UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

JUL 14 2003

Mr. Peter Bella
Natural Resources Director
Alamo Area Council of Governments
8700 Tesoro Drive, Suite 700
San Antonio, TX 78217

Dear Mr. Bella:

I am pleased to communicate that we received your correspondence dated June 17, 2003, forwarding the list of potential control measures for San Antonio Metropolitan Statistical Area. Your submittal satisfies the first important milestone under the 8-hour Ozone Early Action Compact program. The list of potential control measures were received on time and meet the milestone requirement specified in the *Compact* guidance issued by Assistant Administrator Holmstead on November 14, 2002.

The U. S. Environmental Protection Agency recognizes that the 8-hour Ozone Early Action Compact program is ongoing and that the Alamo Area Council of Governments, in partnership with the Texas Commission on Environmental Quality and other local officials, continues to make good progress. We appreciate your commitment to the *Compact* program and to achieving cleaner air sooner. My staff and I are always available to assist you as we work together towards that goal.

Should you have any questions, please feel free to call me or Dr. Michael Morton, (214) 665-8329 at your convenience.

Sincerely yours,

Thomas Diggs, Chief
Air Planning Section (6PD-L)

cc: Robert Huston, TCEQ

Clean Air Strategies

A Milestone in the
Early Action Compact /
Clean Air Plan for the San Antonio Metropolitan Statistical Area

Presented by the

Air Improvement Resources Committee

of the

Alamo Area Council of Governments

This document was approved by the
Air Improvement Resources Technical Committee on May 23, 2003
And approved by the
Air Improvement Resources Executive and Advisory Committees
on May 28, 2003

Final Document Due June 16, 2003

Clean Air Strategy Report

As required by Early Action Compact (EAC) protocol, areas which participate in early, voluntary 8-hour air quality plans must assess and report their progress in achieving EAC milestones in a regular, public process every six months. One of the key milestones required by the EAC for inclusion in this first Biennial Report is:

- Identification and description, by no later than June 16, 2003, of local control strategies **under then-current consideration** for inclusion into the area's local clean air plan, including those analyzed in modeling.

The Air Improvement Resources Committee of the Alamo Area Council of Governments (AACOG) is the local entity charged with oversight and coordination of the development of the Clean Air Plan for the San Antonio Metropolitan Statistical Area. The Clean Air Plan is the San Antonio region's local version of the Early Action Compact. The elected officials in the AIR Executive Committee, the Chairman of the Texas Commission on Environmental Quality, and the Administrator for Region 6 of the US Environmental Protection Agency signed the Clean Air Plan for the San Antonio Metropolitan Statistical Area on December 9, 2002.

Since the signing of the Clean Air Plan, the AIR Committee has worked in close conjunction with local stakeholders and the agencies named above to develop these lists of clean air strategies:

1. **Creditable and Enforceable Clean Air Strategies:** this list contains creditable, enforceable clean air strategy candidates which could be modeled as part of the attainment demonstration required under the Early Action Compact protocol. This list is categorized by source type; it is not ordered by preference of strategy nor is it prioritized in any way.
2. **Voluntary Clean Air Strategies:** this list contains clean air strategies which, although useful in improving air quality in the region, may not be creditable or enforceable. It is important to note that these strategies are currently being implemented to some extent in the region. Further implementation of these strategies may prove to be important.
3. **Potential Voluntary Clean Air Strategies:** like the previous list, these useful air quality strategies may not be creditable or enforceable. The strategies listed here may not be in practice in this region. However, implementation of these strategies may prove to be important.

It must be noted that these are draft lists, and do not represent a final list of clean air strategies from which the elected officials will select strategies as required in the Clean Air Plan. Other strategies may be added to this list and strategies may be moved from one list to another, as warranted. As the EAC reporting requirement notes, this list set provides the identification and description of local control strategies under **current consideration** for inclusion into the Clean Air Plan for the San Antonio Metropolitan Statistical Area.

