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2023 COASTAL MASTER PLAN  
*COMMITTED TO OUR COAST*

# THE PLANNING TOOL: 2023 COASTAL MASTER PLAN

**DAVID GROVES**

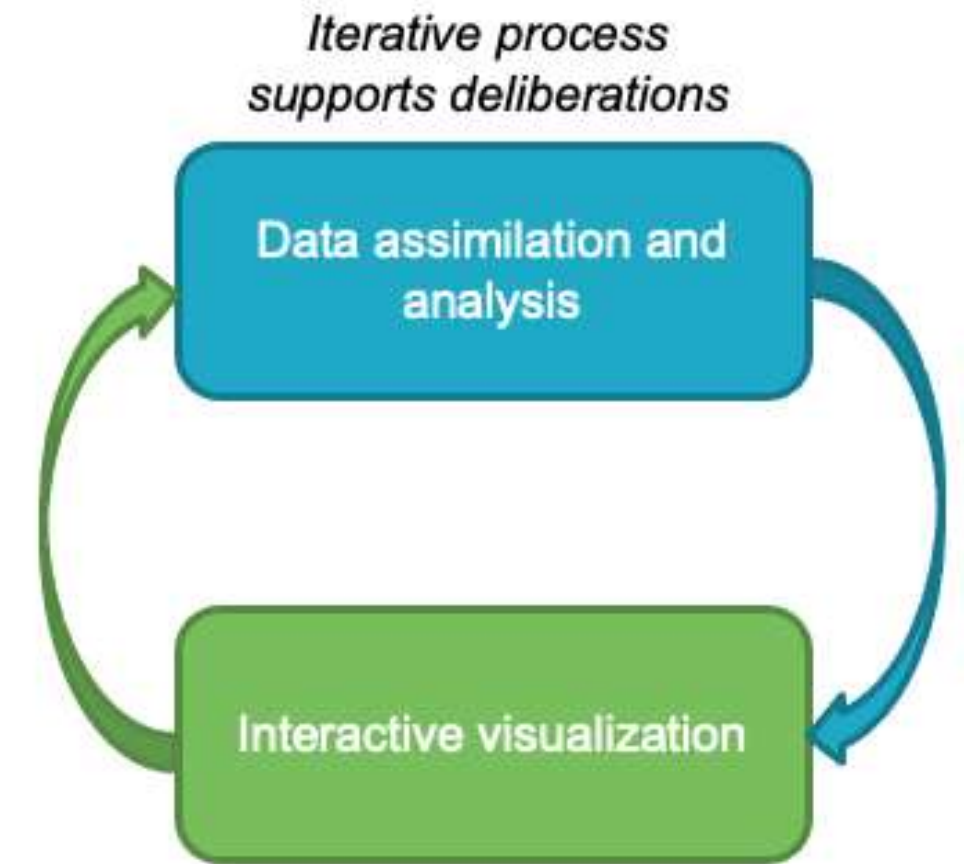
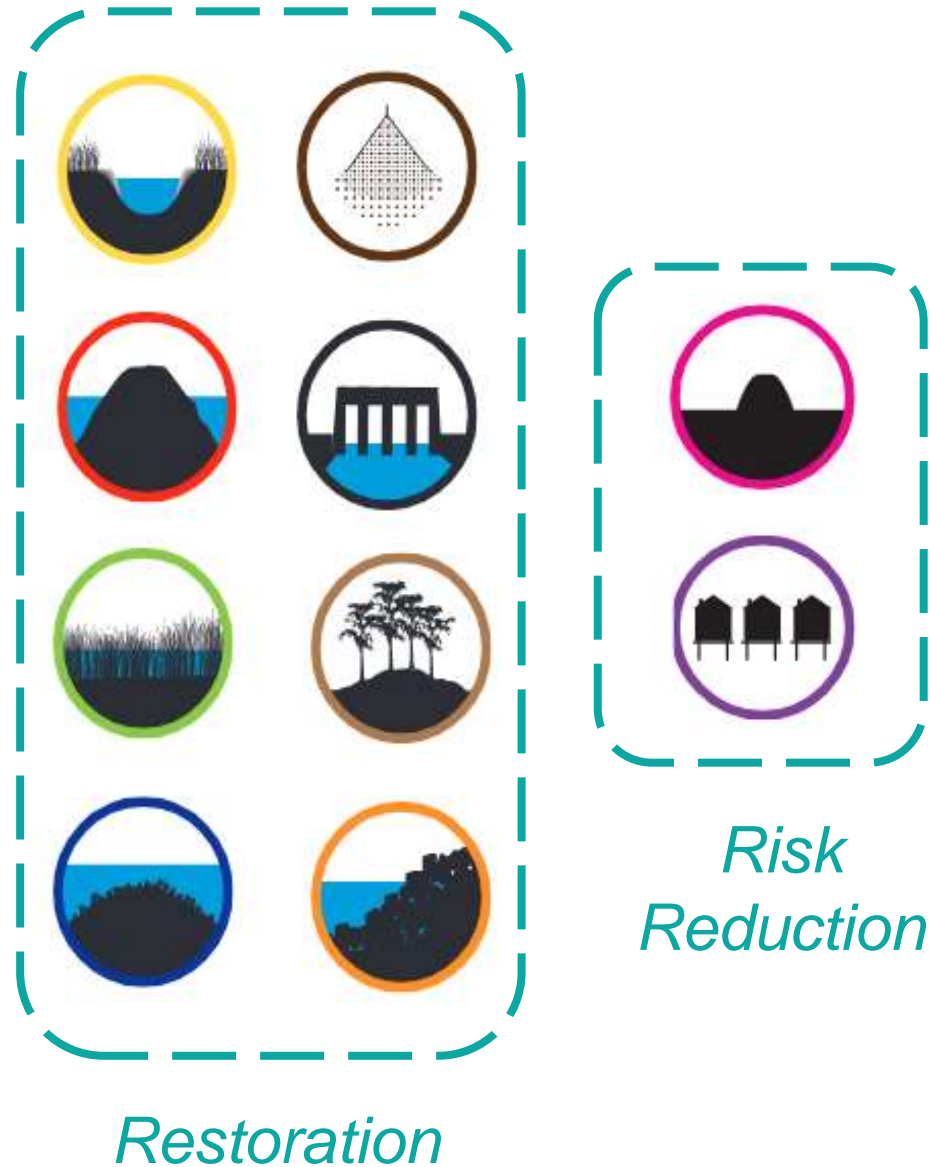


