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of Engineers®**

# ENGINEERING AND CONSTRUCTION BULLETIN

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**SUBJECT:** USACE Mega Projects – Overall Project Delivery Guidance

**CATEGORY:** Directive and Policy

## 1. References:

- a. Engineering and Construction Bulletin (ECB) 2016-16, Updated USACE Mega Projects Guidance, 26 May 2016
- b. ECB 2018-15, Technical Lead for E&C Deliverables, 10 September 2020
- c. Engineer Manual (EM) 5-1-11, Project Delivery Business Process (PDBP) Manual, 01 September 2022
- d. Engineer Pamphlet (EP) 34-1-1, Construction Project Partnering Playbook, 30 April 2022
- e. Engineer Regulation (ER) 5-1-11, USACE Business Process, 31 July 2018
- f. ER 415-1-13, Design and Construction Evaluation (DCE), 29 February 1996
- g. ER 690-1-1213, Civilian Personnel – Administrative Reemployment Rights for Certain USACE Employees, 17 April 2023
- h. ER 1105-2-100, Planning Guidance Notebook, 22 April 2000
- i. ER 1110-2-1150, Engineering and Design for Civil Works Projects, 31 August 1999
- j. ER 1110-2-1156, Safety of Dams – Policy and Procedures, 31 March 2014
- k. ER 1110-2-1302, Civil Works Cost Engineering, 30 June 2016, and CECW-EC Memorandum: Guidance on Cost Engineering Products update for Civil Works Projects in accordance with Engineer Regulation 1110-2-1302 – Civil Works Cost Engineering, 5 June 2023
- l. ER 1110-3-12, Military Engineering and Design: Quality Management, 25 March 2021
- m. ER 1110-3-1300, Military Programs Cost Engineering, 26 August 1999
- n. ER 1165-2-217, Civil Works Review Policy, 01 May 2021

2. **Purpose.** This ECB provides updated guidance on management controls for projects or programs designated by Major Subordinate Commands (MSC) and regularly reported to HQUSACE as “Mega Projects” or “Mega Programs” and replaces ECB 2016-16 previously issued on 26 May 2016. The revisions laid out below support integrated accountability and

follow-through at all levels within USACE from the District through the MSC’s Senior Project Executive (SPE), as well as the Directors of Civil Works (DCW) and Military Programs (DMP).

3. **Applicability.** Through many years of Mega Project implementation, observations of project delivery indicate that the application of Mega Project tenets continue to be beneficial to the variety of projects delivered by USACE. As such, the performance standards established in this document are applicable to all designated Mega Projects and Programs but must be appropriately tailored and scaled for each mission at the discretion of the SPE.

#### 4. **Mega Project / Program Designation**

a. USACE MSCs will designate projects and programs within their area of responsibility as “Mega” on an annual basis via memorandum to the HQUSACE DCW, DMP and Chief, Engineering and Construction with a copy furnished to other HQUSACE Senior Executives that have a vested interest in the project. This notification for the upcoming fiscal year is to take place during the fourth quarter of each fiscal year. This will allow for scheduling of Design and Construction Evaluations (DCE) during the following fiscal year. Enclosure 1 lists the typical attributes of a Mega Project and is the basis for selection; however *these attributes are not firm requirements* for Mega Project or Program designation, as final selection is at the MSC’s discretion. Enclosure 2 is provided to assist MSCs with quantifying project complexity associated with typical attributes when assigning “Mega” designation. Projects may also be added or removed (as completed, terminated, or deferred) from an MSC’s list at any point during the fiscal year via a formal memorandum to the parties noted above.

b. To ensure consistency in the application and improvement of required management controls across both the Civil Works and Military Programs Directorates, the HQUSACE Engineering and Construction Division (CECW-EC) is responsible for leading the Mega Project initiative and will partner with other HQUSACE elements as outlined in this document, with primary support coming from each Directorate’s Programs Integration Division.

