

## **Considering the Appropriate Level of Detail in a Flood Risk Management Feasibility Study**

## BACKGROUND

Under the concept of SMART Planning, Project Delivery Teams (PDTs) should focus on and strive to make solid decisions with, or using, an appropriate amount of information, data, and analysis in a risked based process. The team should keep in mind three key goals:

1. Get to the TSP as soon as you can without making any irreversible errors;
2. Demonstrate a Federal interest in the recommended plan and scope; and
3. The level of detail, NED analysis and project design are done only for the recommended plan(s).

This Flood Risk Management supplement to the Planning SMART Guide is intended to aid the PDT in walking through the process of conducting a Flood Risk Management (FRM) Feasibility Study. It is NOT an all encompassing how to manual and it is NOT a simple checklist for success. It IS a guide for fostering critical thinking in determining the appropriate Level of Detail for executing a Feasibility Study. It should be used in conjunction with, not as a replacement of, the Planning Guidance Notebook (ER 1105-2-100).

The development of the Planning SMART Guide and the tools, tips, and techniques to implement SMART Planning is being done in coordination with the various Communities of Practice (CoPs) within the Corps, including Engineering and Construction (Hydrologic Engineering Center (HEC) and other functional units), Real Estate, and the Environmental Community with regards to NEPA, etc. This coordination is at various stages and will continue through the development of the SMART guide.

## CONSIDERING LEVEL OF DETAIL WITHIN A FEASIBILITY STUDY

The FRM SMART Guide is formatted to tie Level of Detail (LOD) to the Six Step Planning Process. While determining the appropriate LOD for a FRM Feasibility Study is important throughout the Six Step Planning Process, Steps 2 (Inventory and forecast conditions), 4 (evaluate alternative plans), and 5 (compare alternative plans) are most dependent on LOD. Determining LOD is both a science and art and must be done in an open transparent process with the PDT, the Non-Federal Sponsor (NFS), the USACE Vertical Team, and appropriate Federal and State Agencies and the Public.

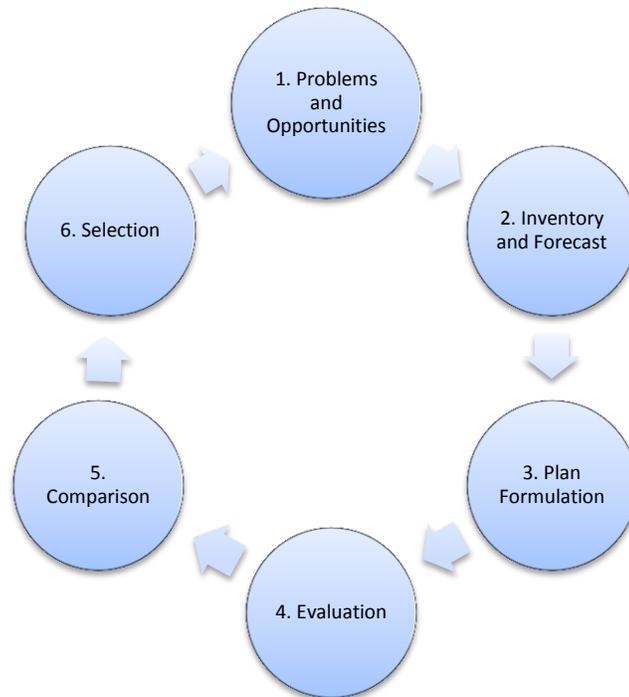


Figure 1: Six Step Planning Process

## EXAMPLE QUESTIONS TO DETERMINE LEVEL OF DETAIL

As a PDT and Vertical Team consider the appropriate level of detail needed to make the next planning decision, typical questions for consideration include:

What information is needed? What criteria will be used to evaluate plans and make a decision?

- Exceedence probability?
- Unregulated discharge?
- Habitat?
- Structure and content data?
- Population/income/employment?
- Etc.

How is this information linked to the study's defined problems, opportunities, objectives, and constraints?

Is the information a high priority (must have) need or a low priority need (it would be nice to have)?

Must the information be quantitative? If so why? The PDT and VT should always question "Why more is better."

Is data for what I am looking for available?

- If so is there a very good reason why I can't use it?
- If not, what is the least effort I need to get a sufficient amount of data? Internet? Sampling? Windshield surveys?

Is a Federal or State agency requesting/requiring it? If so, should I ask the Vertical Team if it is an absolute?

