

**Sacramento Metropolitan Air Quality Management District**

**Wood Stoves & Wood Fireplace Change Out Incentive Program**

**June 2006**

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## **Executive Summary**

USEPA requires that all wood stoves sold after July 1990 meet USEPA certification requirements. There are many wood stoves sold before 1990 that continue to be used. In addition, fireplaces were never required to be certified and continue to be sold and installed. Fireplace inserts can be used as a retrofit to clean up existing open hearth fireplaces.

Wood smoke generated from burning wood in residential appliances is a common source of particulate matter, hydrocarbons, nitrogen oxides, toxic air contaminants and odors. The District is currently designated as a nonattainment area for the state and federal PM10<sup>1</sup> standards and for the state PM2.5 standard. The 2004 emission inventory for Sacramento County shows that wood smoke accounts for 20% of wintertime PM10 emissions and 44% of wintertime PM2.5 emissions. Wood smoke is not only linked to outdoor air pollution, but indoor air pollution as well. Exposure to particulate matter pollution can cause coughing, wheezing, and decreased lung function even in otherwise healthy children and adults. USEPA estimates that thousands of elderly people die prematurely each year from exposure to fine particles. In addition, a recent study (Dominici et. Al, 2006) of the correlation between PM2.5 concentrations and hospital admission rates concluded that short term exposure to PM2.5 increases the risk of hospitalization for cardiovascular and respiratory disease.

Nitrogen oxides and hydrocarbons contribute to particulate matter in a similar chemical reaction as nitrogen oxides contribute to ozone levels during May and September. Sacramento County is designated nonattainment with the state and federal ozone standards. Ozone is linked to serious health effects including reduced lung function, development and aggravation of asthma, increased hospitalizations and premature deaths.

Reducing wood burning will result in improvements in both wintertime particulate matter levels and ozone levels in May and September. New certified wood burning appliances emit about 85% less particulate than older uncertified appliances. According to the United States Environmental Protection Agency (USEPA), replacing 20 non-certified, older stoves with 20 USEPA certified ones can prevent the emissions of one ton of particulate matter (PM2.5) into our environment per year. The certified stoves also burn more efficiently, reducing wood fuel costs, NOx and hydrocarbon emissions by 89% when compared to an open hearth fireplace. Some of the emission reductions that will be generated from this program are being proposed to be deposited into the Community Bank to be available for use by stationary sources in the District.

Staff is proposing a program to provide incentives for residents living in Sacramento County to replace their old uncertified wood burning appliances (i.e., wood stoves, fireplaces) with new cleaner burning ones.

There will be two components to the change out program. The first component will be in the form of vouchers to replace an existing dirty wood burning appliance with a cleaner appliance for residents living anywhere within Sacramento County. Half of the funding is proposed to be

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<sup>1</sup> Based on 1998-2000 monitoring data, EPA made a finding (February 15, 2002 Federal Register, Volume 67, Number 32 Page 7082 et. Seq) that Sacramento County attained the federal ambient PM10 standard by the applicable December 31, 2000 attainment deadline. Note that this EPA finding did not redesignate the Sacramento district to attainment.

spent in Environmental Justice areas within Sacramento County. Secondly, funding is being reserved for a future low income assistance program still under development.

Staff is developing a regulation to require new installations of wood burning appliances to meet or be equivalent to USEPA certified devices. This proposed wood stove and wood fireplace change out program will start to address the particulate emissions from existing wood stoves and fireplaces. The program will pay for the cost of replacement of uncertified equipment in low income residences and will subsidize some of the replacement costs for other residents in the county. Additional discounts may also be provided by hearth products manufacturers and vendors.

Your Board approved the development of this incentive program at the April 2006 hearing. This item requests approval of the program details. Staff has worked with local hearth product retailers, the Hearth, Patio and Barbeque Association (HPBA), hearth product manufacturers, chimney sweep business owners, and a nonprofit organization geared towards weatherization of low income homes to leverage discounts, provide additional incentive funding, provide free or discounted installation labor, and provide financial support to increase advertising. These efforts are intended to leverage our limited funding to create the largest and most effective program feasible to replace and reduce the emissions from existing wood burning appliances.

Staff plans to implement this program until the funds are depleted. The program is proposed to be initiated this summer with a limited amount of funding to gain experience and make adjustments, if needed, before allocating the remainder of the funding. The amount of incentive monies will vary depending on the income level and the type of appliance being installed. For example, a gas or pellet stove may qualify for more funding than a wood stove. Old wood burning appliances will be destroyed to ensure that they are not resold for use in the District.

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## **Background**

Staff is proposing to use SEED funds and mitigation fees collected from developers to provide incentive monies for residents in Sacramento County who would like to replace their old wood stoves and fireplaces with new cleaner burning appliances. Rule 205 requires that SEED funds which are generated from the emission reduction credit loans from the Community Bank and Priority Reserve Bank to be used to fund innovative emission reduction programs. The emission reductions realized from the program are deposited in the Community Bank. The SEED funds were authorized to fund a wood stove and fireplace change out incentive program by the Board of Directors at the April 2006 Board hearing.

Mitigation fees may be paid when developers choose to pay fees in lieu of meeting local ordinance requirements to meet specified emission reductions for their projects, typically 15 percent. These fees are then used by the District to achieve emissions reductions from other programs.

Mitigation fees are also paid when certain land use projects exceed the air quality significant thresholds established pursuant to CEQA. These fees may be paid to mitigate emissions that occur from the construction of land use projects, called construction mitigation fees, or to mitigate the emissions impacts from the land use project after fully constructed, called

operational mitigation fees.

Generally the construction mitigation fees are collected when emissions exceed the NOx threshold. As discussed in the health impacts section, NOx from construction and other sources contributes to both particulate matter and ozone pollution. The program will reduce particulate matter but will also reduce NOx by reducing the amount of wood burned. These reductions will mitigate the particulate matter and ozone impacts resulting from construction NOx emissions. Because NOx must undergo chemical reactions to contribute to these pollutants, the impacts from construction and benefits from this program are both regional in nature, but will also reduce toxic and particulate pollution in the neighborhood near where the replacements occur. These same considerations apply to operational mitigation fees from hydrocarbon impacts, because hydrocarbons contribute to particulate matter and ozone pollution and this program also reduces hydrocarbon emissions.

Old wood stoves that are not certified by USEPA emit much more particulate matter than USEPA-certified wood stoves. Additionally, open hearth fireplaces emit much more particulate matter than those equipped with certified fireplace inserts. USEPA regulations prohibit the sale of uncertified wood stoves after July 1990. USEPA certified wood stoves emit about 85% less particulate than uncertified ones. Certified wood burning appliances also use less wood.

Smoke generated from burning wood in stoves and fireplaces is a common source of reduced visibility. Wood smoke is a form of air pollution that is not only limited to outdoor air pollution, but indoor air pollution as well. High levels of smoke leaking from stoves and fireplaces have been measured in some wood burning homes. Wood smoke affects people that are suffering from repeated respiratory problems like asthma or emphysema, or have heart disease.

