

PLANNING MENTOR HANDBOOK – A TOOL FOR MENTORS (AND OTHERS!) ASSISTING USACE PROJECT DELIVERY TEAMS

Leigh Skaggs, RPEDN
Karen Miller, LRH
Date: 01 October 2020



US Army Corps
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PRESENTATION OUTLINE

- **Planning Mentor Program / Role of Planning Mentors**
- **Genesis of the Handbook -- Mentor Workshop 2019**
- **Purpose, Audience, Format**
- **“Living” Document**
- **Topics**
 - **#1 Six Pieces of Paper**
 - **#2 Charettes**
 - **#3 Engagement Techniques**
 - **#4 Rapid Iterations**
 - **#5 Plan Formulation Strategies**
 - **#6 Screening Criteria**
 - **#7 Level of Detail**
 - **#8 RIDM for Business Lines**
 - **#9 TSP Risk Assessment**
- **Discussion**



WHY A PLANNING MENTOR PROGRAM?



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, D.C. 20314-1000

CECW-ZB

JUN 2 1 2017

MEMORANDUM FOR MAJOR SUBORDINATE COMMANDS, AND DISTRICTS

SUBJECT: Further Advancing Project Delivery Efficiency and Effectiveness of USACE Civil Works

1. Beginning 1 July 2017, this office will embark on a comprehensive organizational review of current authorities, policies, regulations, and procedures. The desired outcome is to identify opportunities for enhanced project delivery and increased organizational efficiency and effectiveness by reducing redundancies and delegating authority for decision making to the most practical and appropriate level. As a world class organization, we are committed to reliably delivering the best quality projects and services on time, and within budget. To do so, we must fully implement our Project Management doctrine, recognize risk and uncertainties, and develop mitigation strategies that allow us to accept appropriate levels of risk to improve project delivery. As part of the Civil Works strategy, I intend to operationalize risk-informed decision making at all levels in the organization, and then I expect discipline in documenting these decisions at the appropriate level. The following five paragraphs capture the key lines of effort that I expect us all to advance.

2. **Embrace and Operationalize Risk-Informed Decision Making.** We must change our behavior regarding risk management across Civil Works and in our policies, analytical approaches and models, priorities, and dialogue with sponsors and communities. Civil Works will undertake the following steps to develop a more comprehensive understanding and application of risk-informed decision making and project delivery across the agency:

- a. Publish an Engineer Circular entitled *USACE Risk Framework*. This document will establish common principles for assessing, managing, and communicating risk. It will articulate principles and practices that ensure the consideration and application of risk and uncertainty to Civil Works activities and decisions;
- b. Require functional areas and programs to develop risk-informed decision making processes for key decisions; and
- c. Require all levels of the organization to embrace risk-informed decision making as a key component of project delivery in our day-to-day business in Civil Works. To support these efforts, Civil Works will undertake the following activities:



US Army Corps of Engineers

DIRECTOR'S POLICY MEMORANDUM CIVIL WORKS PROGRAMS

No. DPM CW 2018-05 Issuing Office: CECW Issued: 03 May 2018 Expires: Indefinite

SUBJECT: Improving Efficiency and Effectiveness in USACE Civil Works Project Delivery (Planning Phase and Planning Activities)

CATEGORY: Directive and Policy

1. **Purpose.** This Memorandum covers the actions that must be taken within the planning phase of the USACE Civil Works project delivery process in order to embrace and operationalize risk informed decision making to make initial project delivery processes, as well as the full project lifecycle processes, more efficient and effective.

2. **Applicability.** This Memorandum is applicable to all Headquarters USACE (HQUSACE) elements, Divisions, Districts, laboratories, and field operating activities related to USACE Civil Works projects. The actions and policies in this memorandum will also be applied in the execution of studies funded by the 2018 Disaster Relief supplemental appropriations (P.L. 115-123).

3. **Direction.** Effective immediately, as part of USACE Enterprise Risk Management, we will incorporate risk informed decision making in project development. This policy acknowledges risk management is paramount to all USACE activities and requires transparency and collaboration with our sponsors and internal and external stakeholders. My intent is to provide quality products while accepting appropriate levels of risk in order to improve project delivery timeliness and cost effectiveness. Enterprise Risk Management explicitly assesses and manages risk, improving timeliness of our project development and delivery process by focusing on the most critical analyses, acknowledging uncertainty of decisions, and providing consistent visibility of common risk elements for decisions during the entire lifecycle of any project.

