

**-- DRAFT --**  
**Potential Measures to Assist O3 Attainment**

The measures on this list have been identified by LADCO, OTC, Texas, California and/or EPA as potential measures for 8-hour ozone implementation. Though additional opportunities may exist for some areas, we have attempted to compile a relatively complete list of categories of sources that may present emission reduction opportunities for 8-hour ozone SIPs.

A comprehensive list of known ozone measures as of 1999 is provided by an EPA document titled "Serious and Severe Ozone Nonattainment Areas: Information on Emissions, Control Measures Adopted or Planned and Other Available Control Measures." It can be found at the following web site: <http://www.epa.gov/ttn/naaqs/ozone/eac/measures.pdf> *Please note that some measures may no longer be applicable or as beneficial as they were at the time of publication..*

The appropriate geographic scope of controls may vary based on emission reductions needed for expeditious attainment. As a regional pollutant that causes intrastate as well as interstate transport, NOx reductions beyond nonattainment area boundaries (e.g., statewide or within 200 km of nonattainment area boundaries) may help to achieve more expeditious attainment by some areas. For VOC, which contributes less than NOx to ozone transport, the nonattainment area typically would be the area of interest (though certain types of measures might be implemented more broadly).

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**NO<sub>x</sub> – stationary/area sources\***

\* Control technology listings are examples; additional possibilities exist for some categories

<b>Source category</b>	<b>Identified by</b>	<b>Potential measure/control technology</b>	<b>Notes</b>
ICI boilers	LADCO, OTC, Aircontrolnet	LNB, SNCR, SCR	
Cement plants	LADCO, OTC, Aircontrolnet, STAPPA	Existing kilns – low-NO <sub>x</sub> burners, mid-kiln firing, SNCR  New kilns – SNCR plus staged combustion; SCR may be feasible	SNCR used at many preheater, precalciner units; installed at 1 long wet kiln  Effectiveness of SNCR + staged similar to expected effectiveness to SCR (if SCR feasible)
Glass/Fiberglass plants	LADCO, OTC, Aircontrolnet	Glass: SCR, oxy-firing	Aircontrolnet assumes 75% (SCR) or 85% (oxy-firing)
EGU	TX	Requirements for nonattainment area EGU (where appropriate considering factors such as: cost of controls, technical feasibility, impact on other control installations, and local air quality impact).	
Asphalt plants	LADCO, OTC	LNB + flue gas recirculation	
Petroleum refineries including fluid catalytic cracking units & other	OTC, Aircontrolnet	e.g., LNB + FGR (fluid catalytic cracking units)	
Iron/steel mills	STAPPA, Aircontrolnet	Reheat, annealing & galvanizing furnaces – LNB  Annealing – LNB + SNCR/SCR	
Lime kilns	OTC, Aircontrolnet	Combustion controls	Approx. 40% reduction

<b>Source category</b>	<b>Identified by</b>	<b>Potential measure/control technology</b>	<b>Notes</b>
Stationary IC engines	Aircontrolnet, TX	Rich burn engines: non-selective catalytic reduction	Approx. 90% reduction
		Lean-burn engines: low-emission combustion retrofits	Approx. 83% reduction
Process heaters (multiple industries)	Aircontrolnet	LNB, Ultra LNB, LNB + flue gas recirculation, LNB + SNCR, LNB + SCR	Approx. 40% (LNB) or 75% (ULNB) reduction
Non-EGU combustion turbines	Aircontrolnet	SCR; dry low-NOx combustion for new or reconstructed units	
Commercial/institutional natural gas	Aircontrolnet	Water heater + LNB space heater	Approx 50% reduction
Industrial combustion (coal, oil, natural gas)	Aircontrolnet	RACT to 25 tpy	
Industrial incinerators	Aircontrolnet	SNCR	
Sulfate pulping	Aircontrolnet	SCR	
Secondary aluminum production	Aircontrolnet	LNB (smelting furnace)	
Residential natural gas	Aircontrolnet	Water heater + LNB space heater	
Open burning restrictions	Delaware DNREC; Kansas; Wyoming DEQ; CO APCD Chattanooga/Hamilton County, TN	Limits on outdoor fire or outdoor smoke-producing process from use of burn barrels, screened pits, backyard incinerators or piled-up refuse, including yard trimmings, leaves or materials from cleared land— <a href="http://www.epa.gov/ttn/atw/burn/burnpg.html">http://www.epa.gov/ttn/atw/burn/burnpg.html</a>	Reduces NOx, VOCs, PM, toxics; improves water quality from less toxic runoff