#### 5. **Required Management Controls**

a. Enclosure 3 lists the required management controls or “tenets” for Mega Projects and the desired end state for each tenet. MSCs are required to implement these management controls for projects and programs that they have designated as a “Mega.”

b. As noted within Enclosure 3, the tenets of Mega Projects are intended to be scalable for efficient application based on specific program or project needs. However, tenets may not be excluded from delivery practices. Each MSC is expected to provide direction and guidance to subordinate District Project Delivery Teams (PDT) on the approach to applying these tenets. Each Program or Project Management Plan will document the application of Mega tenets.

6. **Semi-Annual Updates.** A common challenge faced is achieving consistent communication of “project health” through vertical teams while also meeting the requests of project stakeholders for information or data. While HQUSACE is currently reviewing many possible updates to enterprise information systems, we will continue to engage with MSCs on a Semi-Annual basis to discuss the delivery and performance baselines of their Mega Projects. HQUSACE will schedule Semi-Annual briefings between MSCs and HQUSACE to discuss all the MSC’s Mega

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Projects and utilize Microsoft Teams as a collaborative workspace. Specific requirements for these updates are included in the Semi-Annual Update tenet within Enclosure 3, and Enclosure 4 is included as a template for the project briefings. This template applies during all phases in the life cycle of a Mega Project, and it is expected that presentation material and metrics will evolve through project delivery, similar to the scalability of the tenets themselves. ***MSCs have the option of using other formats for briefing Semi-Annual Updates as long as all salient information in this ECB's template is communicated.***

**7. Mega Project Design and Construction Evaluations (Mega DCE).** Mega DCEs will be scheduled by MSCs in collaboration with HQUSACE, Engineering & Construction Division, through coordination with other HQUSACE offices and the other MSCs. The Mega DCE team is normally led by a HQUSACE Senior Construction Manager or MSC Senior Engineering & Construction representative who is supported by various USACE subject matter experts, including, but not limited to, Engineering, Program and Project Management, Operations, Contracting, Safety, etc. All designated programs and projects are subject to a DCE each year. The scope of Mega DCEs will be tailored for each visit but will typically include review of all facets of project delivery (e.g. Technical, Project Management, Fiscal and Schedule Controls, Design and Construction Management, Safety, etc.) including review of policy implementation and specific processes.

**8. Update.** All new requirements will be included in the next appropriate policy document update.

**9. Points of Contact.** HQUSACE point of contact for this ECB is Mr. Kenny Simmons, CECW-EC (202) 761-7234.

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Encl.