4. **Implementation.** Risk informed decision making in the planning phase is a shared responsibility. It is mandatory that all USACE elements involved in the Civil Works planning process and planning activities be responsive to this direction and put guidelines in place to support Civil Works project delivery. Not later than 90 days from the date of this memo, and through collaboration of its Planning, Engineering and Construction, Operations, Programs, Project Management, Real Estate, and Counsel organizations, HQUSACE will develop an implementation plan for operationalizing risk informed decision making during project development and lifecycle management to include developing interim guidance and updating permanent guidance, workforce training, etc.

5. **Risk Informed Planning.** The approaches and techniques described in the Planning Manual Part II: Risk Informed Planning (TWR 2017R03) provide project delivery teams (PDTs) with tools to efficiently reduce uncertainty by gathering only the evidence needed to make the next

SemoNOTE

A MESSAGE FROM LTG SEMONITE

11 May 2020

ERM

RIDM



ROLE OF PLANNING MENTORS

- Coach and mentor Planners/PDTs
- Early involvement in planning charettes and rapid iterations
- Helping teams employ methodologies from the **Planning Manual Part II: Risk Informed Planning**
- Share lessons learned and promote continuous improvement within the PCoP





GENESIS OF THE HANDBOOK -- MENTOR WORKSHOP 2019



- Held 2-day Workshop in Kansas City District 28-29 Aug 2019 with both in-person and virtual participation
- Last agenda item was idea for **Development of an Informal “Just Do It” Handbook for Planners**
 - At the workshop, the group as a whole brainstormed each of the topics
 - Volunteers agreed to complete a draft one-pager (or two) for inclusion in the handbook



HANDBOOK PURPOSE, AUDIENCE, AND FORMAT



- **PURPOSE:** To serve as a tool for planning mentors to better assist and advise PDTs in conducting risk-informed planning
- **AUDIENCE:** To be used by Planning Mentors/Lead Planners/PDTs to assist with RIDM (especially during early 6-step iterations)
- **FORMAT:** Each topic covered has:
 - the meaning of the concept, tool, or technique and its advantages for a feasibility study
 - who on the PDT develops it and when
 - real-life examples from USACE feasibility studies w/ references to slide decks/reports for more detail
 - a summary of its utility in various settings or applications



“LIVING” DOCUMENT

7



- Version 2.0 will be updated with additional topics, actual examples, and references as they become available.



- Some ideas for the next version have already been sent in!
 - Tips for Conducting Life Risk Assessments in the 1st 90 days
 - Tips for including climate preparedness analysis
 - Suggestions for links to webinars/other trainings



HANDBOOK AUTHORS



- Leigh Skaggs, MVP
- Tim Fleeger, NWD
- Andy MacInnes, MVN
- Karen Miller, LRH
- Pat O'Donnell, SAD
- Valerie Ringold, NWP
- Brad Thompson, NWO
- Kendall Zaborowski, DSMMCX



TOPIC #1: SIX PIECES OF PAPER

- **Develop during scoping (first 30 days)**
 - Identify problems and opportunities
 - Forecast “future without” condition
 - Identify objectives and constraints
 - Identify decision criteria
 - List unique questions
 - Identify key uncertainties
 - **Enables progress from outset of study**
 - What do we know/ not know?
 - Where to focus efforts/ investigations?
 - **PDT develops first, can then expand to others (e.g., NFS) -- modified at charette?**
 - **Helpful in fleshing out Report Summary, Risk Register**





TOPIC #1: SIX PIECES OF PAPER

- **Example:** FL Keys CSRM Study
- **POC:** Rachel Haug, NAO, lead planner
- **Unique questions:**
 - What are the hard constraints re: plan formulation because of the unique environment in the study area? For example, are there management measures that cannot be considered due to the presence of the National Marine Sanctuary?
 - Will the USACE econ damage models apply to the FL Keys because of the unique non-sandy environment? (i.e., Beach $f(x)$ used for shoreline/ sand erosion, G2CRM is inundation-only model)
- **Key uncertainties:**
 - Population at risk (residents and visitors) – and ability to evacuate (one evacuation route)
 - What actions will FLDOT or US Highway Administration take in the future (i.e., the FWOP) to protect or reduce potential damages to US Highway 1?



