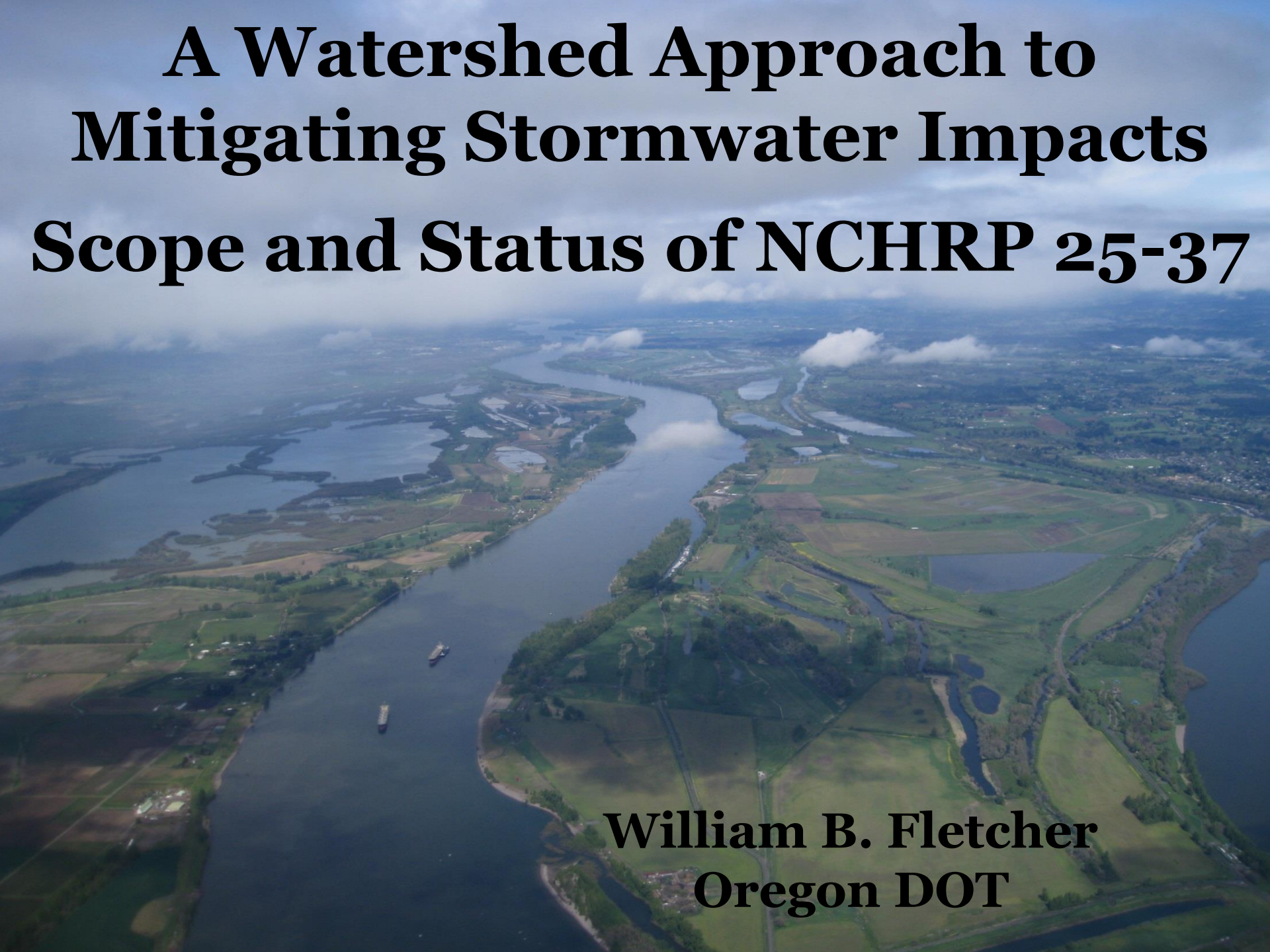
A Watershed Approach to Mitigating Stormwater Impacts

