

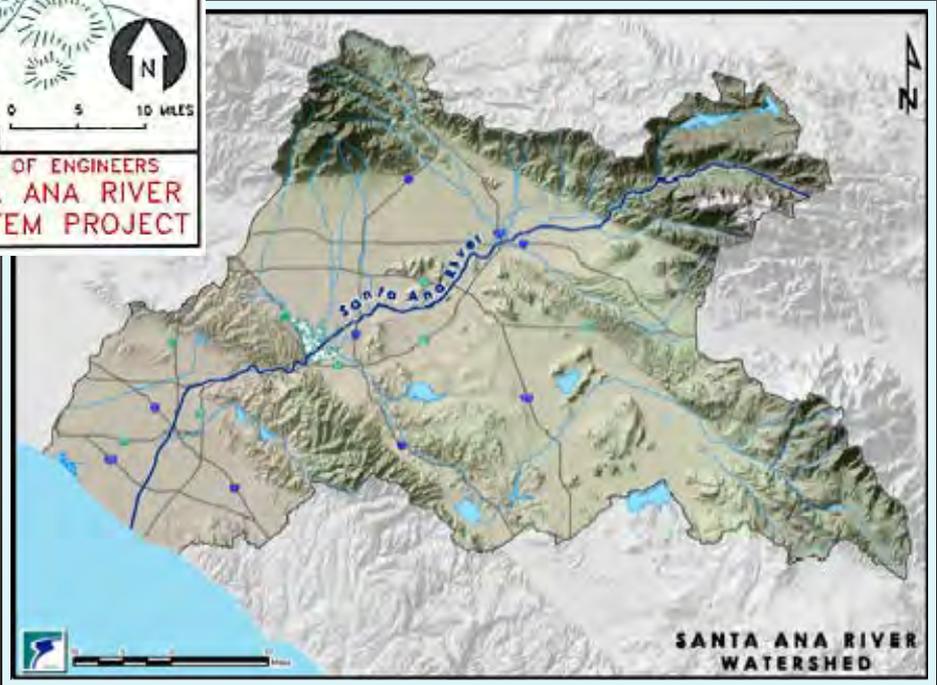
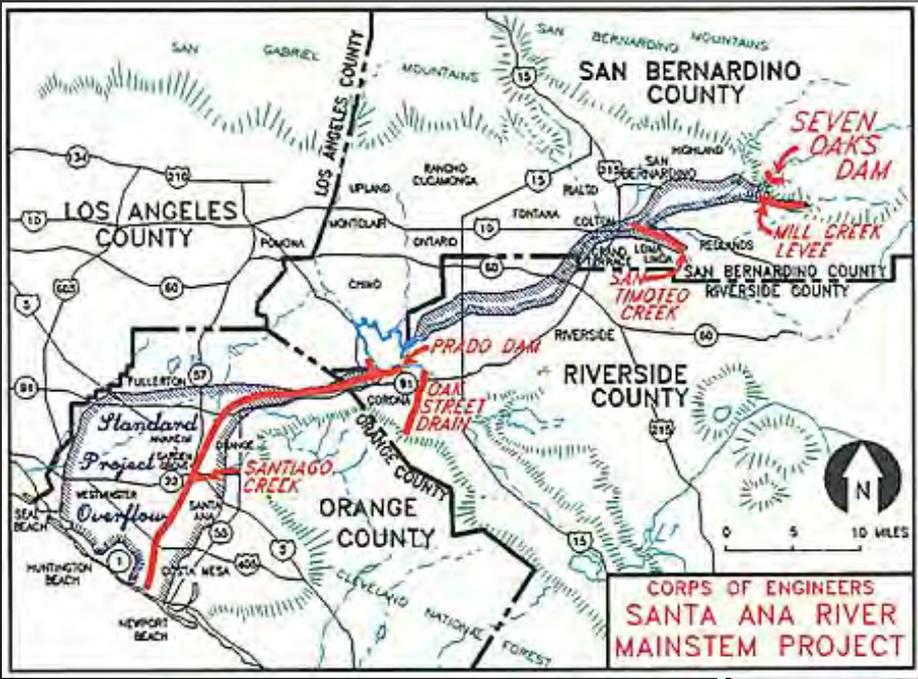
WATERSHED WIDE CONCEPTS FOR THE 21ST CENTURY

**OWOW Conference
April 25, 2012**

**RUTH VILLALOBOS, VICE PRESIDENT
RBF CONSULTING**



Santa Ana River Watershed





Forest First Program Projects



- Protection of headwaters
- Increased yield
- Protection of recharge areas
- Sediment control – water quality
- Reduced flood hazards
- Removal of invasive species
- Recreational opportunities
- Savings in avoided infrastructure (e.g. reduced treatment requirements)



Multi-Use Flood Control Corridor Projects



- Streams and tributaries of Santa Ana River and the river itself
- Enhanced recharge
 - Rubber dams
 - Detention facilities
 - Soft-bottom
 - Stormwater in combination with recycled or imported water
- Native riparian vegetation and habitat
- Recreational use
- Water quality and TMDL's
- Adaptation to climate change impacts



Santa Ana River Sediment Transport



- Implementation of measures to assure sediment to appropriately transferred along the entire Santa Ana River system
- Benefits may include:
 - Increased recharge
 - Restoral coastal and beach habitat
 - Reduce operation and maintenance costs



Big Bear Lake





Endangered Species





Seven Oaks Dam





Endangered Species





Prado Dam





Prado Dam





Prado Dam





Endangered Species





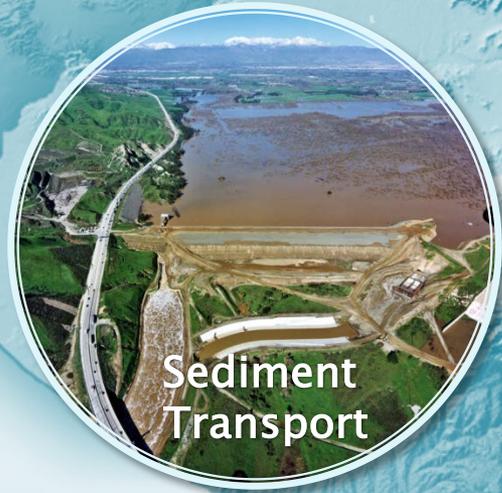
Watershed Wide Concepts



Multi-Use
Flood Control



Forest First
Program



Sediment
Transport



Watershed
Habitat