Creditable and Enforceable Clean Air Strategies

♦ **Currently implemented in the San Antonio region.**

	Fleet Strategies	Emission Reduction	Cost Estimate
	1) Shift delivery operations to off peak hours	None, but "X" tons of NOx are shifted to another part of the day.	Undetermined
	2) Accelerate replacement of current fleets with LEV's etc.	979 lb/d VOC 1068 lb/d NOx	$8M-$10M
♦	3) Accelerate use of low emissions fuels such as low emission diesel, alternative fuels, ULSD (a) Private fleets (b) Public fleets	AF – 0.008 tpd[i] ULSD – 2975lb/d NOx[ii]	$7.4K per ton NOx[i] ULSD - +7-10¢/gal[iii]
	4) Fleet idling limitations or restrictions (overnight idling of diesel trucks)	618.1 lbs/day NOx[iv]	$500 per ton NOx[iv]
♦	5) Accelerate bus conversion to cleaner fuels, such as LPG		**Retrofits:** CNG-$2.5-3K LPG-$2-3K **New:** LPG - $300-1K CNG- $2K[v]
♦	6) Require alternative fuels for public fleets	**Per 5000 Vehicles**	**Cost per ton (10 year program implementation)**
	a) LPG	195.3 lb/d VOC No NOx reduction[vi]	**Retrofit**: $28-42K (ton/VOC) **New**: $4-14K (ton/VOC)[vii]
	b) CNG	372.3 lb/d VOC 54.74 lb/d NOx 1,305 lb/d CO[vi]	**Retrofit**: $18-22K (ton/VOC) **New**: $15K (ton/VOC) **Retrofit**: $1.7-2M (ton/NOx) **New**: $1.3M (ton/NOx) **Retrofit**: $6.4-7.7M (ton/CO) **New**: $5.2M (ton/CO)[vii]
	c) Electric	280.9 lb/d VOC 213.7 lb/d NOx 2145 lb/d CO[vi]	**Retrofit**: $40-50K (ton/VOC) **New**: $19-70K (ton/VOC) **Retrofit**: $900K-1M (ton/NOx) **New**: $450-1.6M (ton/NOx) **Retrofit**: $2-3M (ton/CO) **New**: $1-3.7M (ton/CO)[vii]
	d) Ethanol	111.8 lb/d VOC 130.5 lb/d NOx 93.19 lb/d CO[vi]	**Retrofit**: $50-75K (ton/VOC) **New**: $25-50K (ton/VOC) **Retrofit**: $2-3M (ton/NOx) **New**: $1K-2M (ton/NOx) **Retrofit**: $100-150M (ton/CO) **New**: $50-100M (ton/CO)[vii]
	e) Biodiesel	101.1 lb/d VOC -11.0 lb/d NOx 115.8 lb/d CO[vii]	**Retrofit:** Little to none (engines '94 and up)[vi]
	f) LNG (viable for only heavy duty vehicles)		
♦	7) Promote emission testing of fleet vehicles (City Public Service)	Token Emission Reduction	

Creditable and Enforceable Clean Air Strategies

	Fleet Strategies	Emission Reduction	Cost Estimate
	8) Vehicle Inspection/Maintenance Program		
	(a) Possibly tie tests in with license plate renewal to promote properly running vehicles	Included with I/M program	
	(b) Deny registration to vehicles with repeated emission failures	Included with I/M program	
	(c) On Board Diagnostics (OBDII)	3.6 tpd VOC 3.2 tpd NOx[viii]	Unknown at this time. Approximate cost of equipment is $8,000[ix]
	(d) Acceleration Simulation Mode (ASM) test with OBD	6.1 tpd VOC 4.7 tpd NOx[viii]	$2.7-$3.1K ton VOC $2.9-$3.3K ton NOx[ix]
	(e) Two Speed Idle with OBD	5.2 tpd VOC 3.2 tpd NOx[viii]	$2.7-$3.1K ton VOC $3.2-$3.6K ton NOx[ix]
	(f) Maintenance / tune up programs for fleets and/or personal vehicles, and/or joint recycling programs which include regionally-coordinated emissions testing with a jointly-purchased dynamometer.	Included with I/M program	
	(g) Vehicle recycling program with emissions testing	Included with I/M program	
	(h) Roadside pullovers	Included with I/M program	
	Transportation Control Strategies	**Emission Reduction**	**Cost Estimate**
	9) Remote Sensing / Detection	0.4 tpd NOx[i]	
	a) Enforce smoking vehicle reports and require repairs	Included with I/M program	
	b) Roadside emission detection and notification	Included with I/M program	
	c) Surveillance program	Included with I/M program	
♦	10) Enforcement of Smoking Vehicle Law	Difficult to quantify	
	11) Heavy Duty Diesel Vehicle (HDDV) inspections	1.5 tpd NOx[i]	$3,375 per ton of NOx[i]
	12) Repair assistance		
♦	13) Traffic Flow – Traffic Signals		
	a) Progressively timed traffic signals		
	b) Adaptive traffic signals and signal timing		
	c) Improved signal coordination (not just improved intersection timing)		
♦	14) Grade separation		

