

An aerial photograph showing a wide, muddy brown river that has overflowed its banks, inundating a valley. The water is high, reaching the roofs of some houses and surrounding trees. The landscape is a mix of green fields, dense forests, and scattered residential buildings. In the background, there are rolling hills and a cloudy sky. The text is overlaid on the upper and lower portions of the image.

# **Skagit River Flood Risk Management General Investigation**

***Board of County Commissioners***

***Status Update***

***06/03/14***

An aerial photograph of a wide river valley. A bridge spans across the river in the middle ground. The surrounding area includes residential neighborhoods, green fields, and some industrial or commercial buildings. The image is slightly faded to serve as a background for the text.

# **General Investigation Presentation Outline**

- Basin Flooding
- Planning Process
- Tentatively Selected Plan
- Draft Feasibility Report/EIS
- Public Comment/Concurrent Review
- Next Steps

# General Investigation

## Basin Flooding

- **1% ACE**
  - 100-yr Flood
  - 225,400 cfs at Concrete Gauge
  - ~ 45' at Concrete Gauge
- **4% ACE**
  - 25-yr Flood
  - 165,300 cfs at Concrete Gauge
  - ~ 42' at Concrete Gauge
  - Approximate level of lower basin protection
- **Recent Floods**  
(Concrete Gauge)
  - 2003 (10/21)
    - 42.21'
    - 166,000 cfs
  - 1995 (11/29)
    - 41.57'
    - 160,000 cfs
  - 1990 (11/10)
    - 40.20'
    - 149,000 cfs

An aerial photograph of a river basin, likely the Tennessee River, showing a large reservoir in the background and a wide, flooded river in the foreground. The surrounding landscape is hilly and forested, with some buildings and infrastructure visible along the riverbanks.

# General Investigation

## USACE Planning Process

- Phases
  - Reconnaissance
  - Feasibility (current)
  - Pre-Construction Engineering and Design
  - Construction
  - Operation and Maintenance
- Goal
  - Reduce flood risks, risks to life safety, and damages in the Basin as a result of flooding over the 50-year project life



# General Investigation USACE Planning Process

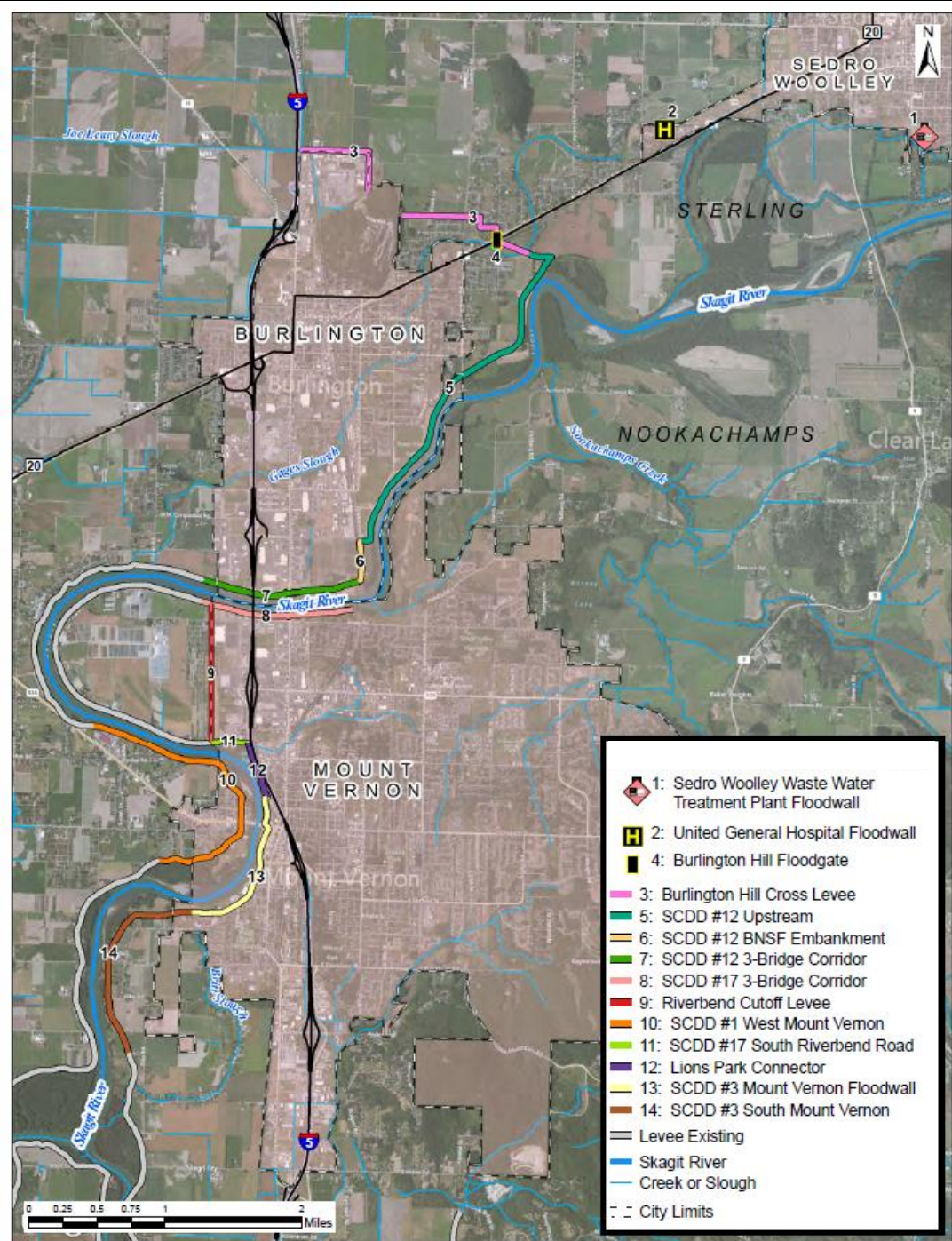
- Existing Conditions
- Future Without-Project Condition
- Management Measures
- Alternative Plans
  - Preliminary Array of Alternatives
  - Final Array of Alternatives
  - Evaluate, Compare
- Tentatively Selected Plan
- Agency Decision Milestone
- Chief's Report