Enclosure 1 – Typical Attributes of a Mega Project / Program

Enclosure 2 – Project Complexity Matrix

Enclosure 3 – Required Management Controls

Enclosure 4 – Semi-Annual Update Template

**ENCLOSURE 1: Typical Attributes of a Mega Project / Program**

1. **Cost and Duration.** The cost of the project or program is a key attribute of a Mega Project. Large dollar value projects and programs (in excess of \$250M) generally represent more risk in achieving project objectives. Performance periods for Mega Projects are generally longer, and may include post-occupancy maintenance and operations, indicating more performance risk. While these guidelines are flexible, and can be applied to smaller/shorter projects, the additional costs of implementing Mega Project Management Controls may be significant, and often unaffordable for small/short duration projects.
2. **Uniqueness.** First or one-of-a-kind projects or programs involving unique and highly complex systems, processes, and technical challenges may be characteristic of Mega Projects. These situations may need additional attention from management the first time USACE works with a new stakeholder. Unique project challenges and complexities may present an overarching risk that requires the application of Mega Project tenets through project delivery.
3. **Procurement Method.** The contract type, solicitation, evaluation, and compensation methods allocate risk between the contracting parties. The spectrum ranges from simple, design-bid-build, firm-fixed-price (FFP) construction contracts to incentive-based, best value or qualifications-based design, Design-Build, and operations and maintenance contracts. Acquisitions with higher complexity and pricing flexibility are characteristic of Mega Projects.
4. **National Significance.** Projects or programs of national or international significance are characteristic of Mega Projects. Examples are projects constructed under the Dam Safety Modification Program, new lock construction or for the Department of Defense in foreign countries.
5. **Critical Nature of Completion Date and/or Funding Constraints.** Projects or programs with completion dates established in law or treaty; tight or incremental funding requirements; use of a continuing contracts clause, and/or other requirements which dictate close control and projection of ultimate cost and completion, may be a characteristic of Mega Projects.
6. **Coordination of Multiple Prime Contractors.** Projects or programs that require USACE coordination of multiple prime construction contractors conducting significant construction operations concurrently on a project site may be characteristic of Mega Projects.
7. **Coordination of Multiple Design Agents and Stakeholders.** Projects or programs requiring the coordination of multiple design agents, multiple USACE Districts and Centers, or multiple Federal agencies, may be characteristic of Mega Projects.
8. **Overlapping or Dependent Project Phases.** Projects where authorization, funds, or physical constraints determine the pace of execution may be characteristic of Mega Projects.

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ENCLOSURE 2: Project Complexity Matrix

An editable version of the Project Complexity Matrix is attached to this published ECB.

|                           | [Project Name]  |  |  |   | P2 Project Number:   |        |  |
|---------------------------|---|--|--|---|--|--------|--|
| Complexity Dimensions     | Project Profile & Attributes  |  |  |   |  |        |  |
|                           | Traditional Project<br>Total Score ~ Under 25   | Moderately Complex Project<br>Total Score 25 - 50  | Highly Complex Project<br>Total Score 51 - 75  | Highly Complex Program /<br>MegaProject<br>Total Score Over 76  | Project Complexity Score                                       |        | 64   |
| Rating Scale              | 1   | 2  | 3  | 4   | Attribute Rating<br>Please RATE each dimension (1, 2, 3, or 4) | Weight | If your Project Complexity Score is Above 50, your project may require management IAW ECB for Mega Projects. |
| Project Cost              | <\$100M   | \$100M - \$299M  | \$300M - \$500M  | > \$500M  | 4  | 1      | 4  |
| Funding                   | Reimbursable, authorized and appropriated funding, fully funded, one type of funds, one customer providing funds  | Cost-shared, authorized and appropriated funding, not fully funded, one or more type of funds, one or more customers providing funds   | Cost-shared, reimbursable, questionable authorization and appropriated funding, incrementally funded, several types of funds, several customers providing funds  | Cost-shared, reimbursable, program reauthorization and appropriated funding, incrementally funded, several types of funds, several customers providing funds, escalating costs  | 2  | 4      | 8  |
| Project/Phase Duration    | 1 - 2 years   | 2 - 3 years  | 3 - 5 years  | Multi-year (>5 years)   | 4  | 4      | 16   |
| Team Composition and Past | <b>PM:</b> Competent and experienced;<br><b>Team:</b> Internal, team has history;<br><b>Team Performance:</b> Good;<br><b>Contracts:</b> Straightforward; FFP<br><b>External/Contractor Performance:</b> Good | <b>PM:</b> Competent, little or no experienced;<br><b>Team:</b> Internal & regional, team has history;<br><b>Team Performance:</b> Good performance on project delivery;<br><b>Contracts:</b> Straightforward; FFP<br><b>External/Contractor Performance:</b> Good | <b>PM:</b> Competent, little or no experience with complex projects;<br><b>Team:</b> Internal & regional, little or no team history; <b>Performance:</b> Good performance on project delivery;<br><b>Contracts:</b> Complex; FFP, DB, and other types of construction contracts with greater risk to government.<br><b>External/Contractor</b> | <b>PM:</b> Competent, little or no experience with mega projects; must evaluate experience.<br><b>Team:</b> complex team structure of varying competencies and performance records (e.g. in-house, contractor, virtual, outsourced, etc)<br><b>Team Performance:</b> Unknown, team has never worked together on | 2  | 2      | 4  |