Creditable and Enforceable Clean Air Strategies

	Transportation Control Strategies	Emission Reduction	Cost Estimate
♦	15) Heavy-Duty Diesels Limited Lanes Restrict heavy-duty diesels from driving in certain areas/and or times. This would reduce peoples exposure to toxic diesel fumes and reduce congestion. An early morning restriction would reduce the time that the NOx had combine with VOC, cook and produce Ozone.		
♦	16) Roadway bottleneck improvements (add lanes, construct shoulders, etc)		
♦	17) Improve traffic flow through metered entrances and adjustable speed limits where entering main roads (i.e. Smart Roads) and ramp closures		
♦	18) Access management (manage access into new commercial developments)		
	19) Flexible road pricing (no toll booths, electronic metering, etc.)		
	20) Support cost-per-mile auto insurance program i.e. premium based upon miles driven		
	21) Incentives to residents/citizens who purchase LEVs, such as low interest loans or zero financing (SB5)		
♦	22) Multi-business supported programs to encourage dealers to make LEVs available for replacement of regular vehicles; i.e. discounts, financing, etc.		
	23) Direct funding of alternative fuel conversions (through SB5)		
	24) Voluntary Lower RVP – from 7.8 to 7.2	0.11 tpd NOx 0.01 tpd CO 2.03 tpd VOC[x]	
	25) Require Stage 1 Vapor Recovery - implement Stage 1 for gas stations dispensing between 50,000 to 125,000 gallons per month	3.4 tons/day VOC[xi]	$2-3K ton/VOC[xii]
	26) Retrofit selected heavy duty diesel engines – Texas Emissions Reduction Program (TERP)	15.2 tpd NOx[i]	$34-1,900 per engine; $500-600 per ton NOx[i]
♦	27) Change school hours and school year		
	28) Buy and retire “junk” vehicles.		
	a) Require government fleets to retire vehicles.	Included with I/M program	
	b) Dispose vehicles that are seized.	Included with I/M program	
	c) Demolish impounded vehicles that are high emitters.	Included with I/M program	

Creditable and Enforceable Clean Air Strategies

	Transportation Control Strategies	Emission Reduction	Cost Estimate
	d) Do whatever is necessary to allow cities to remove the engines of high emitting vehicles (pre-1980) that are abandoned and to be auctioned.	Included with I/M program	
	e) Voluntary Accelerated Vehicle Retirement Program.	Included with I/M program	
♦	29) Require coordinating scheduling of roadway maintenance to exclude Air Quality Health Alert days.	From 1999 EI	
♦	30) Air Quality Health Alerts to postpone morning gas activity. Have incentives to promote industry support.	From 1999 EI	
	31) Use market oriented strategies to reduce VMT; i.e. cost of gasoline, parking, licenses, etc.	Difficult to quantify Emission Reduction minimal.	
	32) Speed Limit Reductions	-0.24 tpd VOC 2.03 tpd NOx 12.17 tpd CO[xiii]	
	(a) 55 mph speed limit		
	(b) Lower speed limits of 65 and 70 mph by 5 mph		
	(c) Reduced speed limits for heavy trucks		
	33) Co-locate businesses and multi-use services	Difficult to quantify Emission Reduction Minimal.	
	34) Reduce evaporative emissions through shaded parking	Difficult to quantify	
	(a) Smart Growth	Difficult to quantify	
	(b) Limited Annex Areas	Difficult to quantify	
	Area & Land Use Strategies	**Emission Reduction**	**Cost Estimate**
	35) Require commercial airports to implement an alternative fuels plan governing tenants.	0.20 tpd NOx 0.07 tpd VOC[xiv]	Saving per ton NOx reduced; $8,000-$13,000 inc/ baggage tug; savings offset cost in 1-2 years[i]
	(a) Encourage electric ground support equipment and other alternative fuel vehicles		
	(b) Use electric or cleaner technology APUs – gate electrification		
	(c) Single-engine taxi for aircraft		
	(d) GSE engine/unit retirement		
	36) Promote use of cleaner lawn and garden equipment such as lower- emission four stroke and electric powered equipment (currently done by CPS)		
	a) Require alternative fuels by public entities to use cleaner equipment with a phase in period	Depends on the number of equipment.	
	b) Suspend activity of gas and diesel powered equipment on Air Quality Health Alert days	3.91 tpd NOx 30.6 tpd VOC[xv]	