TOPIC #2: CHARETTES



- **Formal meetings** - structured agenda (identifying the outcome/decision), facilitator, participants include key decision makers, read aheads to ensure preparation and common understanding
- **Not required, but useful, scalable, & applicable to:**
 - Scoping, rapid iterations, plan formulation, re-scoping 3x3x3 exemptions?
- **Participants:** PDT, VT, NFS, sometimes resource agencies or other stakeholders
- **Advantages:** advance the study, share info, make decisions, VT alignment
 - Informal kick-off meetings may be precursors to formal charettes



TOPIC #2: CHARETTES

- **Example:** Yorkinut Slough Habitat Rehabilitation & Enhancement Project (HREP) **Virtual Scoping Charette** agenda + virtual charette **tools/ lessons learned**
- **POC:** Janet Buchanan, MVP, lead planner
- Facilitator agenda
- Virtual charette tools/ lessons learned:
 - 1) dry run of all technology
 - 2) sending read ahead materials before charette
 - 3) WebEx linked to audio
 - 4) separate facilitator, note-taker-timekeeper, and WebEx manager
 - 5) logging in early – test technology
 - 6) tips for communication on the call
 - 7) setting ground rules using Poll Everywhere
 - 8) interactive maps
 - 9) virtual site visits
 - ***And many, many others tips...***



TOPIC #3: ENGAGEMENT TECHNIQUES

- **“Meet the PDT where they are”**
- **Ideas for mentor to proactively engage PDT:**
 - Call in to PDT meetings
 - Product-oriented meetings (e.g., 6 pieces of paper, risk register, rapid iteration)
 - Develop checklists/ strawmen in advance – helps PDT visualize products (e.g., potential plan formulation strategies)
 - Best practices to encourage dialogue (round robin, index cards)
 - “Tech” talk – either by mentor or PDT member (e.g., present “what are conceptual models?”, then PDT develops model together)
 - Charters – spells out how will mentor support study

