is not a Continuing Contract.

(54) CONTINUING CONTRACT AMOUNT APPLIED THROUGH BY-1: Required for all continuing contracts including both "true" and "special" continuing contracts. Enter the amount in thousands. This should be zero for a continuing contract initiating in the BY. Enter NA if this line item is not a Continuing Contract.

(55) LAST YEAR BUDGETED: Enter the last fiscal year this study or project had funds included in the President's Budget. Funds must have been in the final President's Budget, not just the District's request.

(56) LAST AMOUNT BUDGETED: Enter the amount included for this study or project in the President's Budget indicated in "LAST YEAR BUDGETED" entry.

(57) LAST YEAR APPROPRIATED: Enter the last fiscal year this study or project was appropriated funds (conference report).

(58) LAST AMOUNT APPROPRIATED: Enter the appropriated amount (conference report amount) for this study or project contained in the appropriation indicated in "LAST YEAR FUNDS APPROPRIATED" entry.

(59) TOT STUDY COST: The Total Study Cost (TSC) includes the Federal and non-Federal costs of the particular Investigation phase: the total cost of each phase while in that phase for the Reconnaissance, Feasibility and PED Phases. This is also required for study activities included in Operation and Maintenance, such as Major Rehabilitation reports, DMMPs, Section 216 studies, etc.

(60) BALANCE TO COMPLETE STUDY*: The BY+1 Federal share fully funded balance to complete (BTC) the study (if in reconnaissance or feasibility) or PED. This number should vary with each work package in the budget for each specific study (the balance to complete will decrease with each successive work package). This is also required for study activities included in Operation and Maintenance, such as Major Rehabilitation reports, DMMPs, Section 216 studies, etc.

(61) TOT PROJ COST: The Total Project Cost (TPC) includes the Federal and non-Federal costs of PED and Construction. During the Reconnaissance and Feasibility Phases use the estimate being developed for use in the appropriate report (needed for order of magnitude evaluations). Subsequently, the figure is to include all Federal and non-Federal costs for PED and Construction. The cost should be consistent with the Total Project Cost.

(62) BALANCE TO COMPLETE*: The BY+1 Federal share fully funded balance to complete (BTC) the study (if in reconnaissance or feasibility), construction project or separable element, Major Maintenance or Major Rehabilitation, dredged material disposal facility, sand mitigation, or beneficial use project. BTC should be consistent with the Total Project Cost. This number should vary with each work package in the budget for each specific project (the balance to complete will decrease with each successive work package).

(63) LAST YEAR CONSTRUCTION FUNDS WILL BE REQUESTED*: Last year funds (other than O&M) will be required. This includes authorized monitoring/adaptive management funded in the construction account.

(64) FCSA Date: The actual or scheduled date of the FCSA. If increment request is to accelerate phase, this date should change from initial one.

(65) PED Date: The actual or scheduled date of the PED Agreement. If increment request is to accelerate phase, this date should change from initial one.

(66) PCA/PPA Date: The actual or scheduled date of the PCA/PPA. If increment request is to accelerate phase, this date should change from initial one.

(67) GOVERNMENT FLEET: For O&M work packages (e.g., dredging, breakwater and jetty repair, navigation lock and dam maintenance), indicate if use of the government fleet is expected. NO = no use of government fleet expected; ES=Essayons; MC=McFarland; WH=Wheeler; YA=Yaquina; CU=Currituck; MU=Murden; ME= Merritt; JA=Jadwin; GO=Goetz; PO=Potter; HU=Hurley, FI=Inland Fleet, FG = Great Lakes Fleet.

(68) HW TYPE: Navigation Activity, Harbor or Waterway Type. HSD=High Use Shallow Draft Harbor; MSD=Moderate Use Shallow Draft Harbor; LSD=Low Use Shallow Draft Harbor; HDD=High Use Deep Draft Harbor; MDD=Moderate Use Deep Draft Harbor; LDD=Low Use Deep Draft Harbor; HWW=High Use Waterway; MWW=Moderate Use Waterway, LWW=Low Use Waterway; PCS=Project Condition Surveys; RAG=Removal of Aquatic Growth; RSM=Regional Sediment Management.