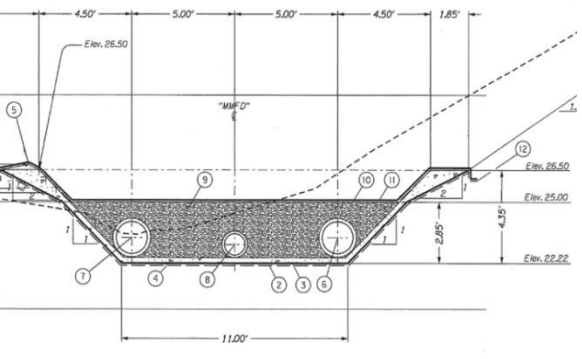
Scope and Status of NCHRP 25-37

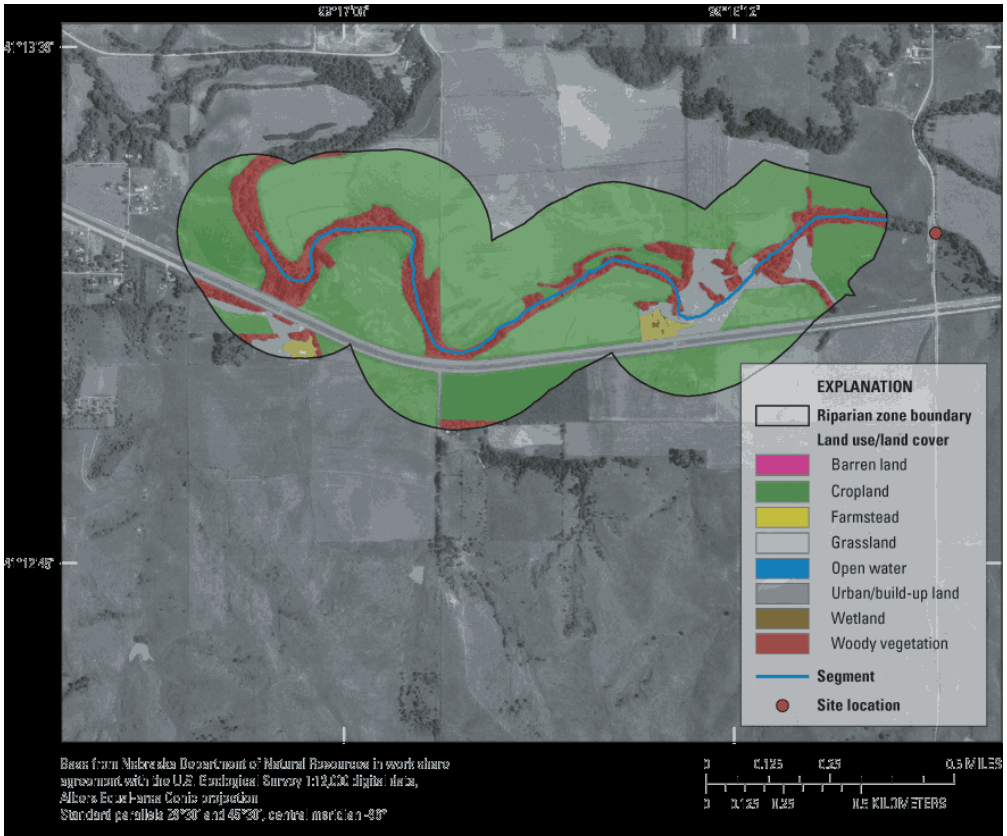


William B. Fletcher
Oregon DOT

Watershed Approach for this project

Select and place BMPs so they mitigate impacts and of benefit the watershed





Goals of the project

Project level stormwater mitigation strategies to:

- Compensate for project impacts
- Provide enhanced environmental benefits
  - Address watershed priorities
  - Support watershed ecological services
- Give DOTs more flexibility in how they meet stormwater management requirements