**DECEMBER 21, 2020**

# THE PLANNING TOOL

AN OBJECTIVE AND TRANSPARENT APPROACH TO PROJECT SELECTION

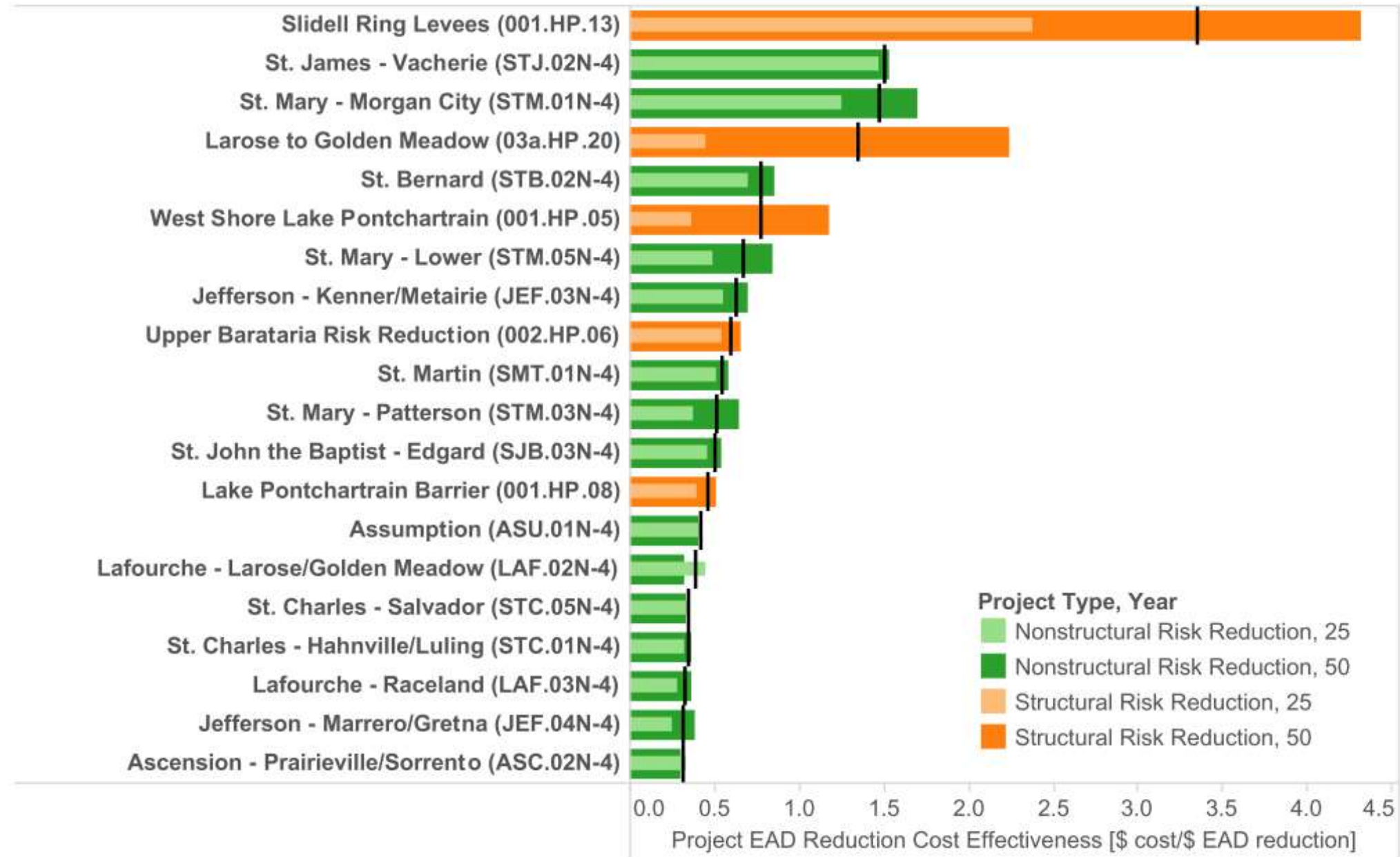
1. **Compares projects** based on common performance metrics and costing approach
2. **Identifies alternatives** (groups of projects) for consideration
3. Interactive visualization **supports stakeholder discussions** over alternatives