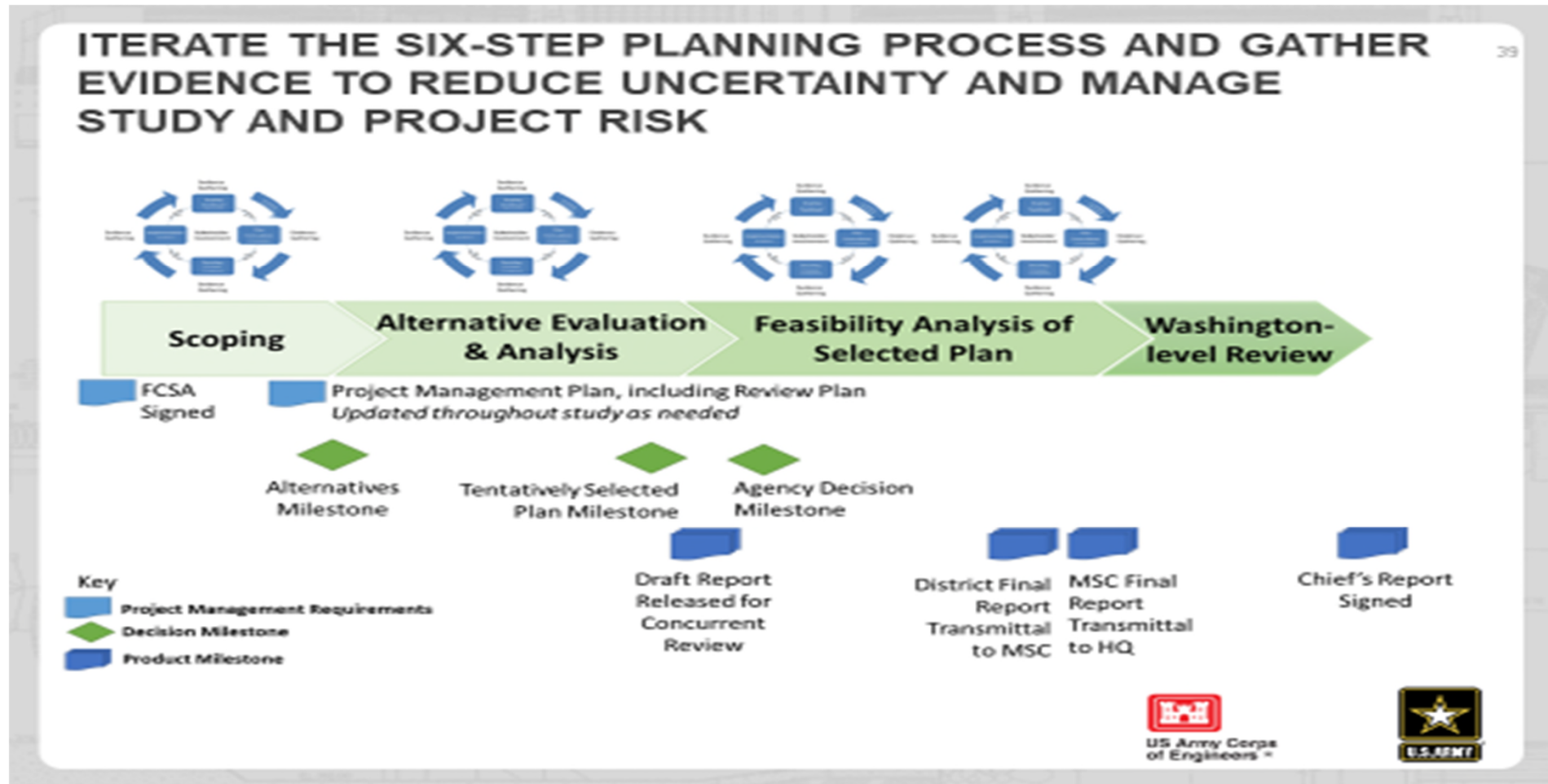


TOPIC #3: ENGAGEMENT TECHNIQUES

- **Example:** Product-oriented meeting & “Tech Talk”
- Presentation on RIDM and risk register + risk register “cheat sheet”
- **POC:** Valerie Ringold, NWP, lead planner & mentor
- Introduces concepts of risk informed decision-making and risk register
- Risk Register “cheat sheet”
 - Explains content and use of the Risk Register to PDTs
 - How to fill it out, what the columns mean, how to think about things as risks — not just, “we don’t have all the info/details we need”
 - Serves as a reference as the PDT fills out the risk register

TOPIC #4: RAPID ITERATIONS

- Conduct several rapid iterations of the planning process (at least 3, maybe more) throughout the course of the study





TOPIC #4: RAPID ITERATIONS



- Moves study forward
- Encourages critical thinking
- Mechanism to strategically manage uncertainty
- Assists in gathering data at the optimal time to reduce uncertainty & make the next decision
- Allows teams to most effectively and efficiently invest limited funding and time



TOPIC #4: RAPID ITERATIONS

- **Example:** LA County Flood Risk Management Study rapid iteration workshop
- **POCs:** Leigh Skaggs, MVP & Brad Thompson, NWO – study mentors
- Mentor-led product-oriented workshop (RAHs provided) + “tech talk” – explain rapid iteration, 6 pieces of paper, RIDM – flesh out missing pieces, conduct rapid iteration
- Met PDT where they were – post-AMM
- Defined FWOP, key uncertainties, unique questions, decision criteria, plan form strategies, evaluations necessary to get to TSP
- PDT reviewed GANTT chart together to reduce schedule, seek efficiencies, ID parallel activities, etc.



TOPIC #5: PLAN FORMULATION STRATEGIES

- Systematic way to develop a range of distinctly different alternatives
- Strategies generally follow a particular theme or focus

Objective 1	Objective 2	Objective 3	Objective 4	Objective 5
Plan	Measures			
A				
B				
C				
D				



TOPIC #5: PLAN FORM STRATEGIES

- **Different themes/ foci for strategies:**
 - For different objectives
 - By types of measures
 - Geographically
- **Generic themes:**
 - Ideal Scenario
 - All Possible Combinations
 - Something for Everyone
 - Locally Preferred
 - Nonstructural
 - Cornerstone/Base Plan Strategy
 - Resource Agency Preference



TOPIC #5: PLAN FORM STRATEGIES

- **Examples:** Previous [webinars](#) and [slide decks](#) on Planning Community Toolbox
- **“Initial Plan Formulation Strategies”** -- April 2016
 - POC: Leigh Skaggs, MVP
- **“Plan Formulation Strategies for Aquatic Ecosystem Restoration”** – Sept 2016
 - POC: Leigh Skaggs, MVP
- **“Plan Formulation Strategies for Ecosystem Restoration”** – January 2017 (stand alone training with notes)
 - POCs: Leigh Skaggs, MVP; Fay Lachney, OWPR; Greg Miller, ECO-PCX
 - Many examples, including conceptual models, ecological models such as Habitat Suitability, decision support software (IWR Planning Suite)