**VOCs – stationary/area sources**

*For italicized entries, CA appears to adopted rules that achieve reductions beyond EPA's CTG or ACT guidance for those categories.*

<b>Source category</b>	<b>Identified by</b>	<b>Potential Measure(s)</b>	<b>Notes</b>
Chemical manufacturing (case by case assessment)	LADCO		
AIM coatings	LADCO, OTC	Content limits, regulation of cleaning of application equipment, require use of low VOC solvents for cleaning of spray application equipment	
Consumer products	LADCO, OTC		
Portable fuel containers	LADCO, OTC		
Asphalt paving	LADCO, OTC		
Autobody refinishing	LADCO, OTC		
Industrial surface coating	LADCO, OTC		
Automobile windshield washer fluid	TX	Limit VOC content	
Gasoline dispensing CARB EVR STAGE I	LADCO, OTC		
Industrial adhesives and sealants	OTC, Aircontrolnet, CA		SCAQMD rule 1168

Printing and graphic arts	OTC		
POTWs	OTC		
Plastic parts (business machine coating, boats and shower stall manufacturing, etc.)	OAQPS		
Pleasure craft coating operations	CA		SCAQMD rule 1106.1
Pleasure craft fuel transfers	CA		
Pulp and paper manufacturing	OAQPS		
Landfill gas emissions	CA		SCAQMD rule 1150.1
<i>Loading of organic liquid cargo vessels</i>	CA		
<i>Polyester resin operations</i>	CA		
<i>Petroleum flares and relief gas oxidizers</i>	CA		
<i>Solvent cleaning operations</i>	LADCO, CA		
<i>Surface coating of aircraft or aerospace vehicle parts</i>	CA		
<i>Surface coating of wood products</i>	CA		
<i>Graphic Arts</i>	CA	In addition to lithographic and letterpress, CA rule includes solvent cleaning of ink application equipment, cleaning of adhesive application equipment	
<i>Solvent dry cleaners</i>	CA	Phase out of transfer-type machines	

<i>Solvent degreasers</i>	CA	Lower VOC content of solvent	
<i>Storage of VOC liquids</i>	CA	Reduce tank size cutoff	
<i>Commercial bakery emissions</i>	CA		
<i>Further controls from high emitting spray booths</i>	CA		
<i>Control from resin manufacturing</i>	CA		SCAQMD rule 1162
Stage II CA enhanced vapor recovery	CA		
Rubber, leather and glass coating	CA		SCAQMD rule 1145
Landfill gas emissions	CA		SCAQMD rules 1150.1, 1158.1
Control of emissions from decontamination of soil	CA		SCAQMD rule 1166
Manufacture of cellular foam products	CA		SCAQMD rule 1175
Co-composting operations	CA		SCAQMD rule 1133.2
Food product operations, commercial charbroiling	CA		SCAQMD rules 1138, 1131
Screen printing operations	CA		SCAQMD rule 1130.1
Manufacture of coatings and ink	CA		SCAQMD rule 1141.1
Surfactant manufacture	CA		SCAQMD rule 11141.2
Polyester resin operations	CA		SCAQMD rule 1162

Semiconductor manufacturing	CA		SCAQMD rule 1164
Outer continental shelf regulations	CA		SCAQMD

### Non-road mobile source measures

Category	Identified by	Potential Measure(s)	Notes	Special quantification or enforcement challenge
Construction equipment voluntary/incentive programs	LADCO, OTC	Early replacement & retirement, rebuild, repower, clean fuels such as emulsified fuels and cetane enhancers, SCR system (1 technology verified for nonroad construction equipment)	Texas TERP grants have averaged \$5000/ton of NOx for all types of projects (capped at \$13,000); California's Carl Moyer grants have averaged \$3000/ton of NOx for all types of projects (capped at \$13,600)	
Agricultural equipment voluntary/incentive programs	LADCO	See above.	See above	
Locomotive equipment voluntary/incentive programs	NOACA (idle control)	See above. Idle control strategies include auxiliary power units, automatic shut-down/start-up systems, and diesel driven heating systems. Hybrid switcher engines are another option.	See above. MOUs in CA, TX.	
Port strategies	NOACA	See above for drayage	See above. MOUs in CA.	