# THE PLANNING TOOL

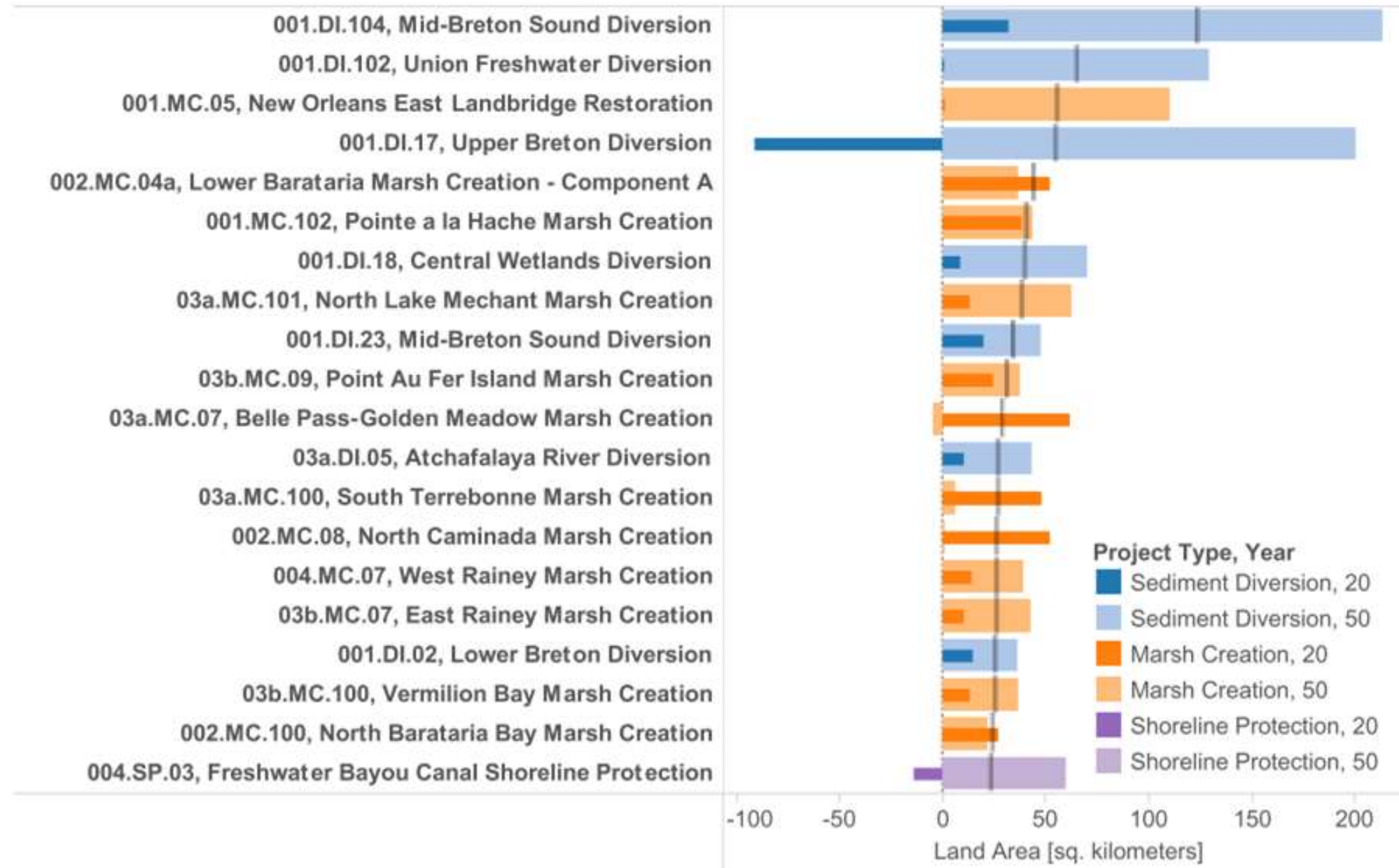
## COMPARISON OF MODELED EFFECTS OF PROJECTS - RISK REDUCTION



Most cost-effective risk reduction projects from 2017

# THE PLANNING TOOL

## COMPARISON OF MODELED EFFECTS OF PROJECTS - LAND BUILDING

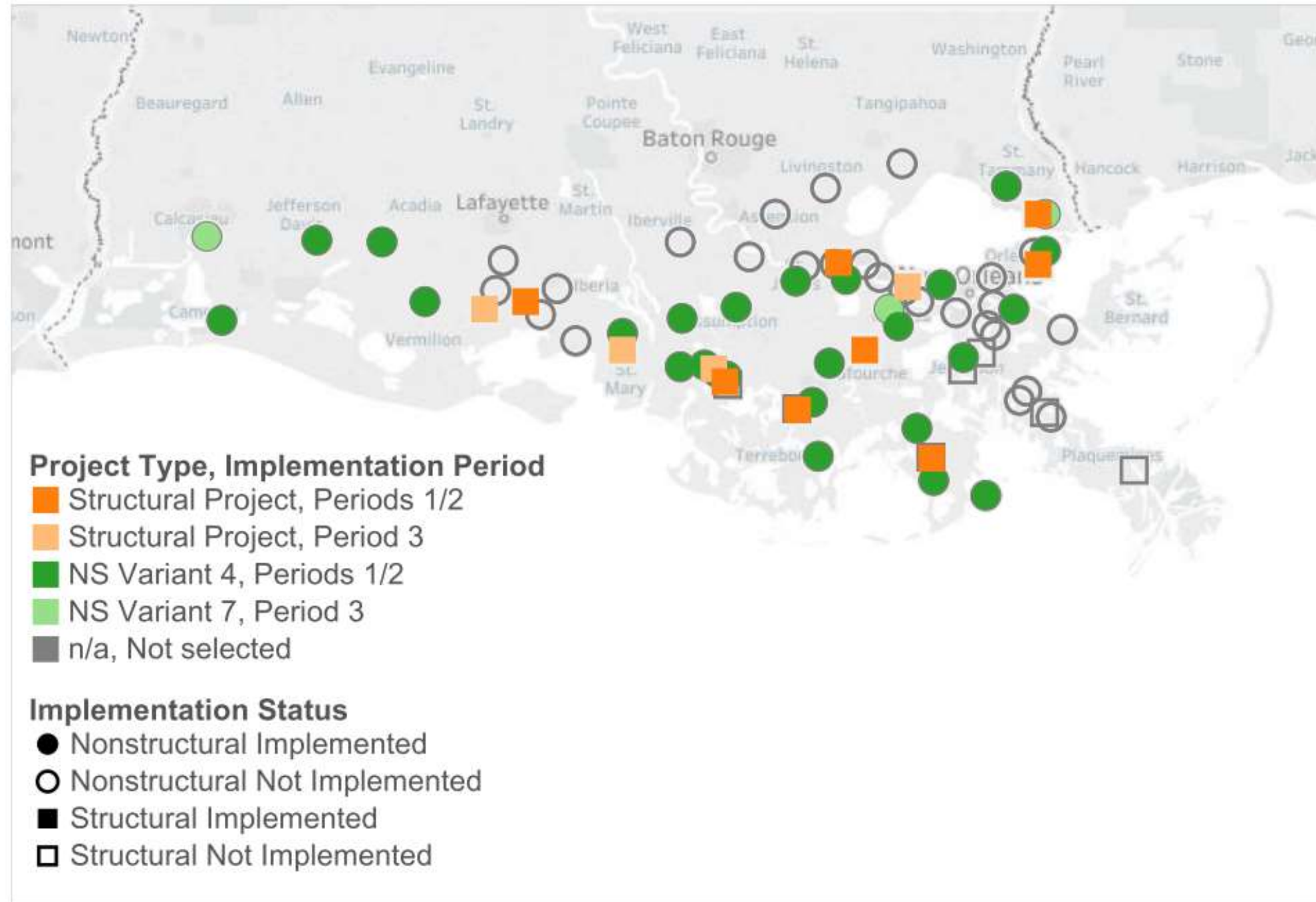


Most effective restoration projects in building land from 2017

# THE PLANNING TOOL

DEVELOPING ALTERNATIVES TO ANSWER PLANNING QUESTIONS - RISK REDUCTION

*Which projects would reduce the most risk for \$25 billion?*