Wood burning is still being used in rural communities as the prime source of heat. Wood burning also occurs in urban communities as a source of heat and for aesthetic reasons especially during winter holidays. There are 320,366 homes in Sacramento County equipped with fireplaces or wood stoves. See the Residential Wood Burning Appliance User Profile Section for more information on burning habits.

This program applies to replacements of wood stoves and wood burning fireplaces. Other equipment such as pellet stoves and gas fireplaces do not qualify since they emit very small amounts of particulate matter. The different wood burning appliances and emission reduction technology is discussed in greater detail in Attachment I. The cost for a USEPA certified wood burning appliance, including installation, ranges from approximately \$2,500 - \$3,500. A non-certified woodstove costs about \$1,500-\$2,500. The cost for a fireplace with a USEPA certified fireplace insert ranges from \$2,500 to \$3,500. There may be cost savings in chimney cleaning. Fuel cost savings are:

<b>Device</b>	<b>Fuel Use Cost Savings (\$/unit•yr)</b>
Electric Fireplace	\$86.37
Natural Gas Insert	\$43.73
EPA Certified Phase II Wood Stove, Non-Catalytic	\$66.95

There have been many incentive programs in the U.S. for replacing wood stoves with USEPA certified ones. Early incentive programs came in the form of grants from USEPA, and sometimes included state and local air pollution control agencies or from mitigation fees from the permitting of power plants. These programs are generally administered by district staff or by outside contractors. The proposed change out program will pay for the cost of replacement of uncertified appliances in low income residences and will subsidize some of the replacement costs for other residents in the county. Additional discounts may also be provided by hearth products manufacturers and vendors.

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### **Residential Wood Burning Appliances User Profile**

According to information provided by the County Assessors office, there are approximately 320,366 homes with fireplaces in Sacramento County. Based on survey information<sup>2</sup>:

- 71% of residences with fireplaces or wood stoves burn wood
- 35% of residences with fireplaces burn manufactured logs
- 56% of fireplace use is for aesthetic (not heating) purposes
- The average wood usage per residence that burn wood is 0.92 cords per year
- The average manufactured log usage per residence that burn wood is 19 logs per year

Attachment A includes a map of fireplace densities within Sacramento County based on the information from the County Assessors office. With this map for comparison purposes is a map of the population density.

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### **Health Impacts of Wood Burning**

Wood smoke is generated from the incomplete combustion of the burning of wood in wood stoves and fireplaces. Analysis of wood smoke shows that it contains byproducts such as fine particulate matter, generally less than 2.5 microns in size, carbon monoxide, nitrogen dioxide (NO<sub>x</sub>), sulfur dioxide, hydrochloric acid, and formaldehyde. Analysis also shows that wood smoke contains chemicals known or suspected to be carcinogens, such as polycyclic aromatic hydrocarbons and dioxin. The fine particles contained in wood smoke are drawn deep into the lungs and are retained for a long period of time.

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<sup>2</sup> James Houck (2003), "Results of Wood Burning Survey – Sacramento, San Joaquin, and San Francisco Areas, University of California Berkeley/California Air Resources Board – GIS Study"

Both coarse (PM10) and fine (PM2.5) particulate are linked to serious health impacts, including premature mortality, acute and chronic bronchitis, asthma attacks and emergency room visits, upper respiratory illnesses, and days with work loss. Exposure to particulate pollution is particularly dangerous for sensitive groups including, but not limited to, the elderly, individuals with asthma and other lung illnesses, infants, and children. Particulate matter is a complex mixture of chemicals. Some particulates, like diesel smoke, are carcinogenic or otherwise considered toxic.

In addition to the direct particulate matter emissions, the NOx and hydrocarbon emissions from wood burning react in the atmosphere to contribute to regionally elevated particulate matter and ozone. The emission inventory indicates that the use of wood stoves and fireplaces occurs during the ozone season during (specify the months where there is overlap between ozone and wood burning inventory). Therefore, reduction in this wood burning may also improve ozone levels. Ozone is a strong irritant that adversely affects human health and damages crops and other environmental resources. As documented by the U.S. Environmental Protection Agency (EPA) in the most recent Criteria Document for ozone<sup>3</sup> (U.S. EPA 2006), both short-term and long-term exposure to ozone can irritate and damage the human respiratory system, resulting in:

- decreased lung function;
- development and aggravation of asthma;
- increased risk of cardiovascular problems such as heart attacks and strokes;
- increased hospitalizations and emergency room visits; and
- premature deaths.

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### **Attainment Status**

State PM10 Standards: Sacramento County exceeded the state's annual PM10 standard by about 40% and the annual PM2.5 standard by 4% on average over the past 5 years. In addition, the District exceeded the state 24-hr PM10 standard up to 14 days per year during the past 5 years.

Federal PM Standards: The District is currently attainment for the federal PM standards. USEPA is in the process of establishing new standards for particulate matter. As was discussed at the January 2006 Board hearing, USEPA issued proposed revisions to the national air quality standards for particulate matter pollution. A consent agreement required that USEPA issue final standards by September 27, 2006. If the proposed federal standards for fine and coarse particulate emissions are finalized, Sacramento County will likely be nonattainment for the fine standard.

State Ozone Standards:

Sacramento County exceeds the state ozone standards approximately 40 days per year.

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<sup>3</sup> U.S. EPA, 2006. "Air Quality Criteria for Ozone and Related Photochemical Oxidants," EPA 600/R-05/004aF, February, 2006.

Generally, state ozone exceedances start occurring in April/May and continue through September.

Federal Ozone Standards:

Sacramento federal ozone nonattainment area exceeds the federal ozone standards approximately 10 to 40 plus days per year depending on weather conditions. Frequently the peak levels occur in Folsom. Generally, federal ozone exceedances start occurring in June/July and continue through early September.

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**Mandates for particulate matter reductions**

In 2003, the California Legislature enacted Senate Bill 656 (SB 656, Sher, Health and Safety Code Section 39614) to reduce adverse health impacts, including development of lung and heart disease and premature death from exposure to particulate matter (PM) levels above the state ambient air quality standards. SB 656 required the California Air Resources Board (CARB) to develop a list of the most readily available, feasible, and cost-effective control measures that could be employed to reduce PM emissions. The CARB list is based on California rules and regulations existing as of January 1, 2004, and was adopted by CARB in November 2004. Subsequently, under SB 656, each air district was required to prioritize the measures identified by CARB, based on the cost-effectiveness of the measures and their effect on public health, air quality, and emission reductions.

In July 2005, the Board approved an implementation schedule for particulate control measures to be studied from 2006 – 2012. Staff is currently in the process of developing a new regulation that will apply to residential wood burning appliances. In addition, control measures that are being adopted to attain the ozone standards will also help in particulate attainment since nitrogen oxides and hydrocarbons are precursors to particulate as well as ozone.