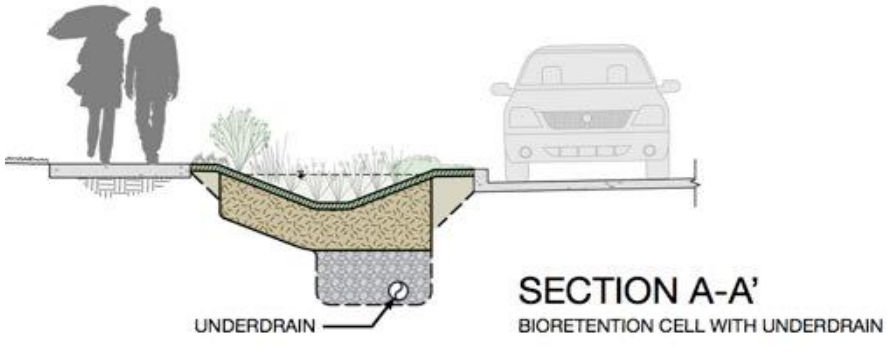
Objective

A product that

- Is widely applicable and can be used in areas without watershed assessments or plans
- Assists in identifying and evaluating mitigation options
- Assesses the environmental benefits of the mitigation options

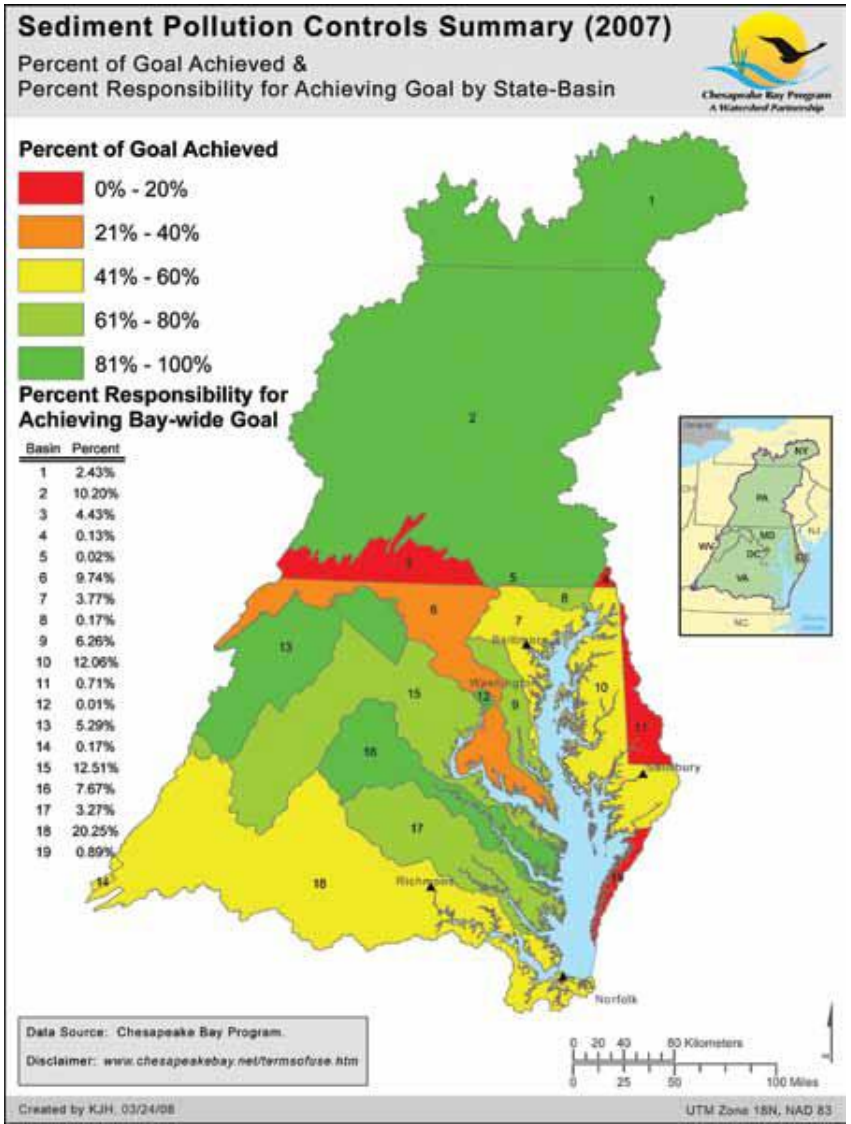
Stormwater Mitigation Options

- On-site, in-kind (standard project mitigation)
- Off-site, in-kind
- Trading/banking/off-set
- Out-of-kind
- Combination of on-site and other options



Project Elements

- Identification and evaluation of data sources and tools
  - Watershed conditions and priorities
  - Project impacts
  - BMP types and effectiveness
  - Existing offset, trading and banking programs
  - DOT resources, requirements and limitations