**ENCLOSURE 3: Required Management Controls**

The tenets of Mega Project management are intended to be flexible and tailored to accommodate the type, size, and focus of projects and programs. However, tailored must not be interpreted to allow exclusion of a tenet from project delivery. For districts that have multiple Mega Projects, it may make sense to aggregate information and manage them collectively. Detailed discussion of each tenet shall be included in a Comprehensive Project Management Plan (PMP) or Program Management Plan (PgMP) consistent with reference 1.c..

**1. Establish a Disciplined and Focused Governance Structure.** The desired end state of this tenet is to ensure effective communication both vertically and horizontally with necessary parties, resource providers and project executives within the Government and our Contractor partners.

a. A three-tiered governance structure will be established for Mega Projects in order to achieve needed accountability, visibility, understanding, and timely decision-making to assure effective communication and issue resolution at appropriate levels. The Construction Industry Institute (CII) defines project culture as “the degree to which (1) project leadership is defined, effective, and accountable; (2) communication within the team and with stakeholders is open and effective; and (3) the team fosters trust, honesty, and shared values.”

(1) The Senior Executive Board (SEB) is composed of senior leaders from all stakeholders. The typical members are the MSC Senior Project Executive’s (SPE) staff; project sponsors and DoD commands; and corporate level officers from the Designer(s) of Record (DOR) and Construction Contractor(s). HQUSACE Senior Leaders, National Program Manager, and Engineering and Construction senior staff must be included as advisors to the SEB, and aware of all critical activities addressed by the SEB. The SEB shall be chaired by the SPE. The PgMP/PMP will also outline how parity will be achieved between stakeholder agencies (for example: who will represent USACE in the event that the stakeholder is represented by a 2- or 3-star Officer). The PgMP/PMP will also describe how the Mega Projects reporting and briefing processes will synch with other project and program level approaches such as Senior Executive Review Group (SERG) and Senior Advisory Group (SAG) in Military Programs; Civil Works Review Board and Change Control Board; DMRs, and CMRs, etc. The recommended battle rhythm for SEB meetings is at least semi-annually, to align with the Semi-Annual Update tenet below.

(2) The Executive Leadership Team (ELT) is composed of the USACE District senior leaders (i.e. Corporate Board); project sponsors and proponents; and the DOR and Construction Contractor’s regional representatives. This team is responsible and accountable to make decisions and apply resources to solve problems that rise above the typical day-to-day management of the project. The ELT shall be chaired by the District Commander, the Deputy District Engineer for Programs and Project Management (DPM), or the Chief of Engineering and/or Construction. The assignment of the chair to a District position may change throughout the life cycle of a Mega Project. As a best practice, the Chair should attend all SEB meetings. The recommended battle rhythm for ELT meetings is monthly, to align with traditional district Project Review Boards (PRB).

(3) The Project Leadership Team(s) (PLT) are the working level teams assigned to each major phase of the project. A typical USACE project may have a single team focused on delivery, but Mega Projects are likely to have multiple (sometimes temporary) teams focused on a technical discipline, significant issues, or specific goals. The PLT level is where the typical day-to-day management of engineering and/or construction efforts are performed and includes the Project Manager(s), Technical Lead(s), and Area/Resident Engineer(s). As a best practice, the senior Program/Project manager should be the conduit between the PLTs and the ELT by attending ELT meetings.

