

### Project Goal

The overarching goal of the Long-Term Restoration Plan is the restoration and enhancement of wetlands in the South San Francisco Bay *while providing for flood management* and wildlife-oriented public access and recreation.

# South Bay Salt Ponds

Restoration Plan Objectives — Selected

- *Objective 2:* Maintain or improve existing levels of flood protection in the South Bay area.
- *Objective 6:* Protect the services provided by existing infrastructure (e.g., power lines, railroads).

### Detailed Project Objectives, Flood Control — Working Draft

- a. Emphasize flood control concepts that are naturally sustainable due to consistency with natural wetland and shore morphologies
- Identify increases in flood potential associated with restoration alternatives, and identify corresponding mitigation measures
- c. Synergize with Flood Control Districts, Corps, FEMA, other flood management stakeholders
  - i. Communication
  - ii. Use, not duplicate, available information and studies
  - iii. Emphasize consistency with flood control approaches by others iv. Adapt approach

# South Bay Salt Ponds

### Task 4 Requirements

- a. Flood Management: Flood Management Concept Plan
- b. Flood management concepts, criteria etc. for use in *Task 1 Alternative Development*
- c. Flood management modeling parameters for use in *Task 3: Analysis of Physical and Ecological Processes*

### South Bay Salt Ponds

With multi-agency cooperation, projects can integrate flood management and wetland restoration



Opportunities with wetland restoration

- a. Tidal conversion of ponds enhanced flood storage and conveyance
- b. Expansion of sloughs (levee setbacks) enhanced flood storage and conveyance
- c. Managed ponds (pond, muted tidal or seasonal habitat) flood flow diversion
- d. Mudflat and marsh natural wave breaks









a. Salt Pond Converted to Tidal Marsh

- 1. Increase tidal prism
- 2. Expansion of channel cross-section
- 3. Increase channel conveyance
- 4. Increase flood storage
- 5. Decrease water level downstream
- 6. Reduction of flood hazard upstream





b. Levee Setback

- 1. Increase tidal prism
- 2. Expansion of channel cross-section
- 3. Increase channel conveyance
- 4. Decrease water level downstream
- 5. Reduction of flood hazard upstream





### South Bay Salt Ponds

# c. Managed Pond

- 1. Increase flood storage
- 2. Decrease water level downstream
- 3. Reduction of flood hazard upstream by using pond storage



d. Mudflats and marshes - natural wave breaks







# Constraints

- a. Relocate tidal boundary at under-designed levee increased erosion and overtopping
- Introduce or increase tidal action reduce flood water storage at high tide / increase ground water elevation
- c. Others

### South Bay Salt Ponds

### Approach

- a. Detailed Project Objectives, Alternative screening criteria – May 1
- b. Identify Opportunities and Constraints June 1
- c. Conceptual flood management options Aug 15
- d. Modeling approach and criteria
- e. Work split
- f. Scope next stage

### South Bay Salt Ponds

### Process

- a. Overall workshop March
- b. Focused workshops April / May
- c. Memorandum July
- d. Next Stage

Key Initial Questions

### a. Institutional Framework

- i. Jurisdiction of Districts, Corps, FEMA, others
   ii. Others not represented or identified?
   iii. Operational criteria for flood control

# b. Flood Management Needs

- i. Existing and expected problemsii. Existing and future projects

### c. Resources

- i. Site and field data
  ii. Studies
  iii. Models
  iv. Guidelines and specifications



PHILIP WILLIAMS & ASSOCIATES, LTD

CONSULTANTS IN HYDROLOGY