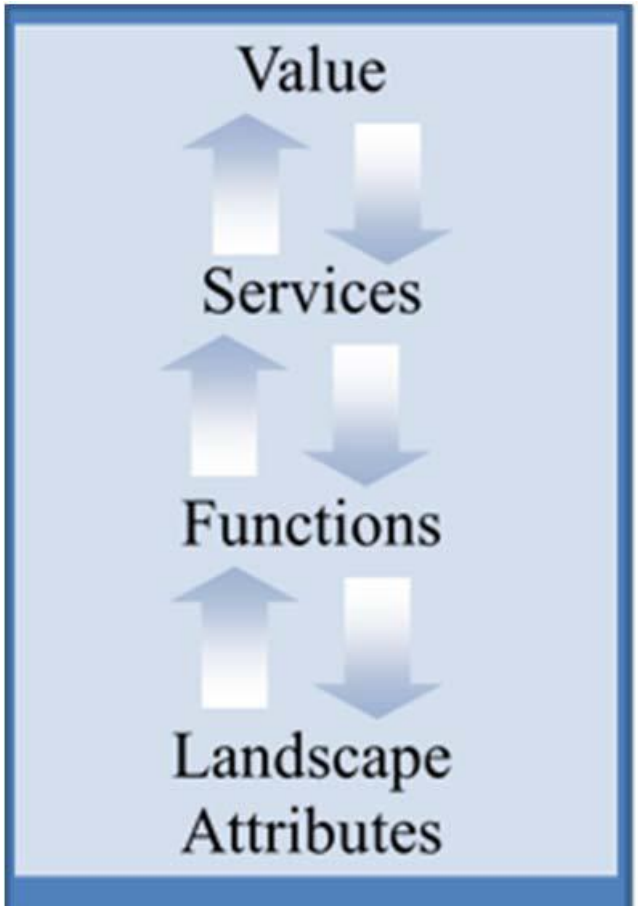


Project elements

- Development of a mitigation option evaluation process, which supports:
- Development of an electronic Toolbox and guidance document to direct and assist in mitigation evaluation and selection

Ecosystem Services

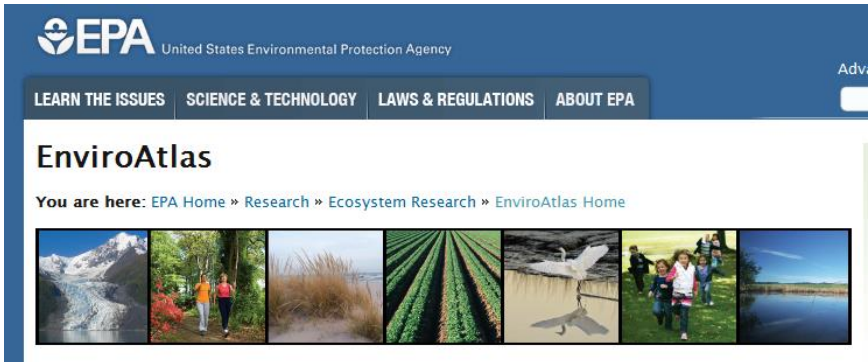
- Takes mitigation evaluation one step (or more) beyond just meeting water quality criteria.
- Can be used in comparing the value of different mitigation options, including off-site and out-of-kind.



Status

- White Papers on:
  - Existing Data Sources
  - Foundation and approach for the Toolbox
  - Characterization of the Watershed
  - Characterizing watershed goals and mitigation effectiveness

