

Urban Forest for Clean Air Demonstration Project

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Overview

- Project Goals
- Project Team
- Project Funding
- Project Phases
- Current status

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