TOPIC #6: SCREENING TECHNIQUES & DECISION CRITERIA

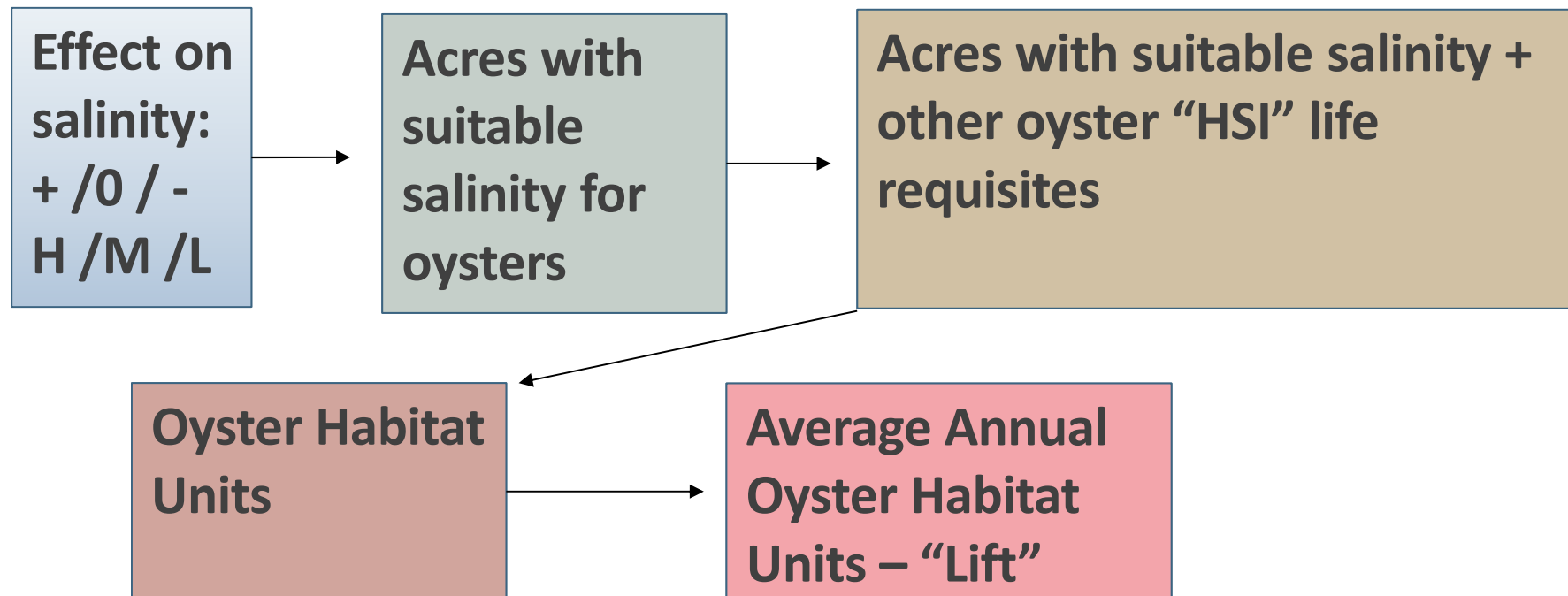


- **Screening/decision criteria should reflect the study's planning objectives**
- **Criteria needed for the following key decision categories:**
 - Scoping the study
 - Management measures screening
 - Evaluation of alternatives
 - Comparison of alternatives
 - Selection of the TSP
- **Criteria often change throughout the course of the study**



TOPIC #6: SCREENING TECHNIQUES & DECISION CRITERIA

- Decision criteria become more specific and quantitative as the study progresses, even when the criteria are evaluating the same attribute of an alternative plan
- Example: Alternative's effect on oyster habitat





TOPIC #6: SCREENING TECHNIQUES & DECISION CRITERIA



- **Examples:**
- 1) Dry Creek conceptual model,
- 2) color coding of effectiveness of Dry Creek management measures,
- 3) Lower Santa Cruz, AZ FRM study PDT rating (1-3) of 4 P&G criteria
- **POCs:** Leigh Skaggs, MVP & Karen Miller, LRH