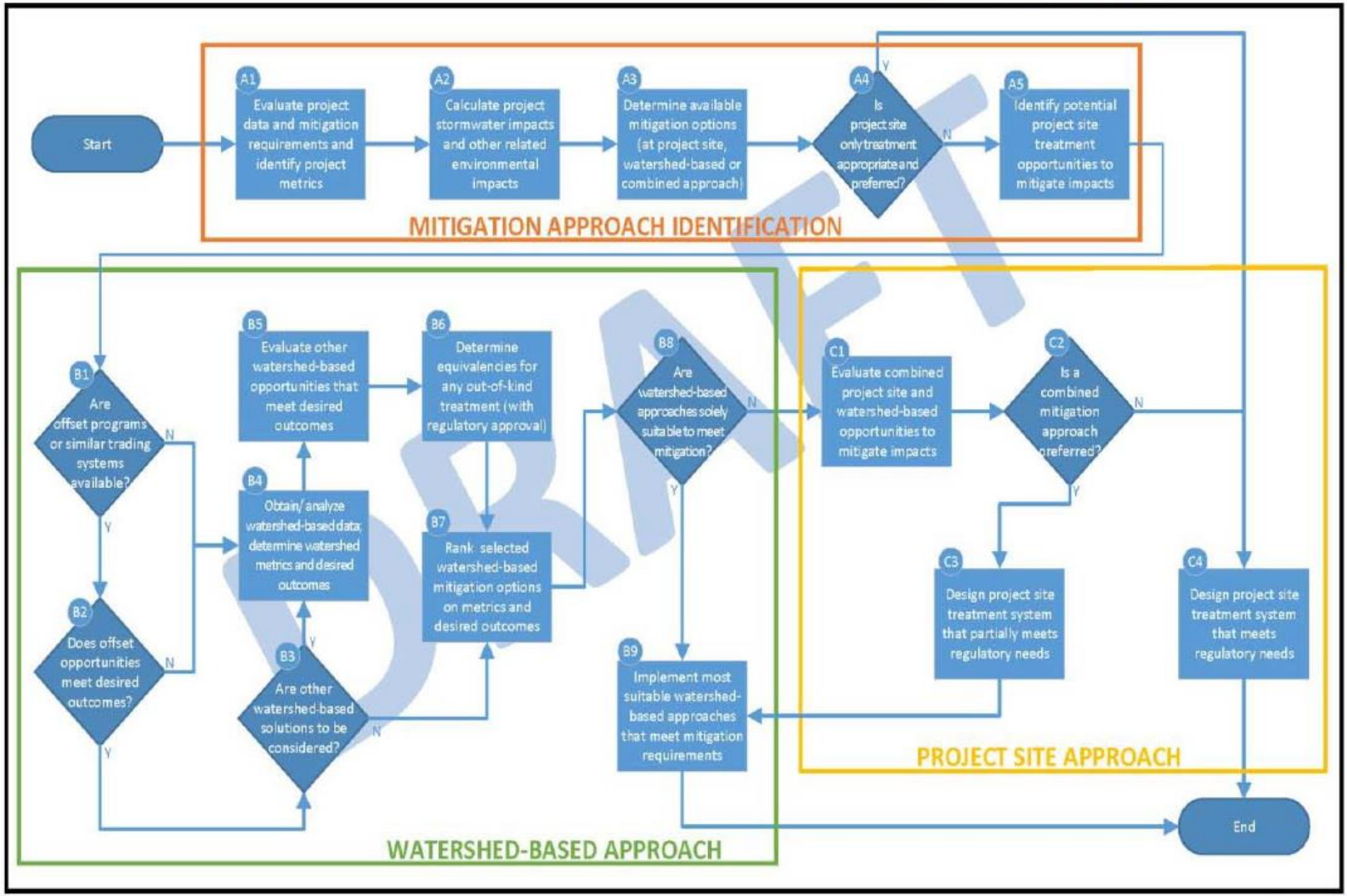
watershed resources registry



Status

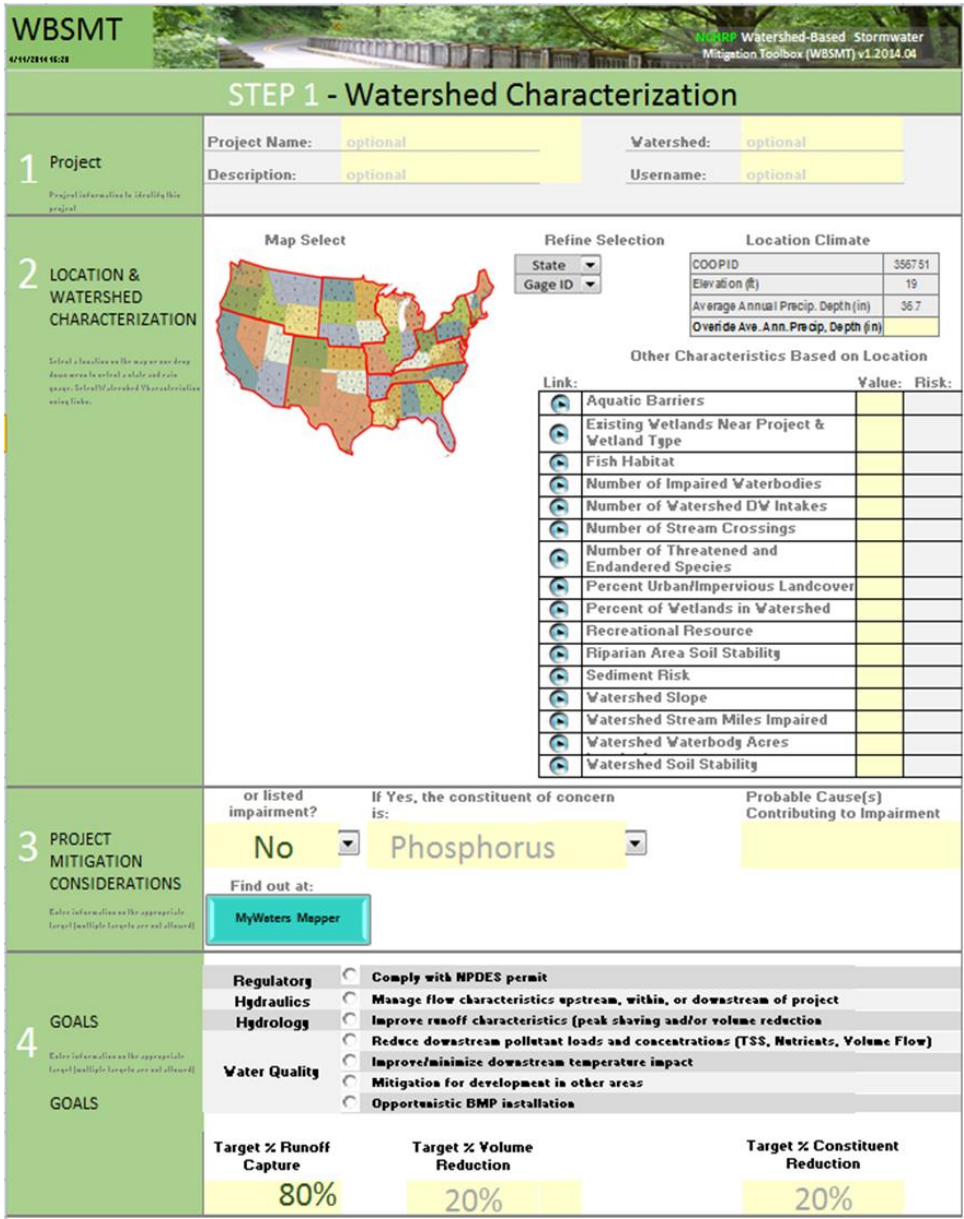
- White Papers
  - Development of the Toolbox
    - Selection of on and off-site BMPs
    - Data and tools for Watershed-based mitigation and Ecosystem Services
    - DOT organizational capacity for mitigation programs
    - Watershed based trading and off-set programs
- Report Chapters:
  - Chapter 2: Toolbox Datasets
  - Chapter 3: Methods to Develop Mitigation Options
- Process Flow Chart

Process Flowchart



Toolbox Requirements

- National data and appropriate state/local information
- Quantification of impacts
- Identification of candidate mitigation tools
- Identification of known watershed opportunities
- Rank mitigation approaches based on *"apparent benefits" to ecosystem services*



Toolbox Organization:

1. Pre-screening evaluation of offsite criteria
2. Watershed characterization and project mitigation goals
3. Project impacts and equivalencies
4. Linking mitigation options with ecosystem services
5. Mitigation and equivalency reporting metrics

Next Steps

- Linkage of mitigation actions to ecosystem services
- Evaluation of mitigation equivalency
- Finding and assessing off-site mitigation opportunities
- Ranking mitigation options based on watershed goals and project objectives

Next Steps

- Integrate Watershed Approach mitigation with existing planning efforts
- Prepare a programmatic decision framework
- Conduct Pilot projects
- Develop model institutional framework for DOTs using a watershed approach

Stay tuned for the exciting conclusion!