Is there a threat of a lawsuit? If so, should I ask the Vertical Team if it is an absolute?

What is my appropriate base year? Period of analysis?

What is going to change between the existing conditions and future?

- Increased flooding (timing, frequency, duration)?
- Increased consequences of flooding (more economic assets, people)?
- Habitats near the River will improve? Degrade?

What assumptions are being made to answer the above questions of changing future characteristics? Have I documented those assumptions?

Will those assumptions increase the risk of making an undesirable decision? If so can I accept the risk or is more information needed (i.e. is going back and inventorying to a greater level of detail warranted)?

Have the key assumptions that will drive the analysis been clearly documented and coordinated with the vertical team prior to any significant investment of resources?

What tools or models will I need?

Are tools or models needed?

Are the tools and models certified (see Planning SMART Guide Review Primer)?

Are there ways to run the tools with less detailed information where possible and plausible?

## **ADDITIONAL RESOURCES**

There will be times where a PDT will determine that help is needed. The first place to look is always the District and Major Subordinate Command (MSC). Other FRM Experts reside virtually in the FRM-PCX, the Hydrologic Engineering Center (HEC), the Institute for Water Resources (IWR), and at the Headquarters. Another good place to go for help is the 'PEOPLE' tab on the USACE Planning Toolbox ([www.corpsplanning.us](http://www.corpsplanning.us)).

Figure 2: Overview of Planning a Flood Risk Management Project

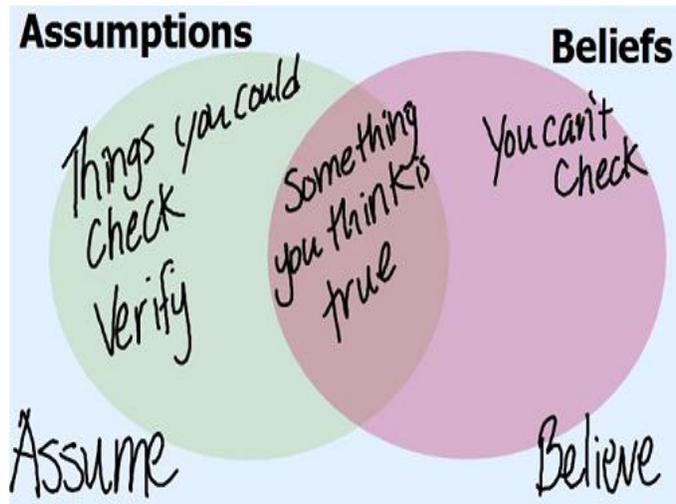
**Step 1: Problems and Opportunities**

- Study Area Delineation
- Problems
- Opportunities
- Objectives/Goals
- Constraints



**Step 2: Inventory Historic and Existing Conditions**

- Data Collection
  - Econ Assets
  - Demographics
  - Hydraulics & Hydrology
  - Habitat/Env.
  - Income
  - Employment
  - Recreation
  - Etc.



**Step 2 (cont):**

**Future-Without Project Conditions**

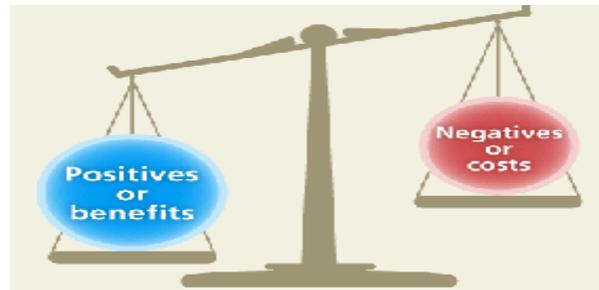
- Base Year
- Period of Analysis
- List of Assumptions
- Models to be Used
- Scenario Analysis

**Step 3: Develop Measures/Plans**

- Structural
- Nonstructural
- Mitigation Requirements

**Step 4: Evaluate Alternatives**

- National Economic Development (NED)
- Environmental Quality (EQ)
- Regional Economic Development (RED)
- Other Social Effects (OSE)
- Cost
- Real Estate



**Step 5: Compare Measures**

- System of Accounts
- Multi-Criteria Decision Analysis
- Trade Off Analysis

Objective/Effect	Plan 1	Plan 2	Plan 3
Reduce Flood Damages	+7	+7	+6
Reduce Potential Loss of Life	+2	+2	0
Maintain Fish & Wildlife Habitat	-3	0	+1

**Step 6: Recommend a Plan**