# THE PLANNING TOOL

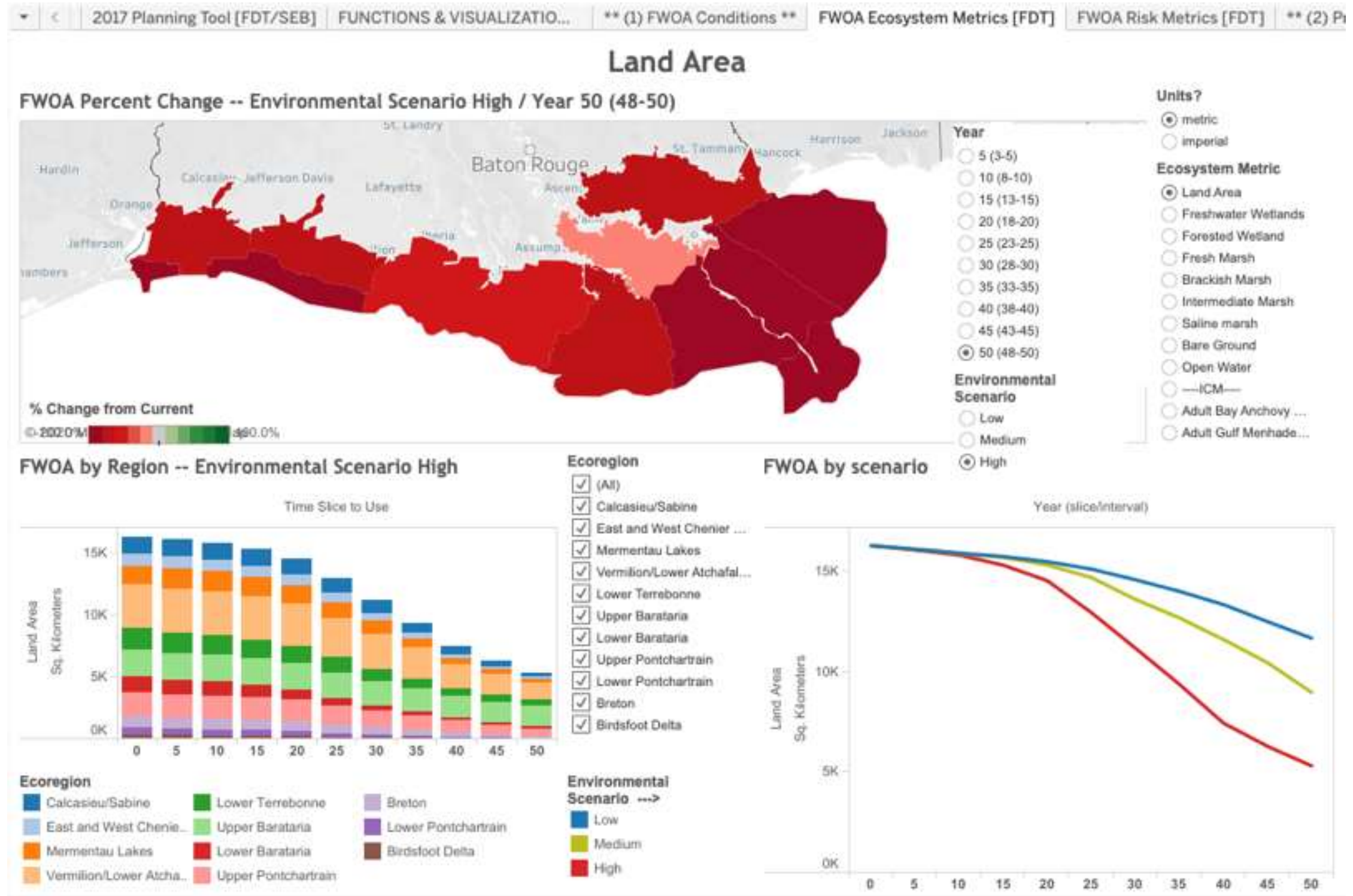
DEVELOPING ALTERNATIVES TO ANSWER PLANNING QUESTIONS - LAND BUILDING

*Which projects would build the most land for \$25 billion?*



# INTERACTIVE VISUALIZATION

SUPPORTING PLANNING AND ENGAGEMENT



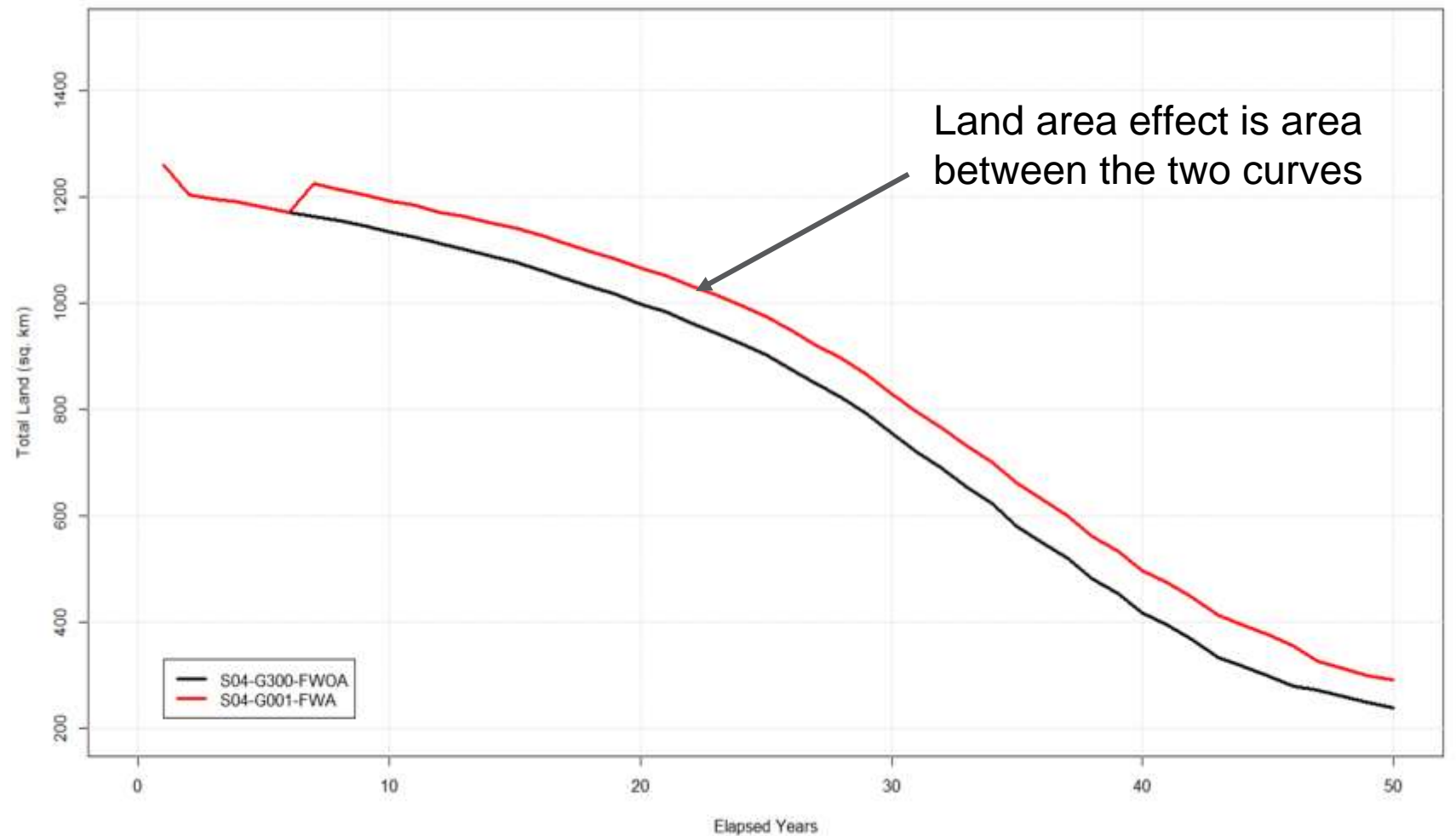
# IDENTIFYING ALTERNATIVES

## GROUPS OF PROJECTS TO ACHIEVE MASTER PLAN OBJECTIVES

- Maximizes key decision drivers:
  - Land area
  - Expected Annual Damage Reduction
- Evaluated over time for both restoration and risk reduction