Creditable and Enforceable Clean Air Strategies

	Area & Land Use Strategies	Emission Reduction	Cost Estimate
	37) Ozone Reducing Controls on Air Conditioning Units – involves applying a paint like coating to the surface of the heat exchanger to convert ozone-laden air to oxygen.		
	38) Architectural and/or Industrial Surface Coatings Controls – Architectural and industrial surface coatings (eg. paints) are applied by industry, contractors and homeowners to coat houses, buildings, highway surfaces and industrial equipment. VOC emissions result from evaporation of solvents in the coatings.		
	39) Autobody Refinishing/Coatings Controls – The steps involved in automobile refinishing include surface painting and equipment cleaning. Emissions occur at all of these stages due to evaporation of the solvents in the primers, paints, and other coatings and in the cleaning solutions. Involves the use of products with low VOCs, improvements in application technique so less coating is used and control the use of clean-up solvents.		
	40) Commercial and Consumer Products Requirements – Reduces the amount of VOCs emitted from the use of consumer products in homes and institutions. Reductions are achieved by reformulation of the products. "Consumer product" means a chemically formulated product used by household and institutional consumers, (e.g. detergents; cleaning compounds; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products; but does not include other paint products, furniture coatings, or architectural coatings.)	13.42 tpd VOC[xvi]	

Creditable and Enforceable Clean Air Strategies

	Area & Land Use Strategies	Emission Reduction	Cost Estimate
	41) Degreasing / Surface Cleaning / Solvents Controls - Degreasing operations are a common source of VOC emissions. Degreasing is a process that uses a solvent to remove grease, oil, or dirt from the surface of a part prior to surface coating or welding. In cold cleaning, the part is dipped into or sprayed with a solvent. Sources that commonly have cold cleaning degreasers include auto repair shops, autobody shops, and industries. Some rules include establishing a vapor pressure limit for the solvents, requiring that suppliers provide a low vapor pressure degreasing solvent to users in the region and keep transaction records. Users would be required to use only low vapor pressure solvents and to keep records of their purchases. Other rules include requiring small degreasing operations such as gasoline stations, autobody paint shops, and machine shops to use less polluting degreasing solvents. Other rules require product reformulation.		
	42) RACT Requirements for Area Sources		
	43) Graphic Arts Controls – Require certain printers to use control devices and low pressure VOC materials to reduce VOC emissions.		
	44) Wood Furniture Coating Operations – A complex series of coating steps and application methods are involved in finishing wood products. Coatings are usually applied in the following order: stain, wash coat, filler, sealer, highlight coat and topcoat. Emissions occur primarily from the solvents used during the coating process.		
	45) Cutback Asphalt: Limit the use of cut-back asphalt and encourage the use of low emissions emulsion asphalt where hot mix cannot be used.		
	Non Road Strategies	**Emission Reduction**	**Cost Estimate**
	46) Require alternative landscape and natural vegetation instead of mowing		
	47) Alternative fueled equipment (construction, etc.)		
♦	48) Accelerated equipment turnover; Tier 2 and Tier 3 non-road engines	15.2 tpd NOx[i]	$35-$1,900 per engine; $500-600 per ton NOx[i]
	49) Accelerated purchase of “Blue Sky” engines (Tier 3)		

Creditable and Enforceable Clean Air Strategies

	Governmental/Legislative Strategies	Emission Reduction	Cost Estimate
	50) Urban Heat Island/Cool Cities Program – Since ozone forms at higher temperatures, the purpose of this strategy is to keep the city as cool as possible, through vegetation ,cool roofing and light colored pavement. Houston has attempted to get SIP credit for UHI mitigation, but modeling is difficult and EPA has not recognized the validity of those models.		
♦	51) Municipal compliance with Int'l Energy Conservation Codes (IECC)	0.5 tpd NOx[i]	
♦	52) Industrial/Commercial/ Residential compliance with IECC – Consider expanding EE codes		
	Point Source Strategies	**Emission Reduction**	**Cost Estimate**
	52) Earlier shut down of Mission Plant		
	53) Support City Public Service reduction of NOx emissions of all power plants by 50% by 2005		
	54) Examine the potential for future point source reduction strategies - Application of control strategies beyond those required by the state may be possible.		
	55) Demand-side management for utilities		