b. This three-tiered governance structure for Mega Projects will be incorporated in PgMPs and PMPs and recognized and supported by the entire vertical team for the Mega Project. The governance structure may be adjusted to accommodate differences in programs, command structures and funding between Civil Works, Military, and International and Interagency Services (IIS) Programs, etc. Additional elements may be added where other stakeholder and USACE elements are involved. These other elements may include Mandatory Centers of Expertise (MCX), Technical Centers of Expertise (TCX), or Centers of Standardization (COS), the Institute for Water Resources (IWR), the Risk Management Center (RMC), the Huntsville Center (HNC), and other Design and Production Centers. While the Senior Project Executive is ultimately responsible for the structure and grade level of the organization, care should be exercised to prevent short-circuiting or denigration of the traditional functional, command, and administrative processes in the executing District and MSC. PDTs must find efficiencies reporting through vertical chains while maintaining compactness such that timely decisions are rendered when necessary.

c. Many USACE PDTs have been operating a “fourth” tier of governance in response to 2-3-4 star command requests, relationships with host nations, or as a component project to a larger national program. While this may be requested for communication of project status to higher headquarters, PDTs must avoid this additional level becoming a part of decision making except in extremely rare circumstances.

2. **Facilitated Partnering.** Mega Project PDTs will develop project specific documents that align with the Construction Project Partnering Playbook (reference 1.d.) to the maximum extent practicable. All Mega Projects will execute Levels 4 or 5 of the “Partnering Intensity Assessment Worksheet,” and Mega Programs will execute Level 5. At a minimum, Mega Project PDTs will have the following documents regularly updated for their specific project:

- a. Facilitator Reports from Partnering Workshops;
- b. Project Charter
- c. Dispute Resolution Matrices;
- d. Team Partnering Assessment, and;
- e. Collective Performance Goals

3. **Evaluations.** Mega Project Design & Construction Evaluations (Mega DCE) are an essential element in Quality and Project Management aspects of Mega Project delivery and will be tracked

and coordinated by HQUSACE Engineering and Construction Division. While ER 415-1-13 provides a baseline for DCEs, a successful Mega Project visit will be a blend of advice and assistance from SMEs with independent review of project delivery, and an opportunity for the executing PDT to share best practices and lessons learned across all facets of mission execution.

a. Each Mega Project will have a DCE conducted every year, at minimum. These DCEs will be led by the MSC or HQUSACE with support from subject matter experts. If HQUSACE executes a DCE, HQUSACE E&C will coordinate involvement from other HQ elements (CW RIT, Operations, PIDs, a PMO, etc.). When an MSC executes a DCE, the MSC Chief of Engineering and Construction will coordinate and execute the evaluation, and also invite HQUSACE representatives to be involved.

b. Mega DCE teams will be multi-disciplined and will evaluate project management, procurement, engineering, and construction processes for compliance with USACE policy and its effectiveness in achieving desired project outcomes. Mega DCEs are appropriate during all phases of delivery to include planning, design, and construction.

c. Mega DCEs are scalable and may be tailored to focus on specific areas of concern that have been identified by the MSC or HQUSACE. Some visits may be combined into program level reviews and/or conducted virtually, depending on level of project activity. Mega DCEs are intended to provide MSC and District staff with a second perspective for critical project decisions, and ensure that USACE products and services are technically excellent, on schedule, and within budget. Mega DCEs should be scheduled in advance of critical project milestones, such as:

- (1) At least three months in advance of any significant design milestones;
- (2) At least six months in advance of any significant contract solicitation;
- (3) During the formative stages of any reprogramming actions, and;
- (4) At least annually after award of any major construction contract, until substantial completion is achieved.

d. Upon completion of a Mega DCE, the Mega DCE Team (Team) provides an out brief to PDT, including representation from USACE at each of the tiered governance levels. The out brief will include a current summary of findings, initial recommendations, and a schedule for completing any follow-up work and issuing the final report. The following activities typically take place after the completion of a Mega DCE:

(1) The Team will coordinate with the district and MSC on remaining items to be discussed before issuance of the written Mega DCE report. Drafts of the report will be shared with the district's PDT for review and comment before final issuance.