*Land trajectory with and without restoration project*

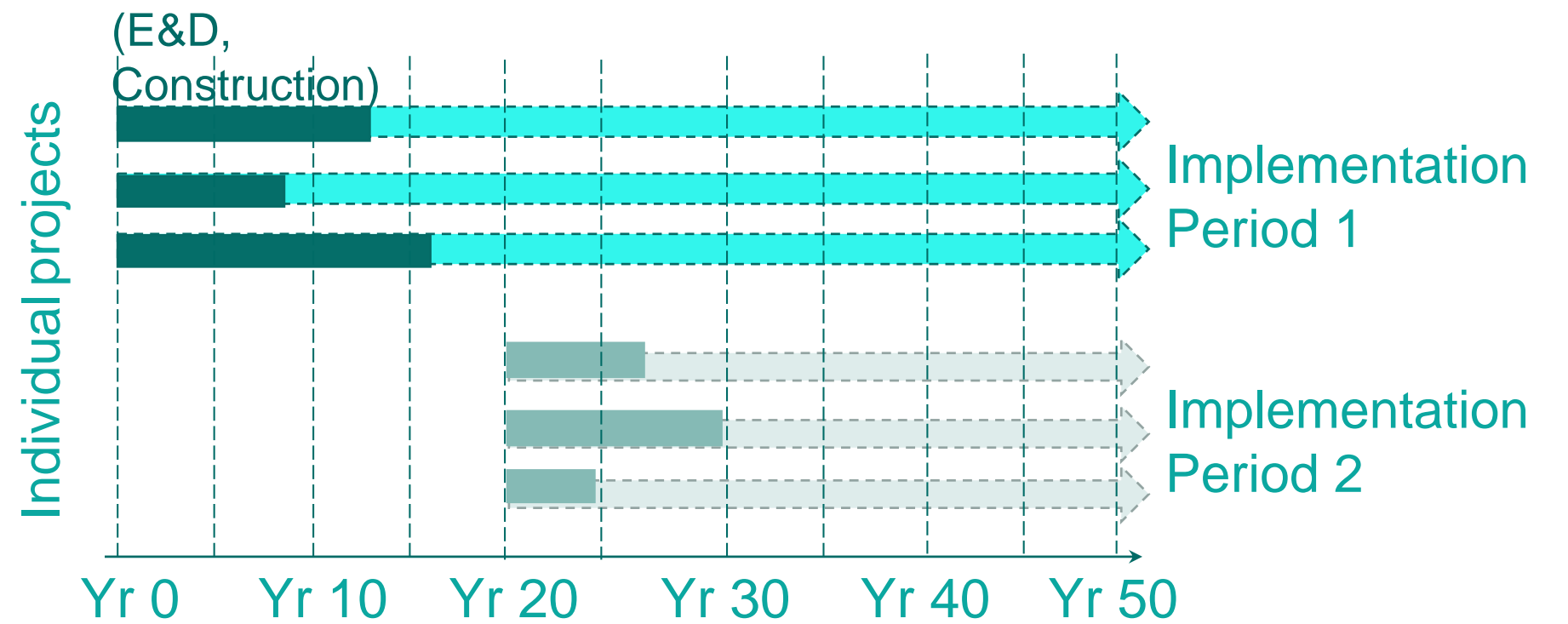




# IDENTIFYING ALTERNATIVES

## GROUPS OF PROJECTS TO ACHIEVE MASTER PLAN OBJECTIVES

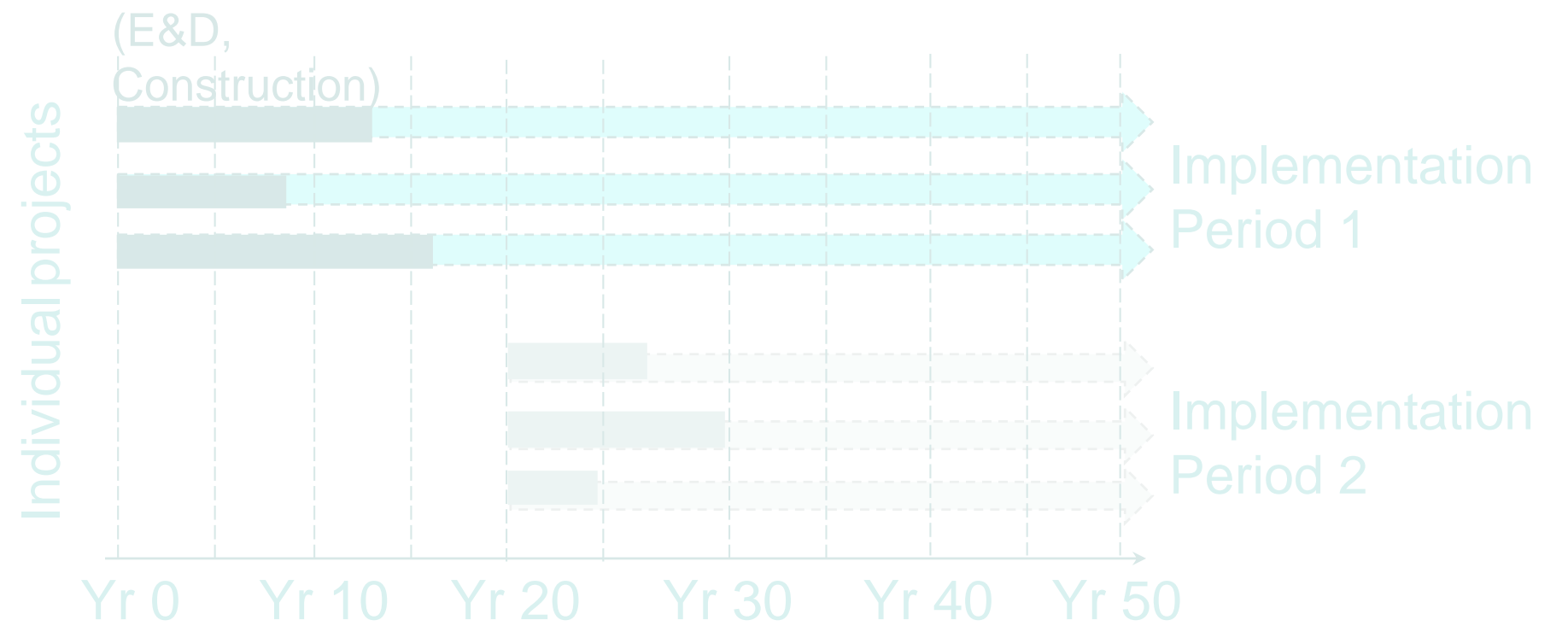
- Consistent with key constraints:
  - Funding availability
  - Available sediment
  - Project compatibilities
  - Outcomes with respect to other criteria
- For a specified scenario