(69) HMTF (Y/N): For all navigation projects, indicate if navigation costs for this project are eligible for reimbursement from the HMTF, Yes or No. Data will be entered automatically from OMBIL

(70) HW TYPE USE CODE – CARETAKER (Y/N): Use Code for Navigation Activity, Harbor or Waterway Type. Required for all projects/items that are High, Moderate or Low Use. Indicate Yes or No for Caretaker. Data will be entered automatically from OMBIL. A brief explanation should be provided in the Remarks Column.

(71) HW TYPE USE CODE – SUBSISTENCE HBR (Y/N): Use Code for Navigation Activity, Harbor or Waterway Type. Required for all projects/items that are High, Moderate or Low Use. Indicate Yes or No for Subsistence Harbor. Data will be entered automatically from OMBIL. A brief explanation should be provided in the Remarks Column.

(72) HW TYPE USE CODE – CRITICAL HBR OF REFUGE (1 thru 5): Use Code for Navigation Activity, Harbor or Waterway Type. Required for all projects/items that are High, Moderate or Low Use. Indicate Category 1 thru 5 per paragraph F-12.g - Critical Harbors of Refuge. A brief explanation should be provided in the Remarks Column.

(73) HW TYPE USE CODE – US COAST GUARD STATION AND/OR USCG CUTTER (Y/N): Use Code for Navigation Activity, Harbor or Waterway Type. Required for all projects/items. Indicate Yes or No for whether a US Coast Guard Station is located on the channel reach or if a USCG cutter is stationed at the port. Data will be entered automatically from OMBIL. A brief explanation should be provided in the Remarks Column.

(74) USCG CUTTER DRAFT (FT) – Indicates the maximum draft needed to accommodate the largest U.S. Coast Guard cutter stationed at the port. Data will be entered automatically from OMBIL.

(75) HW TYPE USE CODE – NATIONAL SECURITY (Y/N): Use Code for Navigation Activity, Harbor or Waterway Type. Required for all projects/items that are High, Moderate or Low Use. Indicate Yes or No for National Security. Use for National Defense Ports and stationing of naval, drug enforcement or customs enforcement vessels in the channel reach. Stationing of USCG vessels is covered in (73). Data will be entered automatically from OMBIL. A brief explanation should be provided in the Remarks Column.

(76) HW TYPE USE CODE – PUBLIC TRANSPOR (Y/N): Use Code for Navigation Activity, Harbor or Waterway Type. Required for all projects/items that are High, Moderate or Low Use. Indicate Yes or No for Ferry (Public) Transportation, including Water Taxis. Data will be entered automatically from OMBIL. A brief explanation should be provided in the Remarks Column.

(77) SAFETY ISSUES (Y/N): Supports a life safety function. Data will be entered automatically by OMBIL. If a non-USCG rescue vessel or station is located in the channel reach, provide agency name and details, including maximum draft required, in the Remarks column.

(78) PERSONNEL AND/OR END USER SAFETY: Supports safety impacts for Corps and Contractor personnel working on site as well as end users and customers, and aligns with DOD and Army definitions. Enter a 1 through 5 for the Safety Impact *which should correlate to 5x5 Consequence Level*:

1. Catastrophic – Imminent and immediate danger of death or permanent disability, chronic or irreversible illness, major property or resource damage.

2. Critical – Permanent partial disability, temporary total disability greater than 3 months, significant property or resource damage.

3. Significant – Hospitalized minor injury, reversible illness, period of disability of 3 months or less, loss or restricted workday accident, compensable injury or illness, minor property or resource damage.

4. Minor – First aid or minor medical treatment. Presents minimal threat to human safety and health, property, or resources, but is still in violation of a standard.

5. None – No safety impact

(79) DSAC CLASSIFICATION: Each dam safety project, assurance study or group of similar studies for the same project should be identified with the appropriate phase code and the Dam Safety Action Classification code (DSAC = 1, 2, 3, 4, 5)

(80) DAM SAFETY IMPACTS: For dam safety/seepage project - what other purposes (by Business Line) would be impacted if there was a failure. Maximum of 160 characters.

(81) LEGAL MANDATE: Special legal mandates – Enter a numeric value of 1 through 5 (see below) *which should correlate to 5x5 Consequence Level* and then describe in remarks.