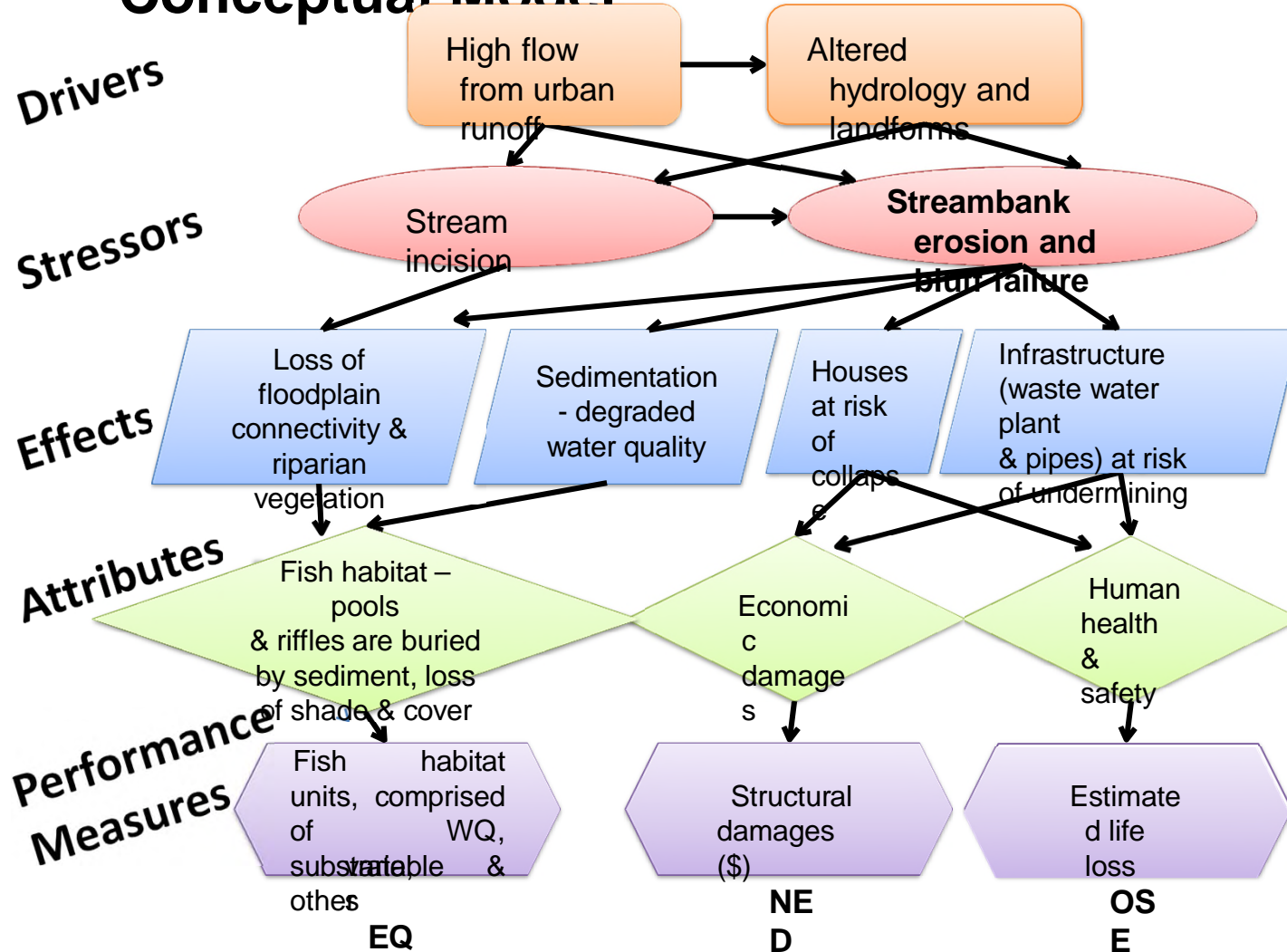
Management Measures	Ability to Achieve Planning Objectives (Effectiveness)			
	Objective: Increase/Restore Aquatic Habitat	Objective: Increase/Restore Riparian Habitat	Objective: Increase River/ Floodplain Connectivity	Objective: Reduce Damages to Water Treatment Plant
Instream grade control structures	High	High	High	High/Moderate
High flow detention ponds	Moderate	Moderate	Moderate	Moderate
Terrace banks	Moderate	High	High	Low
Place cobble/ gravel instream	Low	None	None	None
Place armor/ rip rap on banks	Low	Low	None	High
Plant native vegetation on banks	High	High	Moderate	Moderate



TOPIC #6: SCREENING TECHNIQUES & DECISION CRITERIA



“Dry Creek” Streambank Erosion Conceptual Model





TOPIC #7: LEVEL OF DETAIL NEEDED THROUGHOUT PLANNING PROCESS

- Collect appropriate level of detail to make the decision at hand while considering the risk of not gathering additional information
- Challenge is balancing the time, effort, and expense of gathering more evidence to reduce uncertainty versus the risk of making a poor decision
- Focus on reducing instrumental uncertainties during each iteration
- POC: Tim Fleeger, NWD