District staff subsequently agreed with a request from several members of the Sacramento City Council to propose several of the wood burning measures for adoption this year, ahead of the original SB 656 implementation schedule. These measures include requirements for wood burning appliances in new construction, prohibitions on the burning of garbage, and a moisture standard for wood that is advertised as "seasoned" or "dry." This rule is expected to be proposed for Board approval this fall.

An incentive program to replace existing uncertified appliances was included as a commitment by the Board under the implementation schedule developed in response to SB656. The incentive program was an option to be considered under the further study measure to develop a program to require replacement of uncertified appliances at time of resale of the home.

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### **Change Out Program Goals**

The change out program has the following overall goals:

1. To reduce particulate matter and ozone pollution levels
2. To fully fund the cost for low income residents to replace their uncertified wood stove/insert or fireplace with a certified wood stove or fireplace insert and to leverage that assistance with other low income programs.
3. To provide partial funding of the replacement costs for residents that do not qualify under the low income program.
4. To expend 50% of the available money within Environmental Justice areas.
5. To leverage the money available, where possible, with other discount programs.
6. To use mitigation fees that were collected for fireplace installations within Rancho Cordova to provide either full or partial replacement cost incentives as noted above for residents within the Rancho Cordova city limits if possible.
7. To implement a pilot program for the voucher system and then to continue the voucher system based on lessons learned during the pilot program.
8. To implement a change out program that will continue as long as funding is available and there are dirty equipment to replace.
9. To bank emission reduction credits from the use of the SEED funds and to retire reductions from the mitigation fees.

Staff is developing the low income program separately from the voucher program. The two programs have different funding levels, different qualification procedures and different agencies involved. At this time, the pilot voucher program is more developed than the low income program.

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### **Voucher Program Overview**

Vouchers will be the vehicle for the District to provide a cash incentive to replace dirty wood stoves and fireplaces. Vouchers are redeemed by the retailers with approved agreements with the District. The retailers will apply a price reduction to qualifying customers at the time of sale and request re-imbusement of the deferred costs from the District. Retailers must provide proof of the sale and installation of each new device and disposal of each old device to qualify for reimbursement. Retailers must replace qualifying equipment before the end of 2006 for the pilot program.

Staff plans to implement this program until the funds are depleted. Staff has been working with the HPBA to coordinate the vouchers with additional discounts that the hearth products vendors/retailers will be offering. The initial pilot program for the vouchers will start in mid-August 2006 and will run until the end of September 2006 to avoid the times when the hearth products retailers are at their busiest. In addition, a second timeframe has also been established to run from the end of January 2007 until the beginning of March 2007. There will also be additional discounts from hearth products vendors/retailers during this timeframe. Staff will incorporate any lessons learned from the initial voucher pilot program into the on-going voucher program. Staff will prepare a report to the Board in January 2007 on the results and lessons from the pilot program.

### **Low Income Households Program**

The objective of the low income program is to reimburse qualifying<sup>4</sup> low income customers for the full cost of the unit and the installation. Staff will limit the replacement equipment options available to consumers to keep costs down. Replacement of wood stoves located in low income residences will be done through a separate agreement with a local nonprofit organization. Staff is currently in discussions with the Community Resource Project, a local nonprofit organization that implements weatherization programs for low income residents to leverage our money with donated installation labor. They are exploring their funding sources to determine if they can be used for this purpose. The implementation mechanism will not be via a voucher, but will require similar procedures to ensure that replacements of non-EPA certified devices with EPA certified devices occur. It will likely take several months to fully define the procedures to implement this low income program element. Because the Board does not typically meet in November or December, the Board may consider authorizing the Air Pollution Control Officer to approve the program procedures to expedite the implementation of the Program. Otherwise staff will return to the Board for approval of these procedures. Given the unresolved issues regarding implementation of the low income incentive program we will likely not begin implementing the program until after the upcoming heating season. Staff proposes to reserve funding for low income residents to ensure funding remains available for this purpose.

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### **Environmental Justice Areas**

The District Board of Directors adopted an Environmental Justice policy for certain mobile source incentive programs on January 23, 2003. The policy was specifically required by AB 1390 (Firebaugh) for Carl Moyer Program funds providing incentive money to reduce emissions from heavy duty vehicles and mobile off-road equipment. AB 1390 mandated that not less than 50% of its Carl Moyer Program funds be distributed in a manner that directly benefits low-income communities and communities of color that are disproportionately impacted by air pollution.

The District policy defined "AB1390-designated areas" as one or both of the following:

- A census tract with 50% or more of the population being non-white
- A census tract with 10% or more of the population living at or below the federal poverty level

A map of the Environmental Justice areas can be found in Attachment B. Staff proposes to require that at least half of all funding available be used for replacements in Environmental Justice areas, as defined by the AB 1390 policy.

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<sup>4</sup> Example low income guidelines from the Community Resource Project's Home Energy Assistance Program are listed in Attachment H. The guidelines may be altered to be consistent with funding restrictions that may apply to the leveraged funds.

## Sources of Funding

At this time, there are two different funds of money available for the change out program; funding from the Solutions for the Environment and Economic Development (SEED) program, and mitigation fees.

At the April 2006 hearing, the Board approved the use of SEED funding for this purpose pending approval of the specific program details provided in this report. \$743,000 of SEED funding is currently available for this program.

Staff proposes to use \$760,136 in mitigation fees for this program. Some of those fees were collected from new developments in the Rancho Cordova area that installed fireplaces in conflict with their approved plan to meet the reductions required by their local ordinance. Instead of replacing the fireplaces, the developers paid fees to mitigate the emissions from the fireplaces. At the time the fees were collected, staff agreed with a request by Rancho Cordova staff to use those mitigation fees, \$543,100, in Rancho Cordova if possible. The rest of the funds are operational mitigation fees. (See Attachment L for example mitigation fee letters.)

Manufacturer and retailer discounts will be available during the first two rounds of change outs. The amount of these discounts varies by manufacturer. (Include the range of discounts here.) Staff will be working with the following organizations in order to maximize the outreach and incentive monies that will be available for the initial voucher program:

- a. Hearth, Patio and Barbecue Association
- b. Hearth product manufacturers
- c. Local hearth products retailers
- d. Chimney sweepers

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## Proposed Funding Allocation

The funding is proposed to be allocated in the following way:

Fall 2006 Voucher Funding: \$150,000 SEED  
\$150,000 mitigation fees

At least half the funding must be used in environmental justice areas. This will fund between 850-1200 replacements, possibly more.

Low Income Assistance - \$300,000 SEED  
\$300,000 mitigation fees

If plans work out as anticipated, this will fund approximately 150-300 units because full cost of the device is paid. At least half the funding must be used in environmental justice areas from this program also.

January 2007 Voucher - \$293,000 SEED  
\$310,136 CEQA mitigation fees

At least half the funding must be used in environmental justice areas. This will fund between

1700-2400 replacements, possibly more.