(2) The report is signed by the Team Leader and distributed to appropriate HQ, MSC and District Chiefs of key functional areas.

e. Following the report distribution, the PDT will provide an update on the Team's recommendations at the next semi-annual Update to HQUSACE. As noted in the required

content for semi-annual Updates, the MSC will track completion of all open actions in the semi-annual Updates and IPRs.

**4. Senior Project Executive (SPE) Accountability.** The MSC’s SPE will be assigned by the MSC Commander. The SPE is accountable to the DCW or DMP for project or program success. The SPE will provide guidance and mentoring to the PDT. The PDT will be accountable to the SPE. The SPE will establish a schedule for receiving formal IPRs from ELT and PLT team members. These IPRs serve as both information and decision-making sessions between the SPE and other members of the vertical team in advance SEB meetings and eventual execution of required semi-annual Updates to HQUSACE as described in the semi-annual Update tenet below.

**5. Semi-Annual Updates and In Progress Reviews (IPR)**

a. HQUSACE and the MSC’s SPE will coordinate to ensure that each MSC provides a semi-annual Update briefing on all their designated Mega Projects to the DCW and/or DMP. While the content of semi-annual Updates is expected to include information specific to the Mega Project or Program, the update must include the following standard information at a minimum:

(1) A graphical depiction of the project baseline, including current status and estimates of cost and dates for completion as depicted in attached template.

(2) Cost estimate including authorized (or approved) project cost, current total project cost & certification date, design maturity, and risks.

(3) Financial data including funds received to date, the status of funds obligated and expended to date, and anticipated increases in cost. Program specific data elements and processes (e.g. the Military Programs Current Working Estimate (CWE) “Rainbow Sheet,” or Civil Works J-Sheets) should be referenced and used for these reports.

(4) Project specific metrics (tabular and/or graphical), analysis and trends. The SPE shall establish appropriate project metrics where there are not standard USACE metrics for a given focus area. Metrics should be quantified and traceable to a USACE database (e.g. P2, RMS, etc.). The “notes” section of Enclosure 4 includes examples for consideration. Through the life of a project USACE may be directed by higher commands to track other metrics.

(5) Analyses of trends for cost and schedule performance, quality, and safety, including corrective actions.

(6) A listing of program, project and technical decisions recently made or upcoming that have significant impact on program or project delivery.

(7) A summary level update report on any outstanding issues identified by Mega DCEs.

(8) A narrative discussing the top risks to program or project delivery, including planned or executed mitigation strategies. Once a construction contract has been awarded, key risks from a Joint Risk Register should also be included.

(9) A narrative or graphic summarizing the results of the most recent Team Partnering Assessment (TPA).

(10) If the report is for a Mega Program (covering multiple Mega Projects), the above listed items should be rolled up at the program level.

b. The appropriate Director and may request updates to be included at Directorate Management Review (DMR) meetings.

c. When a Mega Project briefing is held for a Director, it will be attended at a minimum by HQUSACE Engineering and Construction Division, and PID representatives.

d. A PowerPoint template has been included with this ECB as Enclosure 4. The native file can be downloaded from the attachments to this file.

## **6. Comprehensive Program and Project Management Plans (PgMP / PMP)**

a. These documents for Mega Projects must address implementation of all Mega Project tenets listed herein in addition to required components of all USACE PMPs. Special emphasis will be placed on well-reasoned and thorough Quality Management Plans, Change Management Plans, Risk Management Plans, and Staffing Plans. A formal Risk Register and Cost and Schedule Risk Analysis compliant with reference 1.k. must be provided and maintained throughout the life of a Mega Project. USACE PDTs will include specific processes for compliance with any formal stakeholder agreements in appropriate PgMP/PMP sections. PgMP/PMPs must be reviewed annually by the original signatories or their successors and revised as appropriate for relevance and soundness of the plan going forward. This is particularly important for longer term projects where several rotations of command or leadership are likely to occur and PDTs have adjusted processes to enhance project delivery.

b. The respective HQUSACE Programs (PID, Program Management Office (PMO), etc.) representative will solicit and coordinate review of these plans with other HQUSACE offices as needed. The HQUSACE representative will provide coordinated set of comments back to the MSC. The comments shall be addressed or incorporated in the PgMP/PMP prior to approval and signature by the MSC's SPE on the PMP acceptance sheet. This review will take place only at the initial designation as a Mega Project, and potentially during future Mega DCEs.