[i] DFW Ozone Control Strategies, NCTCOG. http://www.dfwcleanair.com/ozone/102299/strategies.html
[ii] Alamo Area Council of Governments; Emission Reduction from 2007 On Road Emissions
[iii] Valero, ULSD workshop notes, January 30, 2003
[iv] Alamo Area Council of Governments, MOBILE6 analysis of a fleet of 10,000 HDDV
[v] Alamo Areea Council of Governments, Economic Analysis of Alternative Fuel Programs, Sept. 2002
[vi] Alamo Area Council of Governments, Fuel analysis based on 5,000 vehicles, September 2002.
[vii] Alamo Area Council of Governments, Alternative fuels cost per ton conversion with 10 year program implementation, May 2003
[viii] Alamo Area Council of Governments, IM Program Emission Reduction Calculation, May 2003
[ix] Alamo Area Council of Governments, Cost estimates of various I/M programs, August 2001
[x] Alamo Area Council of Governments, RVP Reduction Calculations, May 2003
[xi] Alamo Area Council of Governments, Emission reduction for San Antonio MSA, October 2002
[xii] Alamo Area Council of Governments, Stage 1 Cost Effectiveness Calculations, April 2003
[xiii] Alamo Area Council of Governments, Emission reduction calculations for speed limit reduction, April 2003
[xiv] Alamo Area Council of Governments, Emission reduction for GSE/APU/AGE in Bexar Co., Aug. 2001
[xv] Alamo Area Council of Governments, Emission Reduction for SAMSA of commercial and residential lawn mowing equipment, August 2001
[xvi] Alamo Area Council of Governments, 85% reduction (as done by CARB) in consumer product emissions in the MSA

Voluntary Clean Air Strategies

	Transportation Control Strategies	Emission Reduction	Cost Estimate
1	More transit access near universities and airports (VIA has provided this for local Universities and Colleges)		
2	Exclusive bus lanes		
3	Region-wide bike racks at work sites		
4	Safer bike routes with better signs marking lanes and routes	1.8 tpd Nox**	$50,000/ mi of trail**
5	Consider inclusion of bike lanes on state or federally funded thoroughfare projects		
6	Alternative fuel projects (such as Clean Cities programs afford)		
7	Encourage merchants and employers to subsidize the cost of transit for employees		
8	Consider coordinating scheduling of roadway maintenance to exclude air quality health alert days		
9	Ozone alerts to postpone morning gas activity. Have incentives to promote industry support		$163/ton NOx *
10	Meals (breakfast, lunch, or dinner, as appropriate) and childcare facilities at work to avoid excess driving		
11	Bike racks on buses		
12	Park 'n Pool lots serving perimeter counties		
13	Internet ridematching services		
14	Preferential parking for carpoolers (Currently provided at some companies)		
15	Park and Ride Lots		
16	Employers provide ride sharing, vanpooling, carpooling etc.		
17	Voluntary compressed work weeks		
18	Telecommuting		
19	Stagger work days		
20	Transit services during special events (such as Fiesta week, Texas Folklife Festival)		
21	Improved Transit Options and Level of Service (LOS) - Improved level of service includes shorter headways (time between buses) improved and expanded routes		
	Governmental/Legislative Strategies	**Emission Reduction**	**Cost Estimate**
22	Energy Reduction: all political subdivisions must set goal to reduce electrical energy used by 5% each year for 5 years.		
	(a) Solar water heater at the Bexar County Adult Detention Annex		
	Public Education, Outreach and Advertising	**Emission Reduction**	**Cost Estimate**
23	Get celebrities and elected officials to volunteer time for alert announcements		
24	Education programs for public		
25	More TV and radio spots		
26	PR promoting transit use		
27	Community involvement and public education		
28	Add air quality info to water and power bills		
29	Development of training materials and brochures		
30	Involve school districts to encourage walking to school		