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**On-going voucher program** - The ongoing program is expected to occur during the fall and later winter. Any remaining funding from above will be used to fund the program. Additional funding may be provided from SEED or mitigation fees that are approved by the Board for use in this program.

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### **Voucher Program Details**

Qualification: This program will provide incentives for replacement of an uncertified wood stove, wood insert or open hearth fireplace. It will not provide incentives for installing a product where they do not have an existing uncertified stove, insert or fireplace. All wood stoves/fireplaces must be located within the boundaries of Sacramento County. All new stoves and fireplace inserts must meet the latest USEPA applicable certification standards for wood burning devices or use natural gas, propane, or pellets.

Incentives Provided: Depending on the whether the applicant has an existing uncertified wood stove or an existing fireplace and what product the applicant will be switching to, the incentive funding provided for each voucher varies. An applicant proposing to install either a gas appliance or a pellet appliance will receive the highest incentive because these are the cleanest appliances. The proposed voucher levels are:

Replacing an existing uncertified wood stove with:

Gas or Pellet stove/insert	\$350
Wood stove/insert	\$250

Modifying an existing fireplace:

Gas/Pellet insert	\$350
Wood insert	\$250
Gas Fire Log	\$25

Together with the discounts provided by the manufacturer, the incentive for these replacements, except for gas fire logs is about \$400 - \$600 and about 16 to 40 percent of the total costs. For gas fire logs, the incentive would be \$25 -\$50 and about 10 to 33 percent of the total costs

Disposal of Replaced Equipment: The retailer must certify that the replaced equipment has been disposed of in an approved recycling facility. A list of recycling facilities is included as Attachment C.

Installation/Retrofit of Equipment: All installations/retrofits of equipment must be performed by a licensed contractor. The installation must be performed in compliance with all applicable city and county codes and regulations. A list of contractors will be developed in consultation with the retailers that request to be part of the program. Attachment D includes a list of retailers that have indicated interest in the program.

Vouchers: Only one voucher will be issued per uncertified wood burning device. The voucher must be requested from the District by the resident/customer. Proof of residency will be required with the voucher application. Proof of residency can be in the form of a mortgage statement, lease agreement, a SMUD or PG&E utility bill. The vouchers are available on a first come, first served basis. The customer must purchase qualifying new equipment or enter into a binding agreement, such as a purchase order with deposit or contract to install, with the retailer to purchase new equipment within three weeks or the voucher will expire. The retailer must conduct a pre-sale inspection prior to the expiration of the voucher. The inspection must 1) verify what type of wood burning device can be installed and 2) confirm the presence of an existing qualifying (uncertified) unit to be replaced.

Installation deadlines: Equipment authorized under the fall 2006 program must be installed by December 31, 2006. Equipment authorized under the January 2007 program must be installed by June 30, 2007.

Retailers: Retailers must request to participate in the voucher program by contacting the District directly and must agree to the term and conditions of the change out program by signing the Statement of Expectations (See Attachment E). In addition, a W-9 must be submitted to the District in order for an account to be setup for re-imbusement.

Auditing procedures: The voucher application, Statement of Expectations for the retailers, and the certification from the recycler will all include an agreement that the District can audit the process to verify that the parties are complying with the terms and expectations of the incentive program. Audits will be conducted at a reasonable time and with reasonable notice to the participants. Audits could include District staff verifying that the consumer has applied for the replacement of an uncertified device by participating with the retailer in their verification process. Auditing the retailers' records will include photographs, invoices, and sales agreements. Staff will also audit the pathway of the recycling facility to try and verify the disposal of the old stoves. If in the audit process it is discovered that the requirements of the program have not been met, then the voucher be voided and re-imbusement will not be made.

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### **Step by Step Procedure for the Woodstove/Fireplace Voucher Pilot Program**

1. The consumer contacts the District by mail, web, or in person to reserve a wood stove/fireplace change out voucher (see Attachment G) and provide proof of residency in Sacramento County. District staff will reserve \$350 towards this voucher pending the purchase agreement from the retailer.
2. The consumer selects the wood burning appliance from the participating retailer and makes a commitment to purchase the appliance.
3. The retailer verifies that the existing wood burning appliance qualifies for replacement/retrofit.
4. If the wood burning appliance meets the qualification requirements, the retailer notifies the District of the purchase agreement and provides information about the name, address, phone number of the purchaser, the type of wood burning appliance being purchased, and type of existing wood burning appliance. This must be received not later than three weeks after issuance of the voucher.
4. District staff will adjust the voucher level to reflect the type of device replaced and the

- new device being installed.
5. After the retailer completes the installation of the new/retrofit of the wood burning device, the retailer notifies the District. The retailer must submit all of the following information with an invoice for re-imbursement of the voucher to the District via mail. The work must be completed by December 31, 2006.
    - a. A copy of the contract/agreement between the consumer and the retailer for the installation.
    - b. A certification that the work has been completed. A sample certification letter is listed as Attachment H. Photos documenting the existing device and the new device must be included.
    - c. A signed certification form (see Attachment I) from the approved recycler stating that the existing wood burning device has been recycled.
    - d. The original voucher surrendered by the consumer.
  6. District staff will then reimburse the retailer for the value of the voucher by mail or in person at the District office.
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### **Public Outreach**

To ensure that residents in Sacramento County are aware of the change out program and the health impacts of wood smoke, the District will be conducting several outreach efforts. Retailers are planning to advertise the discounts and voucher program as well.

Media Event: The District plans to kick-off this program by staging a media event. This event will be coordinated with representatives from HPBA and participating retailers. Staff plans to locate the event at a recycling yard with the opportunity for people to view the destruction of an old stove and the operation of cleaner burning gas, wood and pellet stoves. Staff anticipates holding this event August 23<sup>rd</sup>. The date, time, and location of this event will be posted on the District's website in July 2006.

Spare the Air Program: This program was previously focused on educating the public about ozone. District staff is in the process of expanding the Spare the Air program to include particulate matter emissions in the winter season. For more information see the website at [www.sparetheair.com](http://www.sparetheair.com). This website will link to the District's website for additional program details.

District Website: Staff plans to add information about this change out program on the District's website ([www.airquality.org](http://www.airquality.org)). The consumer will be able to request a voucher through the website. The website will also be used to educate people about the health impacts of wood smoke and how to reduce them through proper use of wood burning devices.

Utility Bill Inserts: Staff has been working with the cities within Sacramento County and the County of Sacramento to add a flyer to utility bills discussing health impacts of wood smoke and ways to reduce those impacts. This flyer will be distributed starting in August and continuing throughout the fall and will refer interested residents to our website for more information about the voucher program.

