

# Urban Forest for Clean Air Demonstration Project

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# Overview

- Project Goals
- Project Team
- Project Funding
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# Project Goal

- Better understanding of the effects of trees on regional air quality
- Use this knowledge to develop and implement a voluntary urban forest strategy to improve air quality
- Further the science on the environmental benefits of urban forest expansion programs as a heat island strategy

# Project Team

- Sacramento Tree Foundation (STF)
  - Project lead
    - Robert Kerth, Senior Project Leader
- Sacramento Metropolitan Air Quality Management District (SMAQMD)
  - SIP Planning & funding management
    - Charles Anderson, Plan Coordination
- USDA Forest Service Center for Urban Forest Research (CUFR)
  - Scientific research
    - James R. Simpson, Ph.D.
    - Greg McPherson, Ph.D.

# Project Funding

- Provided through a Federal Grant
  - Congestion Mitigation and Air Quality Improvement (CMAQ)
- Grant \$745,497
  - \$520,497 urban forest analysis/modeling
  - \$225,000 photochemical modeling
- Grant funding is for 2 years
  - Study ends December 2008
- Local funding
  - 5 regional air districts contributed
    - \$83,158 local matching

# Project Phases

- Four Phases
  - Phase 1 – Urban Forest Analysis
  - Phase 2 – Photochemical Analysis
  - Phase 3 – Tree planting strategy implementation
  - Phase 4 – Field Verification

# Phase 1 – Urban Forest Analysis

- Review of scientific studies relating to heat island strategies
  - Urban tree forest expansion
- Estimate AQ benefits using scientific and statistical analyses
- Evaluate different planting approaches
  - growth rates, tree mortality, and tree population
- Determine if results demonstrate we achieve air quality benefits
- Publish results of initial study
  - Draft a preliminary control measure
    - Input from EPA & CARB
  - Begin to secure enforceable agreements with local jurisdictions to achieve canopy cover
- Obtain approval to proceed with subsequent phases
  - Board approval granted in October 2006

## Phase 2 – Photochemical Modeling

- Develop parameters to be used in photochemical modeling
  - Land use, temperature, emissions, and meteorology
- Perform comprehensive air quality modeling
  - State-of-the-science models
- Rigorous evaluation of modeling results



# Phase 3 – Tree Planting Strategy Implementation

- Implement the tree planting strategy
  - Specific tree canopy cover determined from Phase 1
- Continue to secure enforceable agreements with local jurisdictions
- Jurisdictions would focus on three main efforts
  - Community-based organization development
  - Local ordinance adoption
  - Public education

# Phase 4 – Field Verification

- CUFR established program to track changes in tree canopy cover
- Estimates of biogenic emissions, based on the tree information collected from 300 field survey plots placed randomly throughout the region
- UFORE (Urban Forest Effects Model)
  - Forest-modeling suite that allows users to calculate data on the entire urban forest,
  - Currently in use
  - Peer-reviewed in several areas of the US
  - Quickly identify under-performance

# Current Status

- Report published
  - Air Quality Effects of a Regional Tree Planting Program for use in an Urban Forestry-based SIP Measure
- Draft SIP Measure being developed
  - Focused planting strategy
  - Meets EPA's Voluntary/Emerging measure limitations
  - Include in draft 8-Hour Attainment Plan
- Phase 2 – Underway
  - Land use and biogenic inventory development
  - RFP for photochemical modeling developed
    - Public release planned for early June 2007