Voluntary Clean Air Strategies

	Public Education, Outreach and Advertising	Emission Reduction	Cost Estimate
31	Media to show negative health consequences of air pollution		
32	Provide more information on costs of air pollution, congestion, driving		
33	Host heavy equipment air pollution control workshops		
34	Use scout troops to carry message of air pollution problems		
35	San Antonio Express News Metro Section Air Quality Health Alerts		
36	Promote proper tire pressure and other maintenance strategies to promote fuel efficiency		
37	Promote use of solar energy to produce electrical power		
38	Promote energy efficiency for residents		
	Point Sources	**Emission Reduction**	**Cost Estimate**
39	Investments by utilities outside of CPS' service territory in (electricity) demand management services		

* "Dallas Fort Worth Area Nox Control Measure Options," NCTCOG, http://www.dfwcleanair.com/ozone/mesopt.html

Potential Voluntary Clean Air Strategies

	Transportation Control Strategies	Emission Reduction	Cost Estimate
1	Region-wide mandatory bike racks at work sites		
2	HOV Lane, Carpool Lane Access for alternative fuel and low emission vehicles		
3	Convert free lanes to HOV	1 tpd Nox	$5,000,000/mi
4	Remote sensing and follow up letters.		
5	Expand tune-up programs at the start of ozone season addressing vehicle emission control system functions; e.g. oxygen sensor, EGR, catalyst, gas cap, etc.		
6	Fewer stop signs		
7	Traffic management at airports		
8	Shared LEV vehicles at worksites		
9	Discounts for paying bills by mail and/or email		
10	More classes on the internet		
11	More satellite campuses		
12	Better pedestrian access to bus stops		
13	Promote that government employees use transit for home to work trips, expand transit, and encourage large businesses to promote transit use		
14	Teleconferencing of meetings		
15	Use of satellite offices near employee residences		
16	Free Bikes		
17	Cash rebates for bike purchases		
18	Close streets for special events for use by bikes and pedestrians		
19	Consider and Promote Regional Bike Parking facilities for all new construction and permit Bike Transit Centers for/at all employment centers 100+ employees: Bike lockers, clothing lockers, showers, cleaners drop-off and pick-up. Bike repair and rental		
20	Replacement of regular vehicles with electric cars or other LEVs on site/campus		
21	Marketing campaign to develop an image that LEVs are "cool," small, energy-efficient cars are better, etc.		
22	Promote the sale and use of hybrid cars		
23	Incentives to add alt. fuel vehicles to fleet (Clean Cities Program)		
	Transportation Control Strategies	**Emission Reduction**	**Cost Estimate**
24	Market-based incentives to promote lower-emitting light-duty vehicles		
25	Incentives for car-poolers		
26	Employers provide vehicles to car-poolers for running errands		
27	Incentives for employees not to drive; i.e. employers pay for transit passes, employers do not provide paid parking		
28	Promote and arrange bus routes for employees as alternatives to driving		
29	Consolidate staff travel; i.e. multiple results for single trip		
30	Increase vanpool subsidies during ozone season		
31	Better law enforcement to regulate truck speeds to prevent accidents due to sharp turns on highway interchanges		
32	Parking incentives for alternative fueled or SULEV vehicles		
33	Queing limits - limit the number of idling vehicles or limit the acceptable idling time at railroad crossings		