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**Emission Benefits**

USEPA certified woodstoves and fireplace inserts emit about 85% less particulate matter than uncertified ones. If a consumer chooses to replace with gas or a pellet stove/insert then the reductions will be even higher. The following are the emission factors for the devices:

Emission Factors (lbs/hr)				
Fireplace	Non-Certified Stove	Certified Stove	Pellet Stove	Natural Gas Stove
0.11	0.05	0.02	0.02	0.0002

Replacing older, uncertified devices will lead to a reduction in wood use, since the increased efficiency of certified devices requires 89% less wood to be combusted for an equal amount of useful heat, compared to traditional fireplaces. Therefore, this program will also reduce NOx emissions. Based on the number of uncertified devices replaced through the change out and low income program the emission benefits will be calculated. If the funds are fully expended as allocated then the estimated emission benefits are:

	Anticipated Emission Reduction (lbs/year)	
	PM10	NOx
Fall 2006 Voucher	15,495 – 21,875	507 - 716
January 2007 Voucher	30,990 – 43,750	1,014 – 1,431
Low Income Households	2,327 – 5469	89 - 179
Total	49,219 – 71,094	1,610 – 2,325
<b>Total (tons/year)</b>	<b>24.6 – 35.5</b>	<b>0.8 – 1.2</b>

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**Emission Reduction Credit Process**

The emission reductions realized from the change outs that are funded through the SEED program fees are deposited into the Community Bank for use by stationary sources in the future. The emission reductions achieved with mitigation fees will not be used to generate emission reduction credits. For these emission reduction credits to be approvable by EPA, staff must develop a banking rule for woodstove/fireplace change outs. This rule will explain in detail how the particulate matter and NOx emission reductions will be calculated and certified in compliance with federal laws and EPA policies. Staff anticipates proposing this rule for adoption in 2007.

---

**Environmental Review**

This program will fund the replacement of older, dirtier wood burning devices with new, cleaner, more efficient devices. This will lead to a beneficial impact by reducing the emissions of particulate, NOx and hydrocarbons.

This incentive program qualifies for a Class 8 categorical exemption as an action by a regulatory agency, as authorized by state law, for the protection of the environment (Section 15308 of the state CEQA Guidelines). The exceptions to categorical exemptions for sensitive locations, cumulative impact, significant effect, scenic resources, toxic sites and historical resources do not apply to this incentive program.

California Public Resources Code (Section 21159) requires an environmental analysis of the reasonably foreseeable methods of compliance. The analysis must include the following information for the proposed rule adoption. The District is not required to engage in speculation or conjecture.

1. An analysis of the reasonably foreseeable environmental impacts of the methods of compliance.
2. An analysis of the reasonably foreseeable mitigation measures.
3. An analysis of the reasonably foreseeable alternative means of compliance with the rule or regulation.

**Environmental Impacts, Mitigation Measures, and Alternatives**

<b>Compliance Methods</b>	<b>Reasonably Foreseeable Environmental Impacts</b>	<b>Reasonably Foreseeable Mitigation Measures</b>
Replace an existing uncertified wood stove/insert with a certified or equivalent device	The replacement of the uncertified device will result in a reduction of PM, NOX and ROG resulting in a beneficial impact.	No mitigation necessary
	The replaced device will be required to be disposed of through a certified recycler. The scrap metal is sent to either China or Oregon for reprocessing into new steel. There are no potential impacts to the local landfills from the disposal of these devices.	No mitigation necessary
Modify an existing open hearth fireplace by adding a certified insert or gas log.	The replacement of the uncertified device will result in a reduction of PM, NOX and ROG resulting in a beneficial impact.	No mitigation necessary

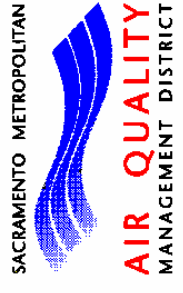
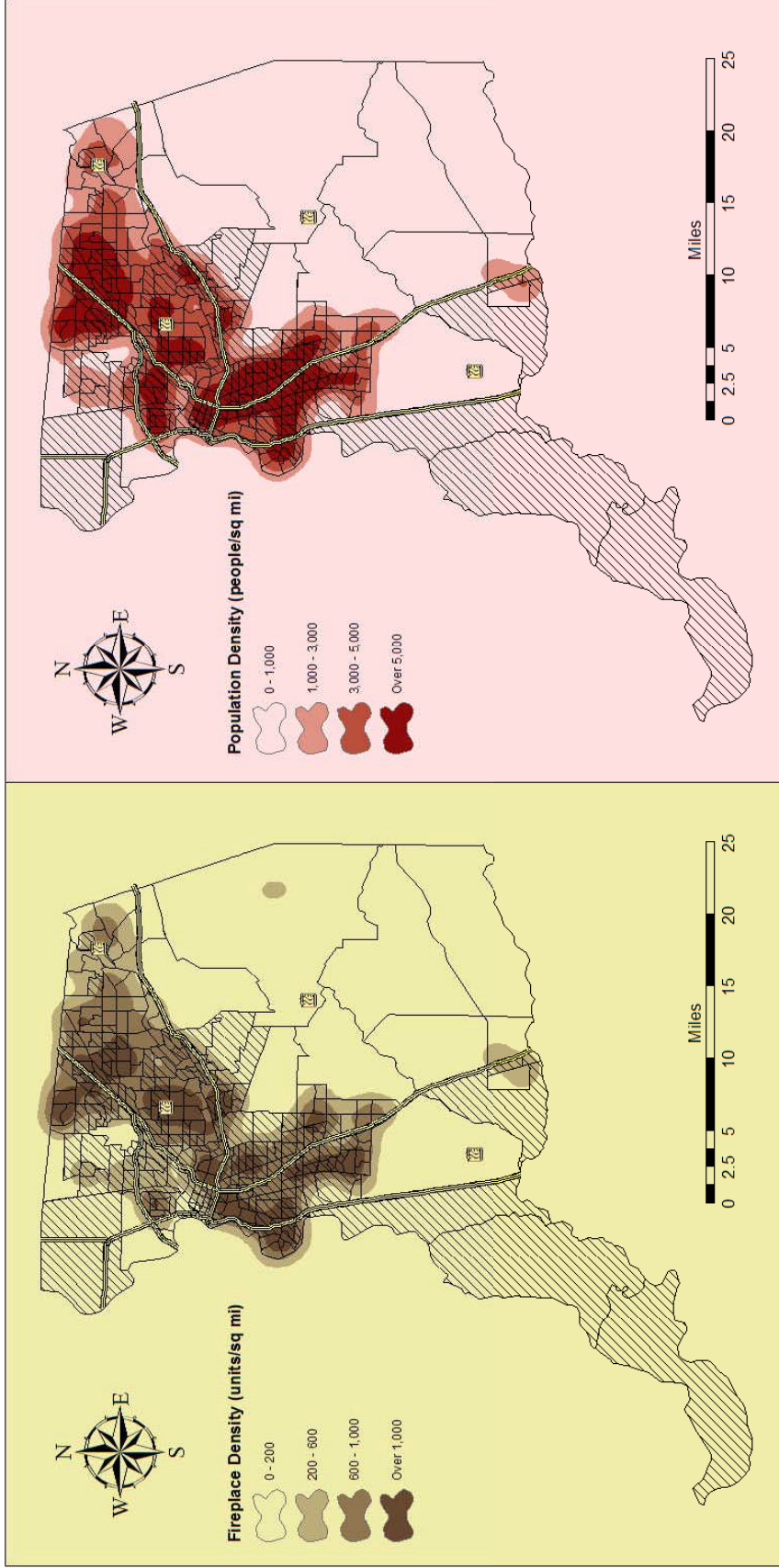


The District has determined that no reasonably foreseeable environmental impacts will be caused by the proposed incentive program.