	idling recommen- dation	equipment, tugboats, etc. Other operational strategies to reduce NOx include gate efficiencies, expanded hours or incentives for off-peak operation during ozone season, cold ironing (onshore power), idle reduction technologies and policies, logistics/container management, and vessel speed limits.		
Airport ground operations	LADCO, NOACA	Electrification, retrofits, and upgrades of ground service equipment (GSE); clean fuels for passenger ground transport fleet; improved passenger transit including use of consolidated shuttles and rail; and reducing aircraft engine idling.	See above. MOUs in Dallas.	
Intermodal - ports/goods movement combination strategy			California	x

**On-road mobile source measures**

Category	Identified by	Potential Measure(s)	Notes	Special quantification or enforcement challenge
HDDV fleet modernization, fuels, and retrofits for NOx	LADCO, NOACA (some strategies – SCR, but not truck replacements)	Early retirement & replacement with cleaner vehicles, rebuild, repower, clean fuels such as emulsified fuels and cetane enhancers, lean NOx system (1 technology verified for onroad), EGR (1 technology verified for onroad)	Texas TERP grants have averaged \$5000/ton of NOx for all types of projects (capped at \$13,000); California's Carl Moyer grants have averaged \$3000/ton of NOx for all types of projects (capped at \$13,600)	
Long-duration (>15 minutes) heavy-duty truck idling	NOACA	Truck stop & terminal electrification; mobile idle reduction technologies such as auxiliary power units (APUs), generator sets, and direct-fired heaters	TSEs ~\$11,500 per space; APUs \$6000-\$8500. \$0/ton over the life of the equipment due to fuel savings; payback period for TSEs ~ 17 months; payback period for APUs ~18 months (depending on usage rates and cost of fuel). Total reductions and cost-effectiveness depend on idling rates. Idleaire TSE technologies average 22 tpy of NOx per 50-space installation.	
Employer-based programs to decrease light-	NOACA	Best Workplaces for Commuters (BWC) is an EPA program that	On average, employees at BWC workplaces consume 15% less gasoline and therefore produce 15% less	

duty VMT		recognizes and supports employers who provide incentives to employees to reduce light-duty vehicle emissions. Employers implement a wide-range of incentives to affect change in employee commuting habits including transit subsidies, bike-friendly facilities, telecommuting policies, and preferred parking for vanpools and carpools.	emissions during their commute than employees at non-BWC workplaces due to their reduced reliance on solo driving to get to work. Depending on local commute patterns, 25,000-50,000 new participants in the program could translate into ~0.1-0.2 tpd NOx reduction.	
Other programs to reduce light-duty VMT		Park-and-ride facilities, HOV lane preference for carpools, additional transit services (e.g. buses, light rail).		
SmartWay Upgrade Kits for heavy-duty trucks	OTAQ	Kit includes wide-based tires (or low rolling resistance tires), advanced aerodynamics on trailer, idle control, and after-treatment devices (DOCs or DPFs) (note: after-treatment devices	\$0/ton over the life of the equipment due to fuel savings; payback period for \$12,900 Kit with DPF, single wide tires, trailer aerodynamic kit, and direct fired heater ~18 months (depending on usage rates and cost of fuel)	x

		reduce PM emissions but not NOx).		
NOx chip reflash for heavy-duty trucks	LADCO, OTC			x
Early retirement/accelerated replacement of light-duty vehicles		Early replacement with LEVs, Tier 2, CNG, hybrids – including buy-back programs, buying requirements for public & private fleets, etc.		x
More stringent I/M	LADCO	New measures could include a gas cap check; pass/fail OBD test on 1996 and newer vehicles; testing heavy-duty gasoline vehicles; using existing excess dynamometer testing capacity to replace idle test with a dynamometer test (e.g., ASM2525) for oldest model year vehicles; identify, locate and repair vehicles that disappear after failing an initial test; covering additional model years	Unique to each program. No quantitative information on the incremental cost effectiveness of individual program elements.	x Cleveland’s program already addresses the first four elements listed above and covers 25 model years; therefore, the greatest benefit to Cleveland from strengthening its I/M program would be to identify “disappearing vehicles” that fail inspection and don’t come back. The inspector general has identified disappearing vehicles as an issue of