The background of the slide is a faded, aerial photograph of a flooded area. A bridge spans across a wide, muddy river. In the distance, there are buildings and structures, some of which appear to be partially submerged. The overall scene is one of significant flooding and potential infrastructure damage.

# **General Investigation**

## **Tentatively Selected Plan**

- Comprehensive Urban Levee Improvement Plan (CULI)
  - NEPA Preferred Alternative
  - Most effectively meets objectives
  - ~9 miles of improved levee
  - ~3 miles of new levee
  - Baker Project Dam Storage
  - Site specific measures
  - Non-structural measures



-  1: Sedro Woolley Waste Water Treatment Plant Floodwall
-  2: United General Hospital Floodwall
-  4: Burlington Hill Floodgate
-  3: Burlington Hill Cross Levee
-  5: SCDD #12 Upstream
-  6: SCDD #12 BNSF Embankment
-  7: SCDD #12 3-Bridge Corridor
-  8: SCDD #17 3-Bridge Corridor
-  9: Riverbend Cutoff Levee
-  10: SCDD #1 West Mount Vernon
-  11: SCDD #17 South Riverbend Road
-  12: Lions Park Connector
-  13: SCDD #3 Mount Vernon Floodwall
-  14: SCDD #3 South Mount Vernon
-  Levee Existing
-  Skagit River
-  Creek or Slough
-  City Limits



# General Investigation Baker Project Dam Storage

- Existing Hard Storage
  - 74,000 Acre Feet at Upper Baker on 11/15
    - 16,000 Acre Feet on 10/15
    - 58,000 Acre Feet on 11/15
- Hard Storage Opportunity
  - FERC License 2008 107 (a) & 107 (b)
  - 74,000 Acre Feet at Upper Baker on 10/15
  - Up to 29,000 Acre Feet at Lower Baker on 10/15
    - PSE Estimates 20,000 Acre Feet available without dam modifications i.e. operational modification only



# General Investigation

## Baker Project Dam Storage

- Approx. 30% Floods Occur b/t 10/1-11/15
- Dams evaluated on their own, in combination
- Combination utilized for analysis
- Annualized Cost
  - \$861,000 average annual O&M cost\*
- Annualized Benefit
  - 17,000 cfs flow reduction\*

# General Investigation

## Tentatively Selected Plan

- Federal Objective in Planning
  - Contribute to National Economic Development (NED)
- CULI – Scaled Economic Evaluation
  - 1.3% ACE (75-Year)
  - 1% ACE (100-Year)
  - 0.4% ACE (250-Year)
  - All have positive BCR
- Preliminary NED Plan
  - 0.4% ACE Level of Protection
  - Maximizes Net Benefits

An aerial photograph of a dam and reservoir, surrounded by dense green forest. The dam is a concrete structure with a spillway, and the reservoir is a large body of water. The background is a thick forest of trees.

# General Investigation

## Next Steps

- Concurrent Review
  - Technical, Legal, Policy Reviews
- National Environmental Policy Act
  - Availability of Report 6/6 Federal Register
  - 45 Public Comment Period
- Agency Decision Milestone
  - Advance design, engineering
- Chief's Report
  - Congressional authorization