Potential Voluntary Clean Air Strategies

	Area & Land Use Strategies	Emission Reduction	Cost Estimate
34	Tree Strategies		
	(a) Replanting of trees taken during development of land		
	(b) Preserve green space and replant cleared wooded areas		
	(c) Promote planting trees		
	(d) Conserving trees during development		
	(e) Better maintenance of existing trees		
35	Provide lower polluting alternatives for households and other selected new combustion sources (electric vs natural gas)		
36	Auto restricted zones		
37	No build zones		
38	Trip reduction oriented development		
39	Sustainable development		
40	Mixed use dense development		
41	More reflective glass, efficient buildings, tougher energy use standards, white roofs on new houses, native plants, and add more trees (low VOC emitting species), xeriscaping/buffalo grass for reduced water use and less frequent mowing.		
42	Ban on open burning on AQHA days		
43	Off-Road Equipment Fuel Tank (OREFT) Program		
44	Portable Fuel Container Spillage Control Measure		
45	New gas can sales in Central Texas to meet spill-proof, low emissions standards.		
46	Lower exemption levels for existing Volatile Organic Liquid (VOL) Storage tanks		
47	Encourage residential swimming pools be covered when not in use.		
	Non Road Strategies	**Emission Reduction**	**Cost Estimate**
48	Accelerate Tier 2 Locomotive implementation		
49	Remote sensing of heavy duty vehicles		
50	Adoption of California Large (> 25 hp) Spark Ignition Emission Standards		
51	Provide public recognition of fleets that have undertaken voluntary efforts to reduce emissions as an incentive to consider projects that will benefit the region's air quality and public health		
52	Remote Sensing of Locomotives		
53	Establish a vehicle maintenance best practices program to reduce emissions through preventative maintenance		
54	Idling restrictions for engines of a specified type/size during ozone season		
55	Voluntary use of APUs (auxiliary power units) for locomotives operating in Central Texas.		
	Governmental/Legislative Strategies	**Emission Reduction**	**Cost Estimate**
61	Developers have to create an air quality impact study		
62	Place work restrictions on the most polluting equipment. Allow low polluting equipment to work regular hours		
63	Cool cities approach to reduce heat build-up		
64	Financial incentives to industry to build cleaner equipment		

Potential Voluntary Clean Air Strategies

	Public Education, Outreach, & Advertising	Emission Reduction	Cost Estimate
63	Website for vehicle emissions tuning/repair education, self-help, and persuasion		
64	Provide employee training to raise environmental awareness		
65	Establish a directory that provides information on the current regional air quality situation and the various means available for reducing emissions		
66	Work with industry experts to develop and distribute educational materials and implement pilot projects on measures to reduce vehicle idling		
67	Promotion of good driving habits and not using vehicle A/C before 10am		
68	Establish an off-road related home page on the AACOG website to serve as a local clearinghouse of current and accurate information relating to incentive programs for reducing emissions, emission requirements, and new technologies for off-road equipment users.		
69	Continue to compile a monthly newsletter of off-road and air quality related news items.		
	Point Source	**Emission Reduction**	**Cost Estimate**
70	Evaluating potential benefits of shifting the electric load profile		
71	Explore strategies to reduce transmission line losses - Loss of power during transmission is typically 3-5%. Higher losses occur with higher loads. Transmission lines will be upgraded to reduce transmission losses where the upgrades are cost-effective.		
72	Texas Emissions Reduction Plan Energy Efficiency - accelerated timetable for use of microturbines and fuel cells		
73	Exploring opportunities for increased industrial and commercial use of "co-generation" or "combined heat and power."		

Clean Air Strategy Evaluation Criteria

The following table provides a template used to evaluate candidate clean air strategies.

Emission Reduction Measure Name	
Source Category (point, area, on-road, etc.)	
Measure Description (Attach additional sheets if necessary)	
Implementation date. All chosen measures must be implemented NO LATER THAN 12/31/05. Please include another date if earlier than this.	
Jurisdiction(s)	
Emissions Reduction/Cost Accounting Summary	
Capital costs	
Annual operating costs	
*Total annual costs	
2007 Baseline NOx	
Amount NOx reduced t/d	
Percent NOx reduced	
Cost/ton of NOx reduced	
2007 Baseline VOC	
Amount VOC reduced t/d	
Percent VOC reduced	
Cost/ton of VOC reduced	
Ozone reduction*	
Legal authority to adopt	
Estimated compliance rate/ability to enforce measure	
Enforcement authority	
EPA Credit	
Additional benefits	
**As indicated by photochemical modeling for a limited number of control techniques*	
Overall cost-effectiveness	
Technical feasibility	
Public acceptance	
Stakeholder acceptance	
Technical feasibility: Is there equipment currently available which can achieve the planned emission reduction?	
Legal authority to adopt: Who has authority to implement the emission reduction measure in the Austin area (local, state, federal) and what legislation may be necessary to authorize implementation?	
Enforcement authority: Who has authority to enforce and who is responsible for the enforcement?	
Estimated compliance rate: Describes the ability to enforce the measure. Sometimes called "rule effectiveness". Please consider: reliability of equipment, need for operator training, clarity of rule applicability, and compliance with rule as written.	
EPA Credit: Does EPA give SIP credit for this measure? 1=No. 3=Unsure. 5=Yes.	
Addition benefits: Any additional toxics or pollutants removed besides NOx and VOCs?	