# IDENTIFYING ALTERNATIVES

## GROUPS OF PROJECTS TO ACHIEVE MASTER PLAN OBJECTIVES

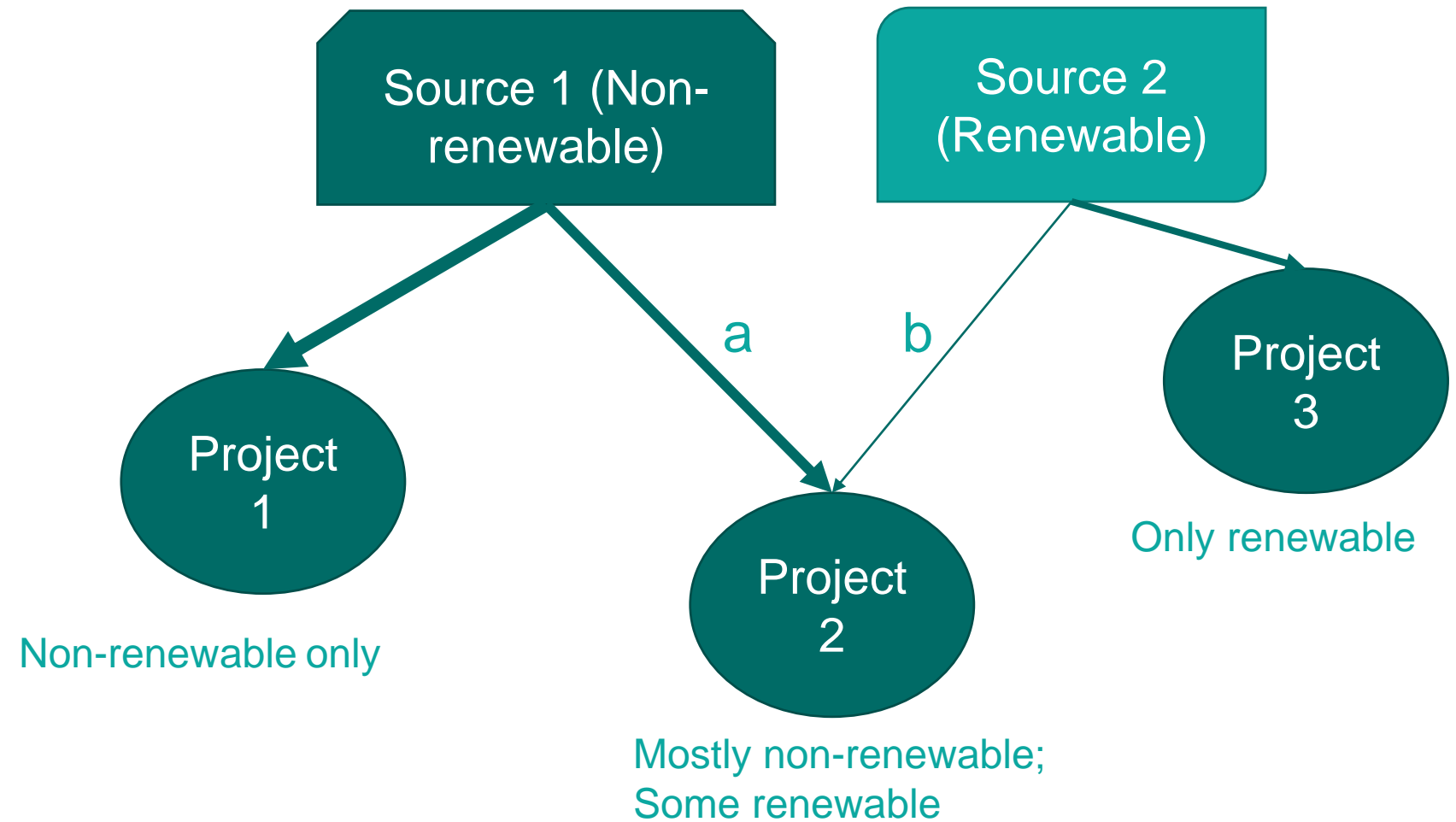
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# SEDIMENT BORROW REQUIREMENTS

CAN BE MET BY DIFFERENT SOURCES--PROJECT COSTS ADJUST ACCORDINGLY

- Planning Tool tracks available borrow from non-renewable and renewable sources
- Marsh creation and land bridge projects can acquire borrow from different sources
- Cost of borrow depends on sources used
  - Example: Borrow cost for Project 2 is a function of “a” and “b” and unit costs for each borrow source
- *Planning Tool maximizes land subject to available sediment and funding*