1 - Federal/Statutory - United States Code (USC), Code of Federal Regulations (CFR), International Treaty, etc., including Court Decreed actions

2 - State Law - one or more state laws, including State Regulations, Rules or Administrative Law

3 - Local - Ordinances etc from local agencies, townships, counties, cities, special districts, etc.

4 - DoD/Army/USACE Regulations or Policy

5 - No legal impacts

(82) LATEST COM TON: The commercial tons for the latest available year from OMBIL (Waterborne Commerce data). Data will be entered automatically from OMBIL.

(83) 5-YR AVG COM TON: The last five-year average annual commercial tons from OMBIL (Waterborne Commerce data). Data will be entered automatically from OMBIL.

(84) LATEST SYS TON MILES: The system or trip ton-miles for the latest available year from OMBIL (Waterborne Commerce data). Data will be entered automatically from OMBIL.

(85) 5-YR AVG SYS TON MILES: The last five-year average annual system or trip ton-miles from OMBIL (Waterborne Commerce data). Data will be entered automatically from OMBIL.

(86) LATEST TON MILES: The ton-miles for the latest available year from OMBIL (Waterborne Commerce data). Data will be entered automatically from OMBIL.

(87) 5-YR AVG TON MILES: The last five-year average annual ton-miles from OMBIL (Waterborne Commerce data). Data will be entered automatically from OMBIL.

(88) 5-YR AVG O&M \$/TON: Five-year average total O&M costs divided by five-year average annual commercial tons for the same period from OMBIL for Waterborne Commerce and O&M financial data. Data will be entered automatically from OMBIL.

(89) TOTAL VALUE OF FOREIGN CARGO: Total dollar value of the foreign cargo for the project at current price levels. Available from Waterborne Commerce data. Data will be entered automatically from OMBIL.

(90) VALUE OF EXPORT CARGO: Dollar value of the export cargo for the project at current price levels. Available from Waterborne Commerce data. Data will be entered automatically from OMBIL.

(91) % TIME AVAIL*: Percentage of time project is available to perform as designed with limits from deferred maintenance, dam safety issues, etc. It would be expected that additional increment requests would show improvement in appropriate performance indicators. Explain in Remarks.

(92) BCR AT 7% RATE: The project's benefit cost ratio at 7% and current price levels.

(93) RBRCR AT 7% RATE: The project's remaining benefits - remaining costs ratio at 7% and current price levels. See Annex B for discussion.

(94) BCR – Applicable: The project's benefit cost ratio at the applicable interest rate.

(95) RBRCR – Applicable: The project's remaining benefits - remaining costs ratio at applicable rate.

(96) APPLICABLE RATE: The applicable interest rate - See the MAIN EC paragraph 14.

(97) BCR – Current: The project's benefit cost ratio at the current interest rate. See MAIN part of this EC paragraph 11.

(98) RBRCR – Current: The project's remaining benefits - remaining costs ratio at current rate. See the MAIN part of this EC, paragraph 14.

(99) Level of Economic Update: Select from: Level 1 – Reaffirmation; Level 2 – Benefit Update; Level 3 – ERR; Level 4 – GRR; Level 4 – LRR; or N/A - Not applicable.

(100) Economic Report Update Date of Approval by MSC (yyyy/mm/dd): enter date of approval by MSC.

(101) PROJECT DESCRIPTION: Main features/Navigation segment, 50 words or less. Complete sentences are not required. Maximum of 250 characters.

(102) BUDGET ITEM JUSTIFICATION*: State proposed use of the increment amount (be as specific as possible) and what the increment amount accomplishes (what are we getting for this amount of \$). Key points to be able to distinguish from other increment or other projects. For dam safety items (inspections and studies), the "Purpose" field should include what is being studied, the expected report completion date, if not completing in the BY, the additional \$ needed to complete, and estimated cost (magnitude) of the construction cost. It would be expected that additional increment requests would show improvement in appropriate performance indicators. Maximum of 160 characters.

(103) CONSEQUENCES*: What is penalty (consequence) if not funded this BY - increment amount needed to comply with safety, settlements, loss of service, structural failure, etc. It would be expected that additional increment requests would show improvement in appropriate performance indicators. Maximum of 160 characters.