				concern.
Lower speed limit	LADCO. NOACA supports additional enforcemen t of current speed limit, but not lowering speed limit.			x
RFG in Cleveland	LADCO		Cost to produce RFG had been 4 – 8 cents/gallon; however, use of ethanol has increased the cost to produce RFG. Measure would also provide emission reduction benefits in the non-road sector. Supply considerations stemming from changes in oxygenate requirements.	
Regionwide low RVP fuel	LADCO, NOACA	Reduce the RVP of gasoline to <b>X</b> psi across a wide geographic region.	1 – 3 cents/gallon to produce low RVP fuel for a nonattainment area. Cost may be slightly higher (perhaps 4 – 8 cents/gallon) for a region-wide program.	x
Idle restriction state laws	NOACA			x
Traffic signal synchronization to reduce	NOACA			x

congestion				
Intersection improvements to reduce congestion				X
Congestion value pricing				X
Intermodal (trucks-to-rail) to decrease heavy-duty truck VMT				X
Lawn mowers	North Central COG in TX	Lawn mower replacement programs		

**Energy efficiency – demand side management**

Note: Because energy demand reductions can be modeled to power generation facilities, we can reliably estimate the expected NOx, PM, and VOC reductions for these projects

Category	Identified by	Specific Potential measure(s)/description	Notes
<b>Replace existing electrical devices with more EE devices</b>	Chicago <a href="http://www.cleanaircounts.org/eelightingprogram.shtml">http://www.cleanaircounts.org/eelightingprogram.shtml</a>	Energy-efficient lights (CFLs), appliances, air conditioners & pumps, including ENERGY STAR rated products	Financial incentives like System Benefit Charge programs, tax incentives or Demand Side Management programs  Appliance Standards
<b>Energy-saving design, construction or reconstruction</b>	Region 6, etc	Adding insulation, replacing existing windows with more energy efficient ones, installing higher SEER cooling/heating systems	A standard suite of retrofits that municipalities, non-profits and business is pursuing. KWh reductions should be directly accountable for emissions reductions.  Energy Codes, Building Codes
	Region 6, etc	Replace conventional traffic signal lamps and interior and exterior illumination with light emitting diode (LED) technology	LEDs typically have lower operation and maintenance (O&M) costs and reduce energy demand by 90-95%. Municipal signalization and lighting is typically around 5-6% of a city's total electrical demand, so this is a non-trivial activity.
	Region 6, etc	Optimizing water pumping	It has been reported that municipalities spend an average of 40% of their electricity in pumping water. Strategies to clean and polish piping, repair leaks, and correctly size pumps are being used to significantly reduce electricity demand for pumping.

	Texas Senate Bill 5	Localize credit for Statewide programs (e.g., Texas Senate Bill 5 municipal energy use reductions and renewable portfolio standards) -- Localities can prorate Statewide reductions for mandated programs.	
	Region 6, etc.	Ground source heat pumps for cooling/heating	Many different school districts in Region 6 have installed these systems for cooling and heating, saving 30-50% off electricity bills due to cooling/heating and greatly curtailing natural gas use. For a 75,000-90,000 sq. foot elementary school building, additional costs may be \$75,000-\$100,000 for installation above conventional cooling/heating systems, but due to reduced O&M, longer life of equipment, and the reduction in electricity and gas costs, payback periods of less than 5 years are common.
		Green building programs	Both mandatory and voluntary green building programs can be the basis for energy reduction calculations. Reductions in emissions resulting from less electricity demand than originally assumed in the SIP are the manifestation of these efforts. Independent auditors can be responsible for documenting the HERS (home energy rating system) score for each newly constructed home.

		<p>Local Government Energy Plan—Involves the procurement &amp; management of energy resources &amp; production, the sale &amp; distribution of energy &amp; management of spent fuel resources.</p> <p><a href="http://www.seql.org/intersect.cfm">http://www.seql.org/intersect.cfm</a></p>	<p>Cost savings to the jurisdiction, more efficient energy use that helps reduce peak energy demand.</p>
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## Renewable Energy