**7. High-Performing Project Delivery Team (PDT).** The executing District's Senior Leaders will assign a multi-disciplined PDT early in the project planning phase to be responsible and accountable for the project until completion. The PDT will be approved by the SPE after they have established and validated minimum team member competencies, organizational structure, size, etc. Selection of team members will be based on competencies established by the SPE and may require resourcing the PDT from outside the District or MSC. Non-technical competencies will be recognized as equally important to technical competencies. The identity, roles, and responsibilities of a Technical Lead / Lead Engineer (see ER 1110-2-1150, ER 1110-2-1156, and ECB 2018-15) will be described in the PMP irrespective of program (MP, CW, Host Nation, IIS, etc.). Team building and partnering exercises will be initiated early and often in the project life cycle and these efforts will be documented in the annual updates to the PgMP/PMP (reference Mega Project Tenet #2, "Facilitated Partnering" above).

8. **Use of Lessons Learned.** Best practices will be used to inform the development of future Mega Project PgMP/PMPs in particular, and to inform revisions to the USACE Project Delivery Business Process (PDBP). Through coordination with HQUSACE and/or Centers of Expertise, Mega Project PDTs will conduct virtual reviews and/or site visits on recent projects with similar scope to discuss best practices and lessons learned with other USACE personnel. At the time of this ECB update, Qualtrax has been identified as the enterprise Lessons Learned system. PDTs will populate this system periodically throughout the delivery of a Mega Project. USACE has a long history of Mega Project delivery, and therefore, PDTs may need to review Lessons Learned present in other formats such as After Action Reports, Dr. Checks, etc.

9. **Integrated Master Schedule (IMS), Cost Estimates, Risk Analyses, and Earned Value.** USACE Mega Project PDTs must prepare and maintain an Integrated Master Schedule (IMS), Risk Registers, Cost and Schedule Risk Assessments (CSRA), and Earned Value Models throughout the life of the project. The executing District must have trained and experienced personnel assigned to formulate and update these necessary tools. These personnel must be on staff at the early stage of the project life cycle to prepare and status the IMS.

a. The IMS will include planning, programming, procurement, design and construction phase activities, as well as any follow on “tails” for Operations and Maintenance or other activities. The IMS will be logic driven and will be updated with actual dates and remaining durations at least monthly. The latest monthly summaries for the IMS and Earned Value models, along with the most critical Risk Register items will be provided as part of each Semi-Annual Update. As project phases become more certain (e.g., contracts awarded, milestones missed/met, baselines adjusted, etc.), the IMS will provide a hierarchical “rolling window” focusing on details that are important and understandable such that participants within the three-tiered governance structure clearly understand resourcing needs and identification of decisions affecting the critical path. The PgMP/PMP must describe how USACE and stakeholders will manage independent schedules together (e.g. stakeholder land acquisition, USACE Design and Construction contracts, IO&T, etc.).

b. Reference ER 1105-2-100, ER 1110-2-1302 (to include the additional guidance in reference 1.k.) and ER 1110-3-1300 for cost and schedule estimate requirements. Mega Project cost estimates and schedules will be integrated at either the project or program level, utilizing Earned Value principles. Earned Value Work Instructions are currently located here: <https://cops.usace.army.mil/sites/PPM/tools/Plan/Forms/AllItems.aspx> . USACE Earned Value models are to be “EV Lite;” there is no requirement to meet ANSI certification standards unless required elsewhere (e.g. Cost Contracts).

c. Cost and Schedule Risk Analyses will be performed for all Mega Projects utilizing CSRA techniques as outlined in reference 1.k. and certified by the Cost MCX every two years. It is imperative that PDTs define project scope to the maximum extent practicable before budget development and submission such that cost baselines and CSRA outputs accurately document realistic budgets.