(104) REMARKS*: Additional critical information to support increment amount that is not in the other fields and what is called for from other fields. Use to explain District & Division ranks, lack of data in required fields, special legal or other requirements, safety issues, HW Type use explanation, etc. Provide rationale to support funding of O&M Major Maintenance Items. Document infrastructure at significant risk to justify budget requests. It would be expected that additional increment requests would show improvement in appropriate performance indicators. For studies or projects with an N/A in any field, such as BCR and RBRCR, explain why they are not required. Maximum of 600 characters.

(105) REMARKS (CONTD)*: Additional critical information to support increment amount that does not fit in REMARKS column.

(106) OTHER PURPOSES: The other outputs provided by the project. N=Navigation; F=Flood Risk Management; H=Hydropower; E=Environmental; R=Recreation; W=Water Supply.

(107) FUNDING OF OTHER PURPOSES: Displays the budget request amounts entered for other business lines for the project. System generated, no entry required.

(108) EXTERNAL PEER REVIEW: Enter the amount in thousands included in the Budget Request – Fed that is required to fund the Federal cost of external peer review in accordance to WRDA 2007, Section 2034.

(109) WATERSHED STUDY: Is this a watershed study or project? Y or N based on criteria in this EC.

(110) WATERSHED DOCUMENTATION: If Watershed Study column is “Y”, then provide a narrative documentation of why the study is a Watershed Study (400 characters). The Phase Activity Code should be “WA”.

(111) CUMULATIVE BUDGET REQUEST FEDERAL PER PROJECT: System generated, no entry required.

(112) CPT 5-YR-AVG. ANNUAL TONNAGE AT RISK FOR DEEPEST 5 FEET: Data will be entered automatically from the Channel Portfolio Tool (CPT). The CPT tabulates the average annual tonnage over the previous 5 years utilizing the 5 deepest feet of channel depth for each channel within a project.

(113) CPT 5-YR-AVG. CARGO VALUE AT RISK FOR DEEPEST 5 FEET: Data will be entered automatically from CPT. The CPT tabulates the average annual cargo value over the previous 5 years utilizing the 5 deepest feet of channel depth for each channel within a project.

(114) CPT EXPORT TONNAGE AT RISK FOR DEEPEST 5 FEET: Data will be entered automatically from CPT. The CPT tabulates the average annual export tonnage over the previous 5 years utilizing the 5 deepest feet of channel depth for each channel within a project.

(115) CPT EXPORT CARGO VALUE AT RISK FOR DEEPEST 5 FEET: Data will be entered automatically from CPT. The CPT tabulates the average annual cargo value of exports over the previous 5 years utilizing the 5 deepest feet of channel depth for each channel within a project.

(116) CPT TOTAL ECONOMIC VALUE (TOTAL CARGO VALUE AT RISK/CUMULATIVE WORK PACKAGE AMOUNT): Data will be entered automatically from CPT. For each project, submitted work packages are sorted according to the provided MSC Rank, and a running cumulative budget request amount is tallied as one moves down this sorted list. For each submitted work package, field 105 is then divided by the running cumulative budget request amount.

(117) CPT EXPORT ECONOMIC VALUE (EXPORT CARGO VALUE AT RISK/CUMULATIVE WORK PACKAGE AMOUNT): Data will be entered automatically from CPT. For each project, submitted work packages are sorted according to the provided MSC Rank, and a running cumulative budget request amount is tallied as one moves down this sorted list. For each submitted work package, field 107 is then divided by the running cumulative budget request amount.

(118) ENVIRONMENTAL SUPPORT. Auto-populated from E-S BEST. Data entry is a code that identifies the support that an ENS work package provides to other business lines as determined by the ENS District BLM. The code is entered into the E-S BEST database and auto-populates the ENVIRONMENTAL SUPPORT column in CWIFD for review by the MSC. The codes can be found in the Glossary at the end of this EC (See: Glossary/ENS Codes).

TABLE F-15

Navigation Budget Ranking Criteria - Submission Matrix



FY16EC_TABLE F-15
working.xlsx

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