Category	Identified by	Specific Potential measure(s)/description	Pollutants/ Precursor Controlled	Notes
Green power purchases	Whole Foods EPA Starbucks Safeway US Air Force	Many companies are increasing their share of power devoted to renewable energy.  EPA's Green Power Partnership: <a href="http://www.epa.gov/greenpower/">http://www.epa.gov/greenpower/</a>	NOx VOC PM	A recent Executive Order directing federal agencies to reduce energy consumption in their office space may spur additional green power purchases. The amount of generation offset affecting the critical (e.g., nonattainment) area must be determined.
Regional Wind Power Purchase	Maryland	Local governments commit to purchasing a specific number of kilowatt-hours of power per ozone season, decreasing power generation from coal, oil and/or gas-fired sources	NOx VOC PM	Reduces mercury emissions, potential reduction in greenhouse gas emissions; reduces dependence on foreign oil  National Wind Technology Center: <a href="http://www.nrel.gov/wind/">http://www.nrel.gov/wind/</a>
Installation of clean renewable generation			NOx VOC PM	Renewable Portfolio Standards System Benefits Charge Programs Green Power Incentives

### References:

**Guidance on SIP Credits for Emission Reductions from Electric-Sector Energy Efficiency and Renewable Energy Measures, EPA/OAR (August 5, 2004)**

[http://www.epa.gov/ttn/oarpg/t1/memoranda/ereserem\\_gd.pdf](http://www.epa.gov/ttn/oarpg/t1/memoranda/ereserem_gd.pdf)

**Incorporating Emerging and Voluntary Measures in a State Implementation Plan (SIP), EPA/OAQPS (September 2004)**

[http://www.epa.gov/ttncaaa1/t1/memoranda/evm\\_ievm\\_g.pdf](http://www.epa.gov/ttncaaa1/t1/memoranda/evm_ievm_g.pdf)

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**Incorporating Bundled Measures in a State Implementation Plan (August 16, 2005)**  
<http://www.epa.gov/ttncaaa1/t1/memoranda/10885guideibminsip.pdf>

**Clean Energy-Environment Guide to Action (February 7, 2006)**  
<http://www.epa.gov/cleanenergy/stateandlocal/guidetoaction.htm>

**LONGER TERM MEASURES**

<b>Category</b>	<b>Identified by</b>	<b>Specific Potential measure(s)/description</b>	<b>Pollutants/ Precursor Controlled</b>	<b>Notes</b>
Smart Growth-- General	Portland Sacramento	Dense, mixed-use development combined with pedestrian/bike amenities and streetscape design to enable/encourage walking, biking & transit as viable alternatives to the single occupancy vehicle.	VOCs NOx PM	Reduced air toxics & GHG's, increased opportunity for physical exercise, thereby reducing medical costs associated with obesity-related chronic illnesses, such as high blood pressure, heart disease & diabetes. Increased mobility for all segments of the population & increased fuel savings. Works synergistically with land use & transportation measures: school siting, greenscaping sidewalks, BWC, transit incentives, streetscape improvements
School Siting Criteria	CA: <a href="http://www.sustainable-schools.dgs.ca.gov/SustainableDesign/siting/siting.html">http://www.sustainable-schools.dgs.ca.gov/SustainableDesign/siting/siting.html</a>	EPA has issued guidance that encourages school districts to adopt alternative school siting criteria that allows/encourages the siting of new schools in or near where students live, as opposed to greenfields sites on the outskirts of the urban area. Closer in schools enable students to walk or bike to school rather than drive or be driven. Guidance also encourages retrofit of existing buildings in urban areas to create more school space as an alternative to building new space from the ground up.	Ozone PM	Reduces air toxics, decreased reliance on motorized transportation; increased opportunities for physical exercise; transportation savings for school districts; reduced on-board pollutant exposure; reduced emissions from idling school buses. High schools: less need for parking and lower accident rate for students who would otherwise drive to school. <a href="http://www.epa.gov/schools/TravelandEnvironmentalImplicationsofSchoolSiting(EPA,2003).pdf">http://www.epa.gov/schools/TravelandEnvironmentalImplicationsofSchoolSiting(EPA,2003).pdf</a>