## 10. Project Controls Team and Project Specific Metrics

a. Each Mega Project PDT will establish a specific Project Controls team at the project or program level. This team will be staffed with experienced personnel responsible for managing

project and integrated master schedules, project and program budgets, and document and communication controls. The team composition will change over time and will include staff with specialized expertise in project control functions including CSRA. At least one member of this team will be a Government employee that is experienced in CSRA, cost estimating, and network scheduling. As a best practice, a district with multiple Mega Projects may find efficiencies in creating a project controls team that is responsible for these activities on all district Mega Projects.

b. The SPE will set metrics for monitoring and evaluating performance of all phases of the Mega Project, and will ensure timely and accurate reporting by the Project Controls team. Cost and schedule metrics should employ Earned Value principles and technical metrics will follow existing program requirements. All project specific metrics, control bands, and R-Y-G stoplight ratings will be explained within the semi-annual Updates ('notes' section of PowerPoint). Existing District, MSC, and HQUSACE management and monitoring elements (RMB, RIT, PID, etc.) will retain their administrative and reporting responsibilities, but will participate in and be guided by the governance structure outlined in the Mega Project PgMP/ PMP. As previously noted, through the life of a project the MSC may be requested to track other metrics as needed.

## **11. Deliberate Recruitment and Staffing of PDT Members**

a. A Mega Project may adversely impact any District's manpower and personnel management when the project office is initially stood up and when it shuts down. Standard Human Resources (HR) processes are not designed for standing up and closing down a large office in a timely and orderly fashion, so additional planning and incentives may be required to ensure that the most qualified PDT members from across the Command are recruited, selected, assigned, retained and/or returned to their home station.

b. These processes should be like those used to deploy staff for contingency operations on long term Temporary Duty (TDY) or Temporary Change of Station (TCS), with return rights to their home Districts. Participation and communication across the Command, including MSC and HQUSACE leaders, may be required to ensure that sufficient incentives are in place to attract and retain these individuals for the life of a Mega Project. A Staffing Plan will be provided as part of the comprehensive PMP (see Paragraph 6 above) and demonstrate that the District has the required skill sets and available personnel to execute the work, or note when external candidates are needed for short term or enduring commitments.

c. If the District or MSC anticipate the need to provide additional incentives (return rights, bonuses, special rates, etc.) to recruit PDT members, the procedures outlined in ER 690-1-1213 should be followed. Please note that official designation as a Mega Project by an MSC does not replace the process for approvals within ER 690-1-1213.

**12. Certified and/or Accredited Project Managers and PDT Members.** The Project and/or Program Managers assigned to Mega Projects must have professional skills and certifications that demonstrate mastery of the tenets and management techniques described above. These skills can be demonstrated by a range of project experience, industry credentialing, and through USACE career plans. Program and/or Project Managers for Mega Projects must demonstrate USACE Level 2 proficiency within the Project Manager and Program Manager Career Development Plan training standards. These individuals will also maintain a current Professional

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Architecture, Engineering, or Geology license. In addition to certification, the individual must have sufficient technical experience in the appropriate engineering and/or construction functions anticipated for the assigned Mega Project. These minimum qualification levels will be demonstrated by certification, licensure, and experience as listed in the PMP and approved by the SPE. Functional chiefs and key staff members on the project must likewise be identified and certified in accordance with existing regulations, the SPE's requirements, and the PgMP/PMP.

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**ENCLOSURE 4:** Semi-Annual Update Template

Microsoft PowerPoint template cover page shown below. An editable version of this file is attached to this published ECB.