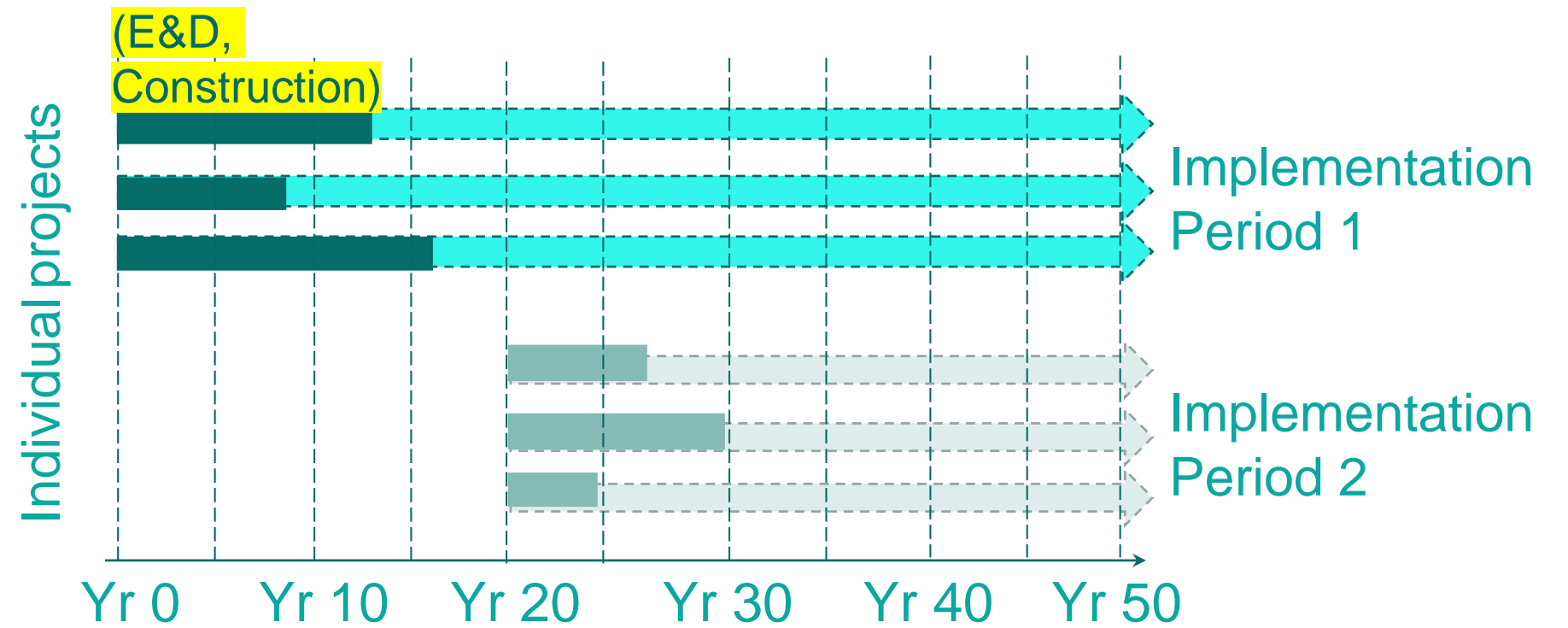




# IDENTIFYING ALTERNATIVES

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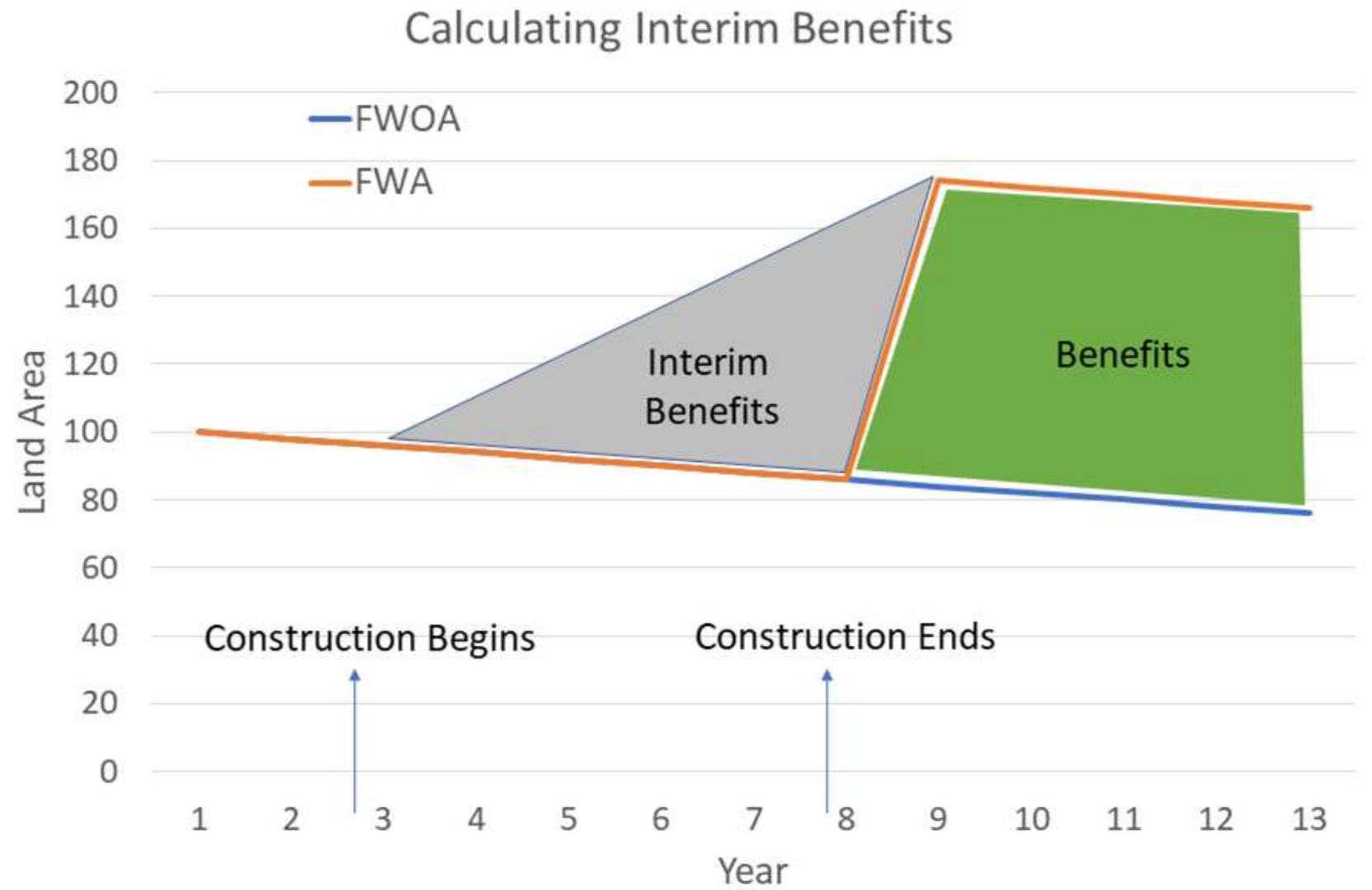
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# PROJECT EFFECTS

REFLECT ENGINEERING, DESIGN, AND CONSTRUCTION TIME

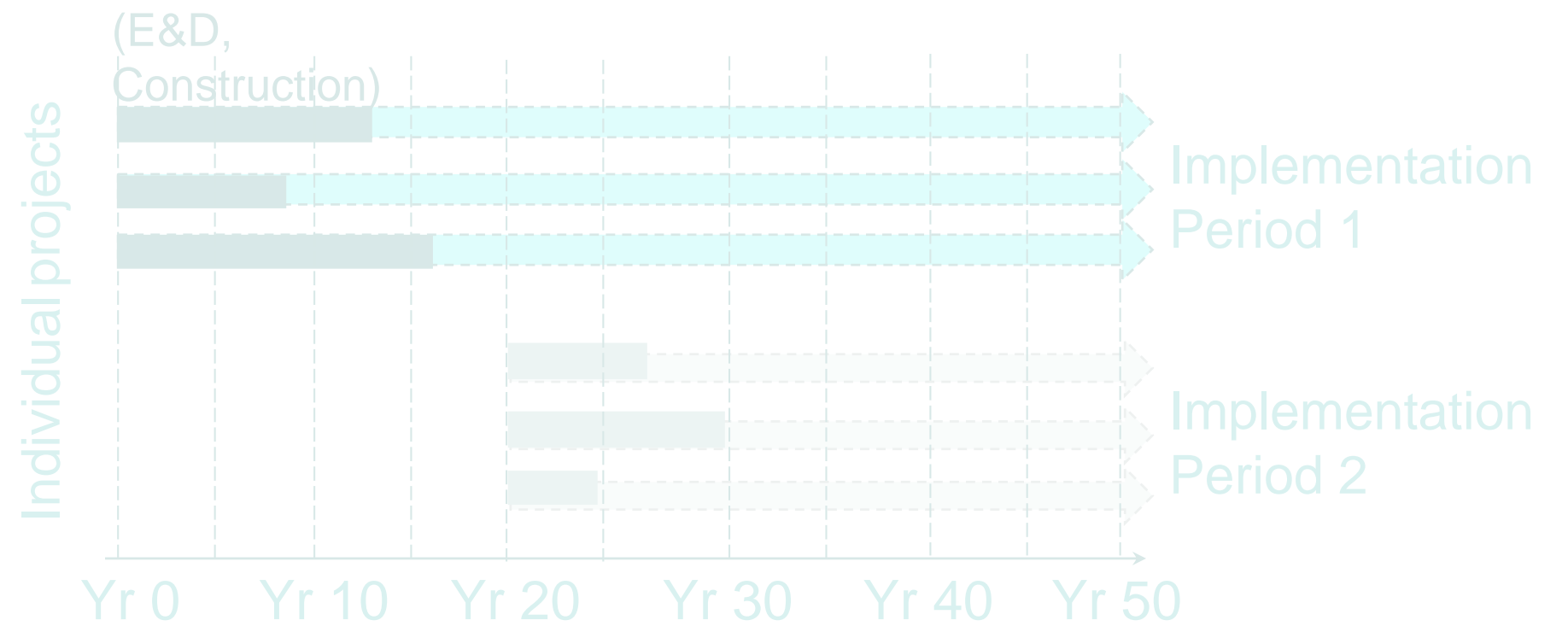
- Predictive models delay effects until ED & Construction ends
- For some projects, interim benefits accrue during construction
- This matters, since PT considers benefits every year