TOPIC #7: LEVEL OF DETAIL NEEDED THROUGHOUT PLANNING PROCESS

Steps	Scoping	Alternative Evaluation & Analysis	Feasibility Analysis of Selected Plan
General	Qualitative data/ high uncertainty. Existing Information. General descriptions of measures/ alternatives, qualitative estimate of benefit (H, M, and L), order of magnitude cost estimates.	Quantitative data/ medium uncertainty. New information gathered. Conceptual level design, comparable analysis of benefits amongst alternatives, level 1 or 2 cost estimates, rough estimate of real estate costs.	Quantitative data/ low uncertainty. Higher level of detail for information. Feasibility (~10-30%) level design, optimized NED benefits, level 3 cost estimate to support certification; real estate cost estimate or appraisal as appropriate.
Examples	Scoping	Alternative Evaluation & Analysis	Feasibility Analysis of Selected Plan
Flood Risk Management	Existing maps, info on flooding, trends, census/ HAZUS data, levee safety. General categories of measures to be included (levees, floodwalls, detention basins, non-structural, nature-based) evaluated using qualitative screenings.	H&H info, structure inventories, geotech info, wetland/habitat surveys. Site-specific footprint of measures with conceptual design and assumptions related to size of structure that may be appropriate; evaluated using HEC-RAS and HEC-FDA. If low benefits are a concern, consider modeling max potential benefits and screening alternatives based on parametric cost estimates. Identify potential mitigation needs and costs of alts.	Detailed analysis of Recommended Plan (RP) to include multiple heights/sizes of structures in the RP in order to optimize NED benefits. Conduct life safety analysis of RP. Model habitat losses and mitigation options for optimized plan using eco models and CE/ICA.
Coastal Storm Risk Management	Existing coastal storm / storm surge / flooding hazard maps, records of coastal storms, sea level rise trends and projections, census / HAZUS data, records of shoreline movement and beach/dune erosion. General categories of measures to be included (beach nourishment, dune restoration, seawalls, jetties, shoreline stabilization, non-structural, nature-based) evaluated using qualitative screenings and combined into alternatives	Model inputs (meteorological data, coastal morphology, economic data, emergency management practices, etc.). Site-specific footprint of measures with conceptual design and assumptions related to size, length, width, and height of structure that may be appropriate; evaluated using Beach-FX or other appropriate software. If low benefits are a concern, consider modeling max potential benefits and screening alternatives based on parametric cost estimates. Identify potential mitigation needs and costs of alts.	Detailed analysis of Recommended Plan to include multiple heights of structures in the RP in order to optimize NED benefits. Conduct life safety analysis of RP. Model habitat losses and mitigation options for optimized plan using eco models and CE/ICA.