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Attachments

# Attachment A Map of Fireplace Densities



## Residential Fireplace Density & Population Density in Sacramento County, California

Population, demographic data, and tract boundaries are based on the 2000 U.S. Census.  
Major highway data extracted from SACOG regional road data.





Map Copyright © 2006

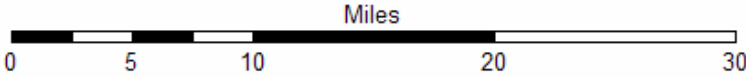
- AB 1390 Census Tracts
- Air Monitoring Sites
- Major Highways

Attachment B  
Map of Environmental Justice Areas

Environmental Justice Areas in Sacramento County, CA

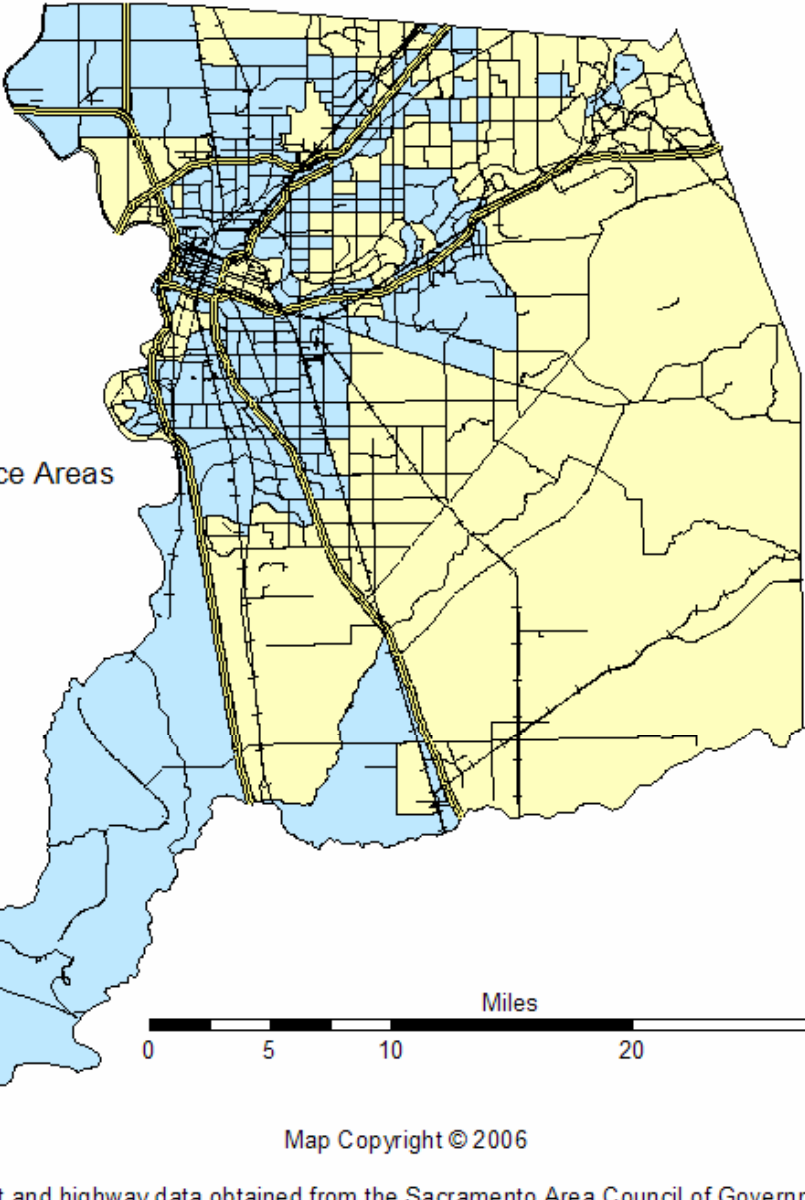


-  Environmental Justice Areas
-  Major Freeways
-  Major Roads
-  Railroads



Map Copyright © 2006

Street and highway data obtained from the Sacramento Area Council of Governments.  
Census data and tracts are based on the 2000 U.S. Census.



**Attachment C  
 List of Recycling Facilities in Sacramento**

<b>Name</b>	<b>Address</b>	<b>Phone Number</b>
Sims Metal	11320 Dismantle Ct, Rancho Cordova	(916) 635-5600
	30 N 12th Street, Sacramento	(916) 444-3380
Schintzer Steel	12000 Folsom Blvd. Rancho Cordova, CA 95742	916-985-4810

**Attachment D  
 List of Hearth Products Vendors/Retailers with Indicated Interest in the Voucher Program**

<p><b>The Solar Syndicate</b>            114 K Street            Sacramento, CA 95814            Phone: (916)448-5860            Website: <a href="http://www.thesolarsyndicate.com">www.thesolarsyndicate.com</a></p>
<p><b>River City Fireplace and Barbeque</b>            2033 Fulton Ave            Sacramento, CA 95825            (916) 482-3838            Fax (482-3737)</p>
<p><b>Custom Fireside Shops, Inc.</b>            5545 Auburn Boulevard            Sacramento, CA 95841            Phone: (916)331-2423            Fax: (916)331-8964            Website: <a href="http://www.customfireside.com">www.customfireside.com</a></p>
<p><b>Youngs Fireside Shop</b>            16<sup>th</sup> &amp; Q Street            Sacramento, CA 95814            Phone: (916) 443-7807            Website: <a href="http://www.youngsfireside.com">www.youngsfireside.com</a></p>

**Attachment E**  
**Statement of Expectations**

- Sacramento Metropolitan Air Quality Management District (District) in conjunction with (Participating Stove Store Retailer Name), will implement a stove change out voucher program to replace:
  - a. Uncertified wood stoves or pellet stoves with USEPA phase II certified wood stoves, pellet stoves, or gas stoves (exempt from certification) or equivalent, and
  - b. Open hearth wood fireplace or uncertified fireplace inserts with EPA phase II certified fireplace inserts or wood stove.
  
- Participants will be issued one voucher per wood burning appliance replaced with EPA certified appliance as listed above. The voucher will be valid for purchase of a certified wood burning appliance or a gas insert from one of the participating retailers. The face value of the voucher will vary depending on the type of wood burning appliance installed. There will be issued on first come, first served based.
  