# IDENTIFYING ALTERNATIVES

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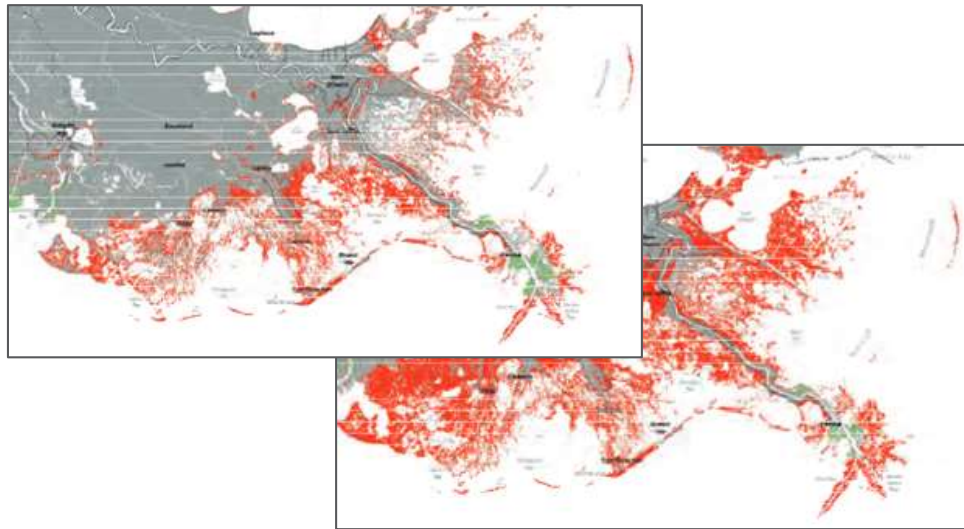
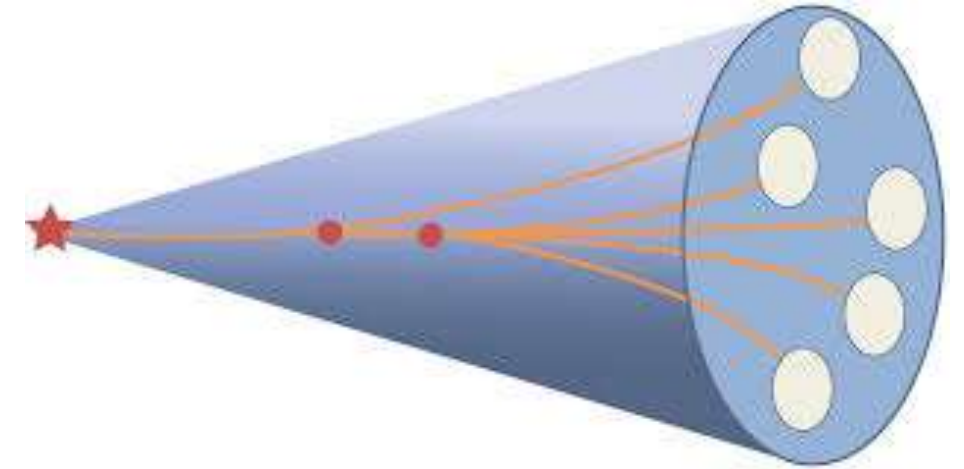




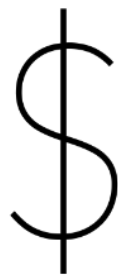
# SCENARIO ANALYSIS

## IMPLICATIONS OF FUTURE UNCERTAINTY

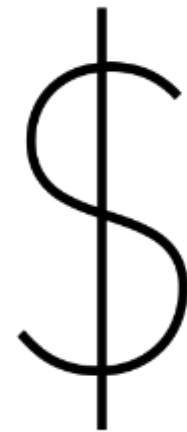
- Develop alternatives under different assumptions about the future
- Compare project selections and outcomes
- Develop robust alternatives



Environmental Scenarios (2)



Baseline



High estimate

Cost Uncertainty (2 levels)



Landscape model uncertainty



Levee performance (fragility)

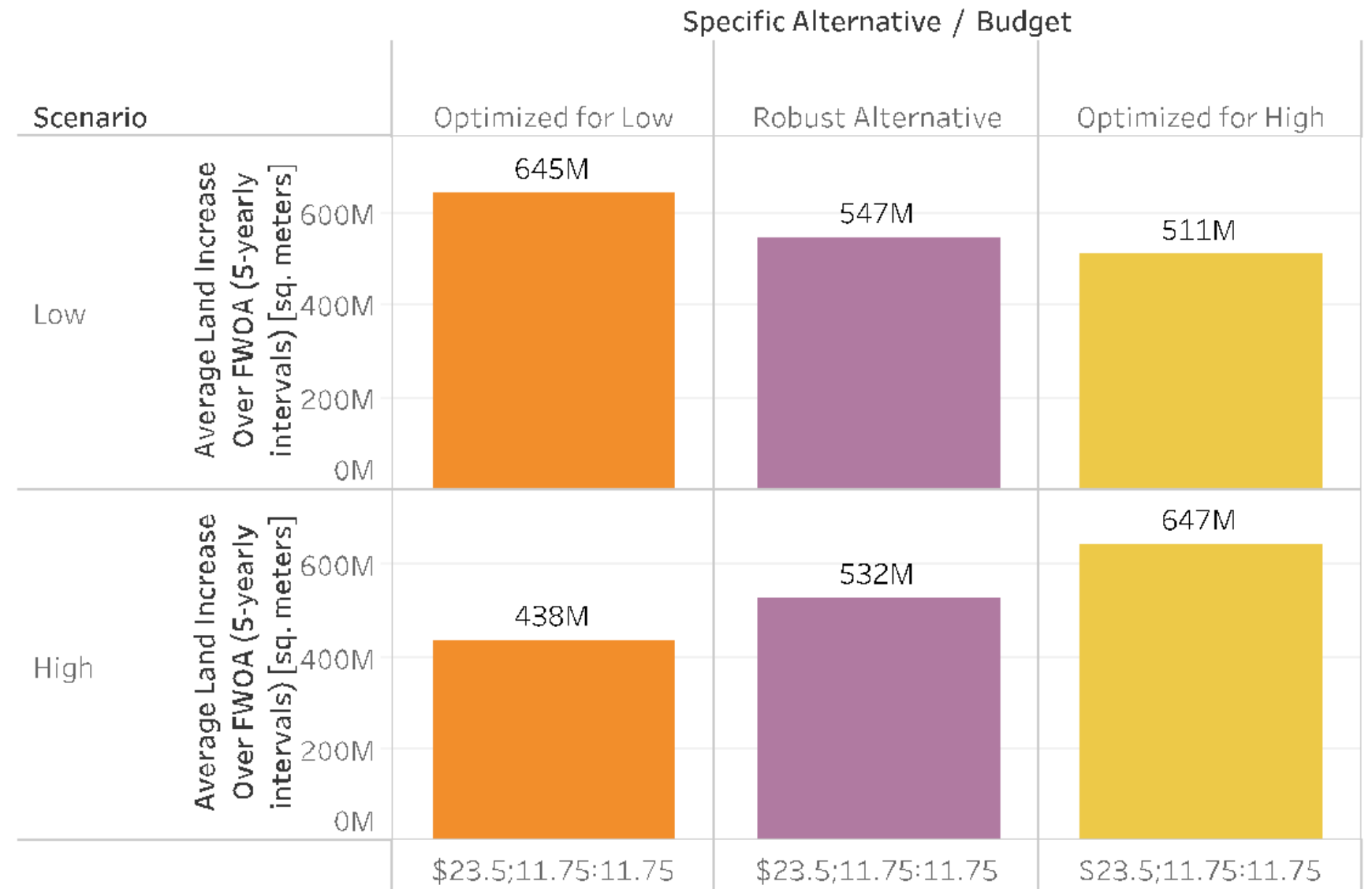
Benefits from projects (2 levels)

# ROBUST ALTERNATIVES

## AN APPROACH TO MANAGING UNCERTAINTY

1. Select first set of projects (next 20 years) that performs well across each scenario, within budget
2. Fix first set of projects
3. Select second set of projects (final 30 years) that performs well across each scenario

Total Land Comparison (Optimal and Robust)





A teal-tinted landscape featuring a body of water in the foreground with gentle ripples. In the middle ground, there are clumps of tall reeds on the left and a dense line of trees on the right. A small boat is visible in the water on the right side, leaving a white wake. The sky is a uniform teal color.

**THANK YOU!**