Natural Landscaping/ Greenscaping	Chicago <a href="http://www.cleanaircounts.org/naturallandscaping.shtml">http://www.cleanaircounts.org/naturallandscaping.shtml</a>	Cost-effective, environmentally friendly solutions using natural landscaping; requires less mowing, weeding or core aeration, & significantly less water.  e.g., Corporate lawn conversion (replace old industrial/corporate lawns with prairie grasses)	VOC NOx CO2	Emission reductions are quantifiable; reduces material use, pesticide, fertilizer & water use. Yields energy savings by reduced mower use. Reduces greenhouse gas Emissions.  <a href="http://www.epa.gov/greenskapes/">http://www.epa.gov/greenskapes/</a>
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<b>Heat Island Mitigation</b>				
<b>Category</b>	<b>Identified by</b>	<b>Specific Potential measure(s)/description</b>	<b>Pollutants/ Precursor Controlled</b>	<b>Cost effectiveness, other factors/co-benefits</b>
Tree Planting (Long-term maintenance measure only)	Sacramento Chicago (implemented in many other cities too)	Area-wide comprehensive tree planting. Strategic planting around homes and buildings directly cools the interior, decreasing air conditioning cost and peak energy demand. <a href="http://www.epa.gov/heatisland/strategies/vegetation.html">http://www.epa.gov/heatisland/strategies/vegetation.html</a>	Ozone	Politically popular; encourages walkable communities
Green Roofs	<ul style="list-style-type: none"> <li>Chicago</li> <li>Portland</li> </ul>	Vegetative roof systems installed on new or modified	Ozone	<ul style="list-style-type: none"> <li>Reduce sewage system loads by assimilating large amounts of rainwater.</li> <li>Absorb air pollution, collect airborne particulates,</li> </ul>

	<ul style="list-style-type: none"> <li>• Gap HQ, San Bruno, CA;</li> <li>• Ford Motor Co. (Headquarters)</li> <li>• Montgomery Park Business Center, Baltimore, MD</li> <li>• Church of Jesus Christ of Latter-Day Saints Conference Center, Salt Lake City, Utah</li> </ul>	<p>roof systems. May be used on industrial facilities, residences, offices &amp; other commercial property. Absorb air pollution, collect airborne particles &amp; store carbon.</p> <p><a href="http://www.epa.gov/heatislands/strategies/greenroofs.html">http://www.epa.gov/heatislands/strategies/greenroofs.html</a></p>		<p>and store carbon.</p> <ul style="list-style-type: none"> <li>• Protect underlying roof material by eliminating exposure to the sun's ultraviolet (UV) radiation and extreme daily temperature fluctuations.</li> <li>• Serve as living environments that provide habitats for birds and other small animals.</li> <li>• Offer an attractive alternative to traditional roofs, addressing growing concerns about urban quality of life.</li> <li>• Reduce noise transfer from the outdoors.</li> <li>• Insulate a building from extreme temperatures, mainly by keeping the building interior cool in the summer.</li> </ul>
<p>Reflective “cool” Roofs/Energy Star-labeled roof products</p>	<ul style="list-style-type: none"> <li>• City of Chicago (energy code)</li> <li>• CA Cool Savings Program; CA Title 24 energy bldg EE Std.</li> <li>• GA (White Roof Amendment)</li> </ul>	<p>Cool roof systems with high reflectance and emittance reduce building heat gain and minimize energy use. Reduces greenhouse gases, reduces demand for electric power, extended life span of roof</p> <p><a href="http://www.epa.gov/heatislands/strategies/coolroofs.html">http://www.epa.gov/heatislands/strategies/coolroofs.html</a></p> <p><a href="http://www.energystar.gov/index.cfm?c=roof_prods.pr_roof_products">http://www.energystar.gov/index.cfm?c=roof_prods.pr_roof_products</a></p>	<p>Ozone GHGs</p>	<p>Many business, government and non-profit groups throughout the country are emphasizing installing reflective roofs with radiant heat barriers as a cost-effective way to reduce cooling costs. Such a system can reduce electricity charges from cooling by 15%.</p>
<p>Reflective “cool” pavement/Low</p>	<p>Chicago (Clean Air</p>	<p>Another means to reduce heat island effects by</p>	<p>Ozone</p>	<p>These options provide other environmental benefits, lower construction or maintenance costs, and can</p>

Impact Paving	Counts) <a href="http://www.cleanaircounts.org/lowimpactpaving.shtml">http://www.cleanaircounts.org/lowimpactpaving.shtml</a>	choosing paving materials that lower surface temperatures, especially for large surfaces, such as parking areas, air fields & urban roadways. <a href="http://www.epa.gov/heatislands/strategies/coolpavement.html">http://www.epa.gov/heatislands/strategies/coolpavement.html</a>		enhance the aesthetics of a project. May help with storm water runoff &, reduce energy use. For every 1 acre of low-impact paving, as much as 2 tons of VOC emissions are eliminated compared to emulsified paving.
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Reference:  
Heat Island Mitigation Impact Screening Tool (MIST)  
<http://www.epa.gov/heatisland/resources/tools.html#MIST>