CITY OF BAKERSFIELD DUAL COLLECTION REFUSE AND RECYCLING TRUCK PILOT PROGRAM REPORT

A pilot program funded by a US EPA grant for state/local/tribal innovative approaches to reducing air pollution

PURPOSE OF GRANT PROGRAM

EPA's effort to foster creative air pollution solutions through two $25,000 competitive grants for local entities.

PROJECT DESCRIPTION

- Reduce Refuse Truck Engine Emissions in Residential Areas
- Combine trips Made by Refuse and Recycling Trucks
- Use Special Refuse & Recycling Truck With a Divided Body

  (collect refuse and yard-waste routes together in one pass)
- Calculate Reduction in Several Air Pollutant Types

Current Situation

- Many states have recycling mandates – California is 50%. Typical approach is to run separate collection routes

Refuse

Yard-Waste

Recyclables

The result is a "PARADE" of collection trucks through the neighborhood. . .

Refuse **Yard-waste** **Recyclable**

*** And extra truck engine emissions!**

Typical Emissions Estimate

Typical 280 horsepower diesel engine running 2,000 work hours per year, using EPA 2003 emission limits for diesel engines:

Pollutant	Limit(g/bhp-h)	x bhp-h	= Annual Emissions
NOx	4.0	560,000	2.46 tons
NMOCs	1.3	560,000	0.8 tons
CO	15.5	560,000	9.5 tons
Particulates	0.10	560,000	0.06 tons

TOTAL EMISSIONS **12.82 TONS PER TRUCK PER YEAR**

HOW MUCH CAN WE CUT THESE?

Emissions Reduction

- Diesel fuel consumption is the key
- Travel distance is related to fuel consumption
- Project to test fuel consumption and travel distance with and without dual collection
- Fuel consumption data used to estimate emission reduction

Emissions Reduction

- **Two phases of truck travel:**
  - **I. Curb Miles**
    - **travel from house to house**
  - **II. Transit Miles**
    - **travel to and from the neighborhood route**

Findings

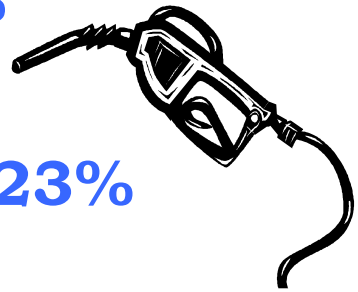
- **Total miles reduced about 31%**

  (101 miles per week)

- **Fuel consumption reduced about 23%**

  (33 gallons per week)



- **Emissions reduced by approximately 23% along with fuel**

  (2.95 tons of air emissions per year)

Summary Points

Dual collection mileage savings and emission reductions are tangible, but limited:

Dual collection can only save on "curb miles"

- **"Curb miles" are less than 25% of the total, although curb time is most of the work day**
- **Dual collection is more effective for areas with fewer transit miles**

"Curb miles" take less fuel than transit miles

- **Trucks accelerate away from one house, and brake toward the next, burning less fuel per mile**
- **transit miles use more fuel**

To be continued...