

## UC DAVIS - CALTRANS AIR QUALITY PROJECT

Department of Civil and Environmental Engineering  
University of California, Davis  
Engineering III, Room 2001  
One Shields Avenue  
Davis, CA 95616-8762

(530) 752-0586  
Fax: (530) 752-2803

Caltrans Environmental Program, MS-27  
1120 N Street  
P.O. Box 942874  
Sacramento, CA 94274-0001

(916) 653-7507  
FAX (916) 653-5927  
TDD (916) 654-4014

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### MEMORANDUM

April 9, 2002

TO: Mike Brady  
FROM: Doug Eisinger, Deb Niemeier, Tom Kear  
SUBJECT: TCM Information

This memo is in response to your request for help identifying information resources related to Transportation Control Measures (TCMs). You had asked us to put together (a) a list of useful resources (literature) that would help quantify emission reductions associated with TCMs, and (b) a brief list of tasks that would represent a TCM analysis effort. The context was the potential need for Caltrans to assist in evaluating reasonably available control measures (RACM) for the San Joaquin Valley.

#### TCM Literature Identifying Emission Reduction Benefits

There is a wide range of literature available on how to evaluate TCMs and quantify the emission reduction benefits. Rather than provide a detailed listing of the various documents, as a first step it is useful to identify major web sites with TCM-related literature. Important sites include

1. As a general reference, the U.S. EPA has a web site that identifies TCM-specific resources. EPA information is available at: <http://yosemite.epa.gov/aa/tcmsitei.nsf>.
2. FHWA also has a TCM web site, located at: <http://www.fhwa.dot.gov/////environment/tcm.htm>.
3. FHWA has sponsored preparation of several guidance documents on TCM evaluation methodologies. The most recent is dated October 2000 and is available from the Internet at: <http://www.fhwa.dot.gov/////environment/tcm3.htm> (click on "A Sampling of Emissions Analysis Techniques for TCMs;" this site also has other emission evaluation resources).

4. ARB also has a web site which makes available various tools to do cost-benefit analyses of CMAQ projects and various specific TCMs (employer programs, street sweeping and others). Information is available at:  
<http://arbis.arb.ca.gov/planning/tsaq/eval/eval.htm>.

Assuming that the RACM TCMs have already been identified for evaluation, perhaps the single most useful resource at this point would be the FHWA-sponsored “A Sampling of Emissions Analysis Techniques for TCMs” (available at:  
<http://www.fhwa.dot.gov/////environment/cmaqeat/cmaqeat.pdf>). This document includes various tables which identify, by specific TCMs, the relative merits of the various analysis tools available.

### **Task Considerations**

A brief checklist of things to do to complete TCM emission assessments could include the following steps:

1. Identify TCMs for analysis; identify appropriate and available analysis tools using overview resources such as those from FHWA (i.e., “A Sampling of Emissions Analysis Techniques for TCMs”) or EPA (i.e., TCM evaluation matrix, available via:  
<http://www.epa.gov/oms/transp/vmweb/matrix.pdf>).
2. Obtain needed local data on base-year and future-year base-case travel activity.
3. Identify TCMs already being implemented or those already committed to for future implementation. (This information will be needed to appropriately apportion the fraction of travel activity that could be affected by implementation of additional TCMs; see Step 5 below).
4. Interview local agency staff responsible for implementing identified and candidate TCMs. In most cases, local agencies have already implemented similar or identical measures in the past, and discussions with local staff are needed to identify the potential incremental changes that are practical with additional TCMs. For example, regional planning agencies may have already identified parcels of land available for additional park and ride facilities; future park and ride lot implementation would be governed by these parcel locations and the number of parking spaces they can accommodate.
5. Determine degree to which TCMs overlap in terms of travel activity affected, and apportion relative activity to be affected by individual measures. For example, implementation of a telecommuting program could eliminate some trips that might have been affected by improved transit service; activity needs to be apportioned correctly to avoid double counting of program benefits.
6. Employ specific analysis techniques identified through the literature. Steps are likely to include off-model adjustments to a small subset of travel, and should account for

emission reduction benefits associated with changes in trip end activity (starts and starts), vehicle miles traveled, and travel time changes.

7. Share draft findings with local agencies for review and discussion.
8. Prepare final study report.

This is obviously a very brief overview of what constitutes a large base of literature. Let us know how you would like us to refine or expand upon the information provided.