- As a participating stove retailer I agree to:
  - 1. Accept the voucher at the time of sale to the customer. The voucher value will be applied toward the purchase price of the stove at the time of sale.
  - 2. Provide additional discount to the purchase price of the certified wood burning appliance or gas fireplace being purchased under the rebate program.
  - 3. Ensure and certify that the wood stove being replaced was uncertified appliance or an open hearth fireplace.
  - 4. Replace the uncertified appliance and remove the uncertified appliance from the Sacramento County residence.
  - 5. Remove the refractory material from the wood stove and properly dispose, and deliver the stove to one of the participating recycling facilities.
  - 6. Receive a certification document from the participating recycler indicating that the stove will be destroyed and recycled.
  - 7. Submit a hardcopy of the Voucher Application signed by the applicant, the invoice with the original receipt for the appliance purchase, and the Wood Stove Certificate of Destruction to the District within 10 working days of stove replacement.
  
- Participants will be eligible to receive the voucher as long as the funds are available. Failure to redeem the voucher in the specified timeframe will render the voucher invalid.

I understand that the District has limited funds available for this program, and are available on first come, first serve basis.
  
- As a participating stove retailer, I understand that it is my responsibility to ensure that all new stove installations or retrofits must be done in accordance with any applicable city or county codes and/ordinances.
  
- As a participating stove retailer, I agree to address and resolve unanticipated issues expeditiously with the District.
  
- This agreement will terminate when initial voucher funds are depleted or on December 31, 2006, whichever comes first.

- I will provide District staff access to my facility and records to inspect for compliance with program requirements, if requested. I understand that the District will provide not less than 2 calendar days notice prior to this inspection.

**Memorandum of Understanding:**

I hereby certify that I understand the conditions and requirements for participation in the District's wood stove/fireplace replacement program and agree to fulfill the requirements and comply with the conditions in this agreement that I am entering into with the District.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



- existing appliance is a non-EPA certified stove/insert or an open hearth fireplace within the three weeks the voucher is valid.
4. I understand that I will forfeit my voucher if I provide the District with false information or if the required information is not submitted to the District prior to the expiration date listed on the voucher.
  5. I will provide District staff access to my residence to inspect the device for compliance with program requirements, if requested. I understand that the District will provide not less than 2 calendar days notice prior to this inspection.

---

Applicant Signature Date

**Return to the Sacramento Metropolitan AQMD.  
777 12th Street, 3rd Floor  
Sacramento, CA 95814  
Fax: 916-874-4899**

For more information contact: Ali Mohamad, 916-874-4850, [amohamad@airquality.org](mailto:amohamad@airquality.org).



**Attachment G  
 Voucher Reimbursement Request Form**

**Sacramento Metropolitan AQMD Wood Stove/Fireplace Change out  
 Program**

**Certification Form**

Contact Name	
Retailer Name	
Address	
City, State Zip	
Phone Number	
Federal Tax ID # / Social Security No.	

**Customer Information**

<b>Customer Name</b>	
<b>District Voucher #</b>	
<b>Customer Address</b>	
<b>City, State Zip</b>	
<b>Phone Number</b>	
<b>Date of Sale</b>	
<b>Make, Model, and Type of Appliance Replaced</b>	
<b>Manufacture Date of Appliance Replaced (year)</b>	
<b>Make / Model of New or Retrofitted Appliance Installed</b>	
<b>Date Work Completed</b>	

This form with the **original sales receipt** of purchase, certificate of destruction, and the original voucher must be submitted within 10 working days of completion of installation to:

Ali Mohamad Sacramento Metropolitan AQMD 777 12th Street, 3rd Floor Sacramento CA 95814
--



**Attachment H  
Recycler Certification Form**

**Sacramento Metropolitan AQMD  
Woodstove/Fireplace Change out Program**

**Wood stove Certificate of Destruction**

**For Completion by Recycler:**

Date: \_\_\_\_\_

Make and Model # of Stove delivered for recycling:  
\_\_\_\_\_

I certify that this stove was delivered to XXXX Salvage, and will be destroyed, rendered usable only as scrap, and recycled.

I will provide District staff access to the recycling facility to inspect for compliance with program requirements, if requested. I understand that the District will provide not less than 2 calendar days notice prior to this inspection.

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_

**For Completion by Stove Retailer:**

Store delivering stove: \_\_\_\_\_

Residence Stove was removed from:

Owner: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Person Delivering Stove to Recycler:

Printed Name: \_\_\_\_\_

Signature: \_\_\_\_\_

**Attachment I**  
**Low Income Guidelines**

To qualify for the low income assistance program, the resident must provide the latest income tax return showing that the total monthly income is less than the following limits.

<b>Number of Persons in Household</b>	<b>Monthly Income</b>
1	\$1,763.13
2	\$2,305.65
3	\$2,848.16
4	\$3,390.66
5	\$3,933.17
6	\$4,475.68
7	\$4,577.40
8	\$4,679.12
9	\$4,780.84
10	\$4,882.56
11	\$4,984.28
12	\$5,086.00

Home Energy Assistance Program, [www.cresource.org/Program/Housing](http://www.cresource.org/Program/Housing)

## **Attachment J Terminology and Technology**

### **Residential Wood Burning Technology profile**

The term fireplace was traditionally used to describe a wood burning device built into the structure of a living area and in which the fire can be viewed while it burns. Fireplaces can be divided into two broad categories:

- a. **Masonry fireplaces:** These fireplaces are constructed of brick, stone or other masonry materials which are assembled on site and usually connected to a masonry chimney, and
- b. **Factory-built (also called prefabricated or zero-clearance) fireplaces:** These fireplaces generally use metal as the structural material, are lined with fire brick, and are installed on site as a package with the specified metal chimney.

**Conventional fireplaces:** Conventional fireplaces do not incorporate emission reduction technologies, and may or may not have glass doors. They produce smoke and NO<sub>x</sub> because of incomplete combustion. Generally, they are not effective for home heating purposes because of high dilution air demands and inadequate heat transfer characteristics. They tend to be used exclusively for aesthetics – fire viewing.

**Fireplace inserts:** These are essentially wood stoves that have been adapted by their manufacturers to fit within the firebox of existing masonry fireplaces. A few inserts are certified for installation in factory-built fireplaces. An insert converts a conventional fireplace into an effective heating system. Fireplace inserts can be used as supplementary heating systems, in addition to providing the aesthetics of fire viewing.

**Wood stoves:** These are free-standing space heating appliances used either as the principal source of heat for a home or to supplement conventional heating systems. Wood stoves are the most popular form of wood heating equipment because of their relatively low cost and installation flexibility. Of the wood burning appliances in use in categories that can be used for serious space heating, wood stoves constitute at least 60 percent. Based on variations in construction, combustion technology, and emission characteristics, residential wood stoves have been grouped in the following categories:

1. Conventional wood stoves,
2. Advanced combustion wood stoves, and
3. Masonry heaters.

**Conventional stoves:** These do not incorporate the advanced combustion technologies needed to meet emission standards. This category would include older cast iron box stoves, parlour stoves, Franklin fireplaces, and the so-called 'airtight' of the 1970s and 1980s. Advanced combustion wood stoves are defined as those that meet the emission limits prescribed by the USEPA Standard and are certified by EPA or other suitably accredited agencies. The USEPA certification requirements are set only for particulate emissions. Manufacturers use one of two general approaches to achieving lower stack emissions based on whether or not they use a catalytic element.

