

Virginia Paving Company

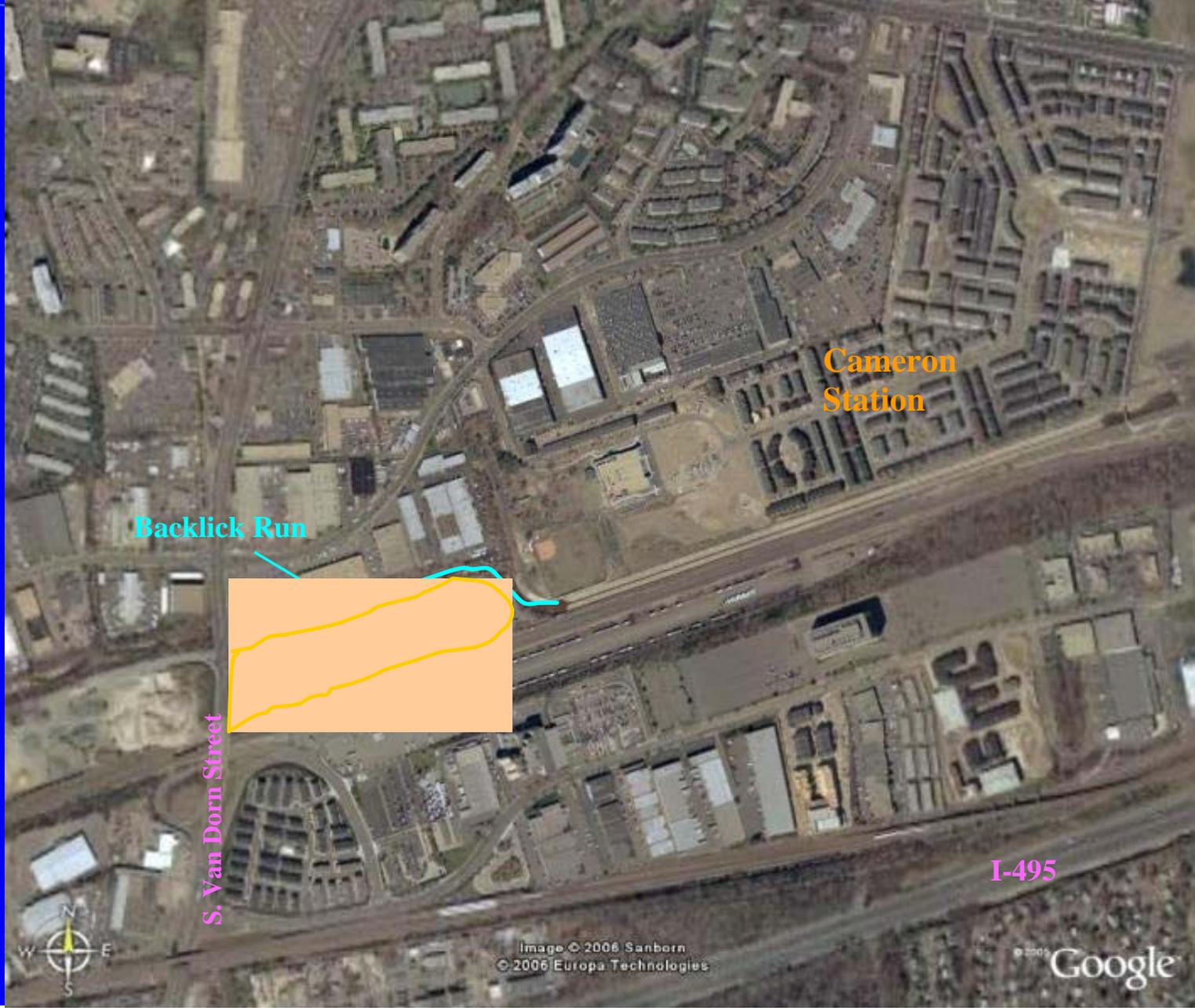
5601 Courtney Ave
Alexandria, Virginia

May 15, 2006

Community Meeting

Beatley Library, 5005 Duke Street, Alexandria, Virginia





BACKGROUND

City of Alexandria

**Department of Transportation &
Environmental Services**

Division of Environmental Quality



BACKGROUND

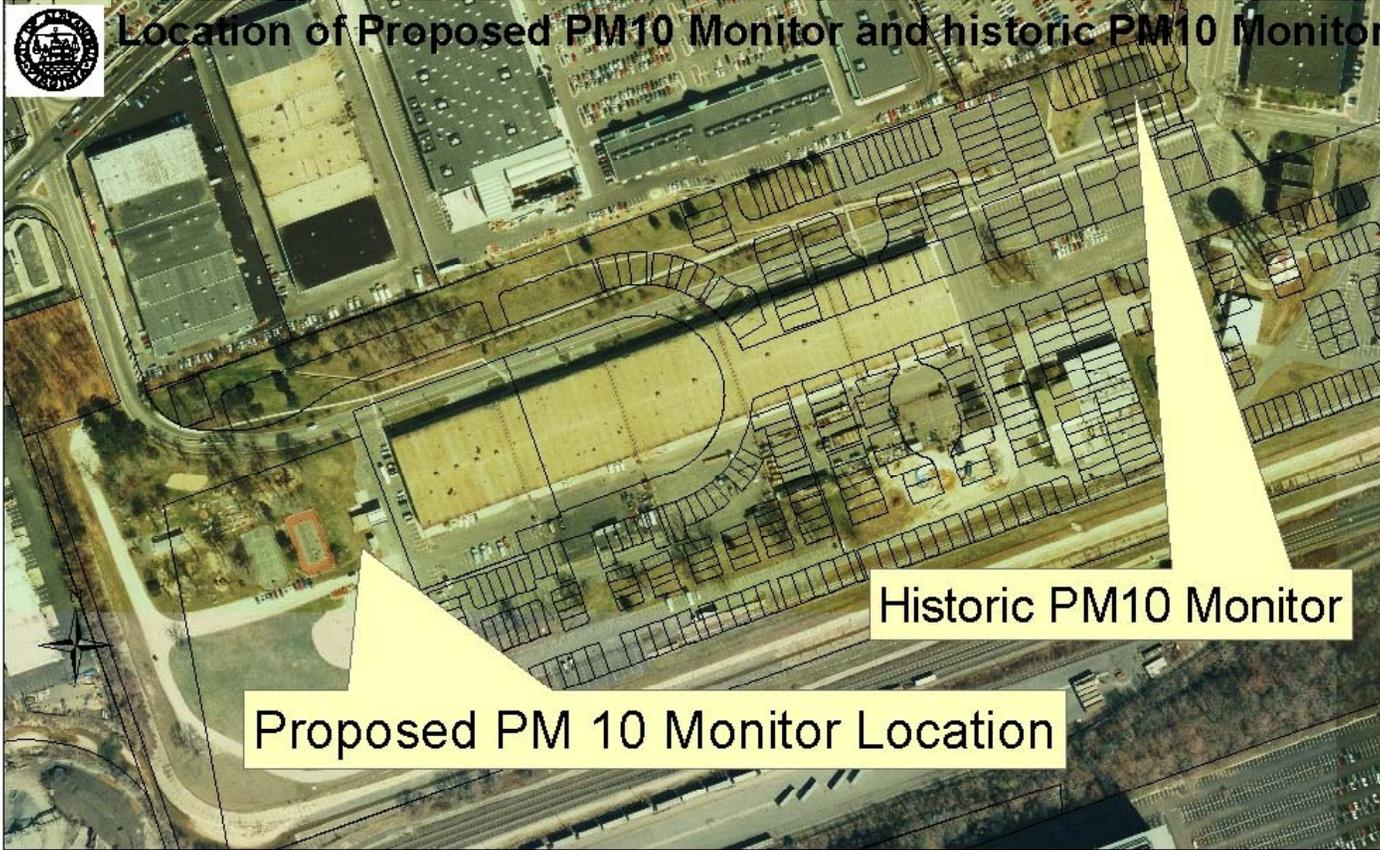
- **Air Monitoring at Cameron Station**
 - **1991 through 1996**
 - **No violations of TSP, PM-10, lead standards**
 - **Other metals not detected in samples (Cd, Hg)**
- **Comprehensive Inspection**
 - **Inspection done in Aug/Sep 2004**
 - **City Attorney's letter to VA Paving in Oct 2004**
 - **Findings / Violations of current SUP**
 - **Nighttime Operations**
 - **Lack of Settling Basin**



Historic & Proposed Monitoring Location



Location of Proposed PM10 Monitor and historic PM10 Monitor



Historic PM10 Monitor

Proposed PM 10 Monitor Location