TOPIC #7: LEVEL OF DETAIL NEEDED THROUGHOUT PLANNING PROCESS

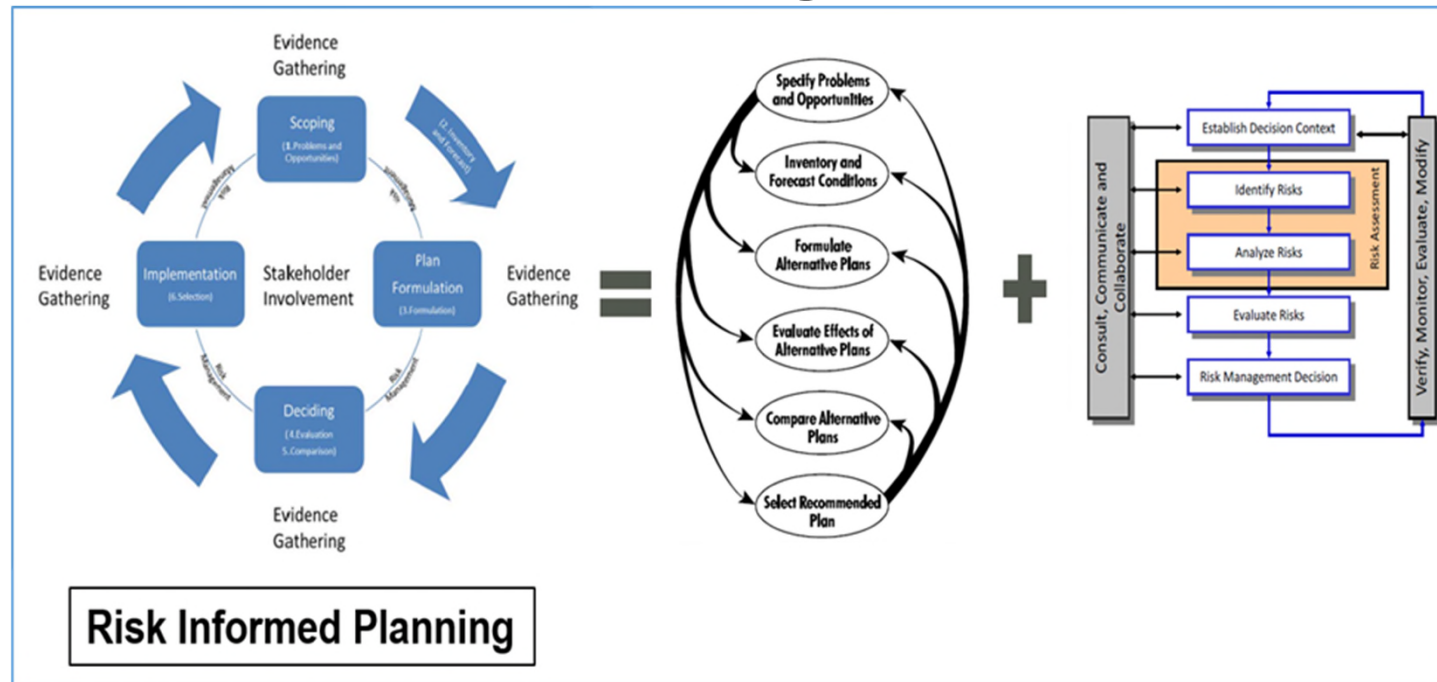


Examples	Scoping	Alternative Evaluation & Analysis	Feasibility Analysis of Selected Plan
Ecosystem Restoration	Existing maps, info on species and habitats of concern, trends. General categories of measures to be included (wetlands, in-stream habitat, fish passage) evaluated using qualitative screenings.	H&H info, habitat surveys, information to feed eco model(s). Site-specific footprint of measures with conceptual design and assumptions related to size of features, eco modeling completed and CE/ICA conducted. Consider potential high-level adaptive management (AM) needs along with parametric costs. If AM vastly different amongst alternatives, include in analysis.	Detailed analysis of Recommended Plan to include specific alignment of features. Develop detailed monitoring and adaptive management plan and include costs in certified cost estimate.
Deep Draft/ Inland Navigation	Existing vessel traffic and commodity forecasts, information on species of concern, potential dredged material disposal sites. General categories of measures to be included (deepening, widening, lengthening, training walls, expansion/replacement of lock chambers, non-structural) evaluated using qualitative screenings and combined into alternatives.	Develop vessel traffic and commodity forecasts. Conduct sediment sampling and habitat/ species surveys. Specific footprint of measures and multiple depths/ widths analyzed as appropriate. Assumed quantities and disposal locations based on initial sampling results.	Feasibility level ship simulation of recommended plan to address safety concerns and inform design. Refined quantity estimates. Optimized depths/ widths/ lengths as appropriate.



TOPIC #8: EXAMPLES OF RIDM FOR BUSINESS LINES

- Defines RIDM and Risk-Informed Planning



- Tools to efficiently reduce uncertainty by gathering only the evidence needed to make the next planning decision
- Manage the risks that result from doing so without more complete information



TOPIC #8: EXAMPLES OF RIDM FOR BUSINESS LINES

- **Examples from Planning Manual Part II**
- **Many topics are covered in this Handbook**
- **Examples:**
- Presentations on RIDM applied to:
 - Meramec River Basin, MO AER Study (POC: Monique Savage, MVS, Lead Planner)
 - FL Keys CSRSM Study (POC: Rachel Haug, NAO, Lead Planner)



TOPIC #9: TSP RISK ASSESSMENT

- Identify risks that should be managed as the study moves into PED, construction, and monitoring
- Identify residual risk that remains with the plan, and identify any new, transformed, or transferred risks generated by the new plan
- **Assume TSP is satisfactory. Then ask:**
 - What can go wrong?
 - What could prevent us from achieving our benefits?
 - Does our plan create new hazards or transfer existing ones to another area?
- **Examples:** Meramec River Basin, MO AER Study + Lower Mud River, WV FRM Validation Study (life safety risk)
- **POCs:** Monique Savage, MVS: Karen Miller, LRH



TOPIC #9: TSP RISK ASSESSMENT



Examples below from [Meramec River Basin AER Study](#)

Implementation risk:

- Sites could change during the PED phase (**medium** risk)
 - Risk is driven by **high** likelihood and **low** consequences
 - Mitigation actions: Sensitivity analysis on site locations shifts, reduced-scope scenarios to show Federal interest, benefits not highly dependent on exact location of sites

Outcome risk:

- Habitat restoration features may change during high flows (**medium** risk)
 - Risk is driven by **low** likelihood and **high** consequences
 - Mitigation actions: Designed and monitored similar USEPA Pilot Projects, robust adaptive management plan



QUESTIONS, FEEDBACK, IDEAS



- https://planning.erdc.dren.mil/toolbox/library/IWRServer/PlanningMentorHandbook_Ver1.0_30June2020.pdf



QUESTIONS?



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