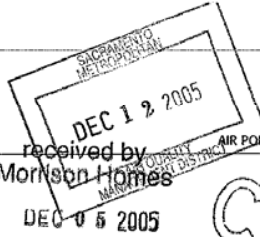
**Masonry Heater:** This is a traditional space heating system of European origin that has been adapted for North American conditions. It has an enclosed combustion chamber in which a charge of wood is burned rapidly. The hot exhaust gases are routed through heat transfer channels embedded in the massive masonry structure before being expelled to the chimney. The heat stored in the masonry is released slowly to the room for up to 24 hours after combustion of the wood is complete. Relatively complete combustion is achieved through the rapid, turbulent combustion that is characteristic of masonry heaters.

1. Wood-fired Central Heating Appliances: Wood-fired central heating systems are available in several forms: add-on warm air furnaces for connection to existing oil or electric furnaces; combination furnaces that use electricity or burn oil in addition to wood; and boilers that heat water and use a system of pipes to distribute heat.
2. Pellet Stoves are fuelled with pellets of sawdust or other waste biomass materials compressed into small cylinders about 8 mm in diameter and from 10 to 30 mm long. The raw feedstock for pellet production does not usually include binders or other additives, except in some cases to assist in the extrusion process. In the pellet stove, the fuel is moved from the integral hopper to the small combustion chamber by a motorized auger. The exhaust is forced into the vent with a fan. Because steady state combustion can be approximated by adjusting the fuel and air mixture properly, pellet stoves can burn with lower particulate emissions, on average, than certified wood stoves. A few pellet stove models have been certified by USEPA and so could be used as an upgrade under an exchange program.

**Attachment K  
Sample Mitigation Fee Letters**



*SAMPLE - INDIVIDUAL  
LETTERS WENT TO EACH  
DEVELOPER WHO PAID  
ANATOLIA FEES.*



Larry Greene  
AIR POLLUTION CONTROL OFFICER

28 November 2005

Morrison Homes  
1180 Iron Point Rd, Suite 100  
Folsom CA 95630

Sacramento Division

**COPY**

Dear Morrison Homes:

This letter confirms your payment to the Sacramento Metropolitan Air Quality Management District (SMAQMD) for air quality mitigation fees as follows:

Check #: 67395  
Amount: \$48,600  
Date received: 27 October 2005  
Project: Anatolia fireplace/furnace fee option

SMAQMD will use the funds identified above to incentivise the purchase of low emission equipment which is used regularly in the project area, to the extent possible, and otherwise within the Sacramento air basin.

**We request your confirmation of this payment by the signature below of an authorized representative of your company. Please mail the original signed copy of this letter to SMAQMD in the enclosed postage paid envelope. You may wish to keep a copy for your records.**

If you have any questions regarding this matter, please contact Peter Christensen of my staff at 916-874-4886.

Sincerely,

Larry Greene  
Air Pollution Control Officer

Concurrence:

Signature - Authorized Representative  
  
Print Name  
  
Title



COPY

Larry Greene  
AIR POLLUTION CONTROL OFFICER

6 Oct 2005

Mr. Tom Trimberger  
Chief Building Official  
City of Rancho Cordova  
3121 Gold Canal Drive  
Rancho Cordova CA 95670

Dear Mr. Trimberger:

Thank you for contacting the Sacramento Metropolitan Air Quality Management District (SMAQMD) regarding implementation of air quality measures in the Anatolia communities of the SunRidge Specific Plan. We understand that the Specific Plan requirement to install reduced emission furnaces and fireplaces has not been implemented in some, but not all, of the residential units inspected by City of Rancho Cordova staff.

The failure to install the correct equipment is significant because the higher emission rates from more polluting equipment are permanent, or will continue at least until the equipment is replaced due to regular maintenance. Nonetheless, because this violation involves relatively few units, the District agrees that it would be appropriate to develop a compliance scenario that will not require removal and destruction of the incorrect fireplace and furnace features. All future construction in the SunRidge Specific Plan area, however, must comply with the measures as contained in the Specific Plan.

SMAQMD staff is willing in this circumstance to undertake an alternative mitigation program, funded by the parties responsible for the Specific Plan violation, that will achieve emission reductions sufficient to offset the emission increases caused by the failure to abide by the Specific Plan.

To do this, SMAQMD will identify alternative emission reduction projects, as discussed below, to be implemented in the Nonattainment Region. To fund the program, the City would require the responsible parties to pay a mitigation fee of \$500 per fireplace and \$500 per furnace, plus an additional \$400 per dwelling unit. As an alternative to the \$400 per dwelling unit fee, a builder could add an ozone destruction catalyst to the air conditioner of each subject dwelling unit. The following example illustrates a sample fee calculation:



**EXAMPLE:**

*Scenario: 100 dwelling units total; 50 of which installed non-compliant fireplaces, 90 installed non-compliant furnaces (10 dwelling units were fully compliant)*

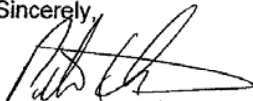
$(50 \text{ fireplaces} \times \$500/\text{fireplace}) + (90 \text{ furnaces} \times \$500/\text{furnace}) + (90 \text{ dwelling units} \times \$400/\text{dwelling unit}) = \$106,000$

OR, by installing an ozone destruction catalyst on 90 air conditioners:  
 $(50 \text{ fireplaces} \times \$500/\text{fireplace}) + (90 \text{ furnaces} \times \$500/\text{furnace}) = \$70,000$

Mitigation fee payments may be made by the builders directly to SMAQMD. **All mitigation fees paid for SunRidge alternative compliance must be received by SMAQMD no later than October 28, 2005.** Upon request, we will provide the City with a report of all Anatolia mitigation fees received. The mitigation fee revenue will be used to fund cost-effective emission reduction projects that reduce emissions from heavy duty diesel mobile sources. Every attempt will be made to identify projects that directly reduce emissions within Rancho Cordova, but because ozone is a regional pollutant, cost-effective projects identified elsewhere in the Sacramento region may also be considered for funding. An example of the type of mitigation that could be funded is the retrofit of City-contracted waste hauling vehicles with diesel catalysts. Similar emission reduction projects are routinely administered by SMAQMD through the Carl Moyer incentive program and the Sacramento Emergency Clean Air and Transportation (SECAT) program. Because of the ability to use existing program procedures, it is not necessary for the District to recover administrative expenses for the implementation of this component of SunRidge mitigation.

If you have any questions regarding this alternative compliance option, please contact me at 916.874.4886.

Sincerely,



Peter Christensen  
Mobile Source Division

c: Rochelle Amrhein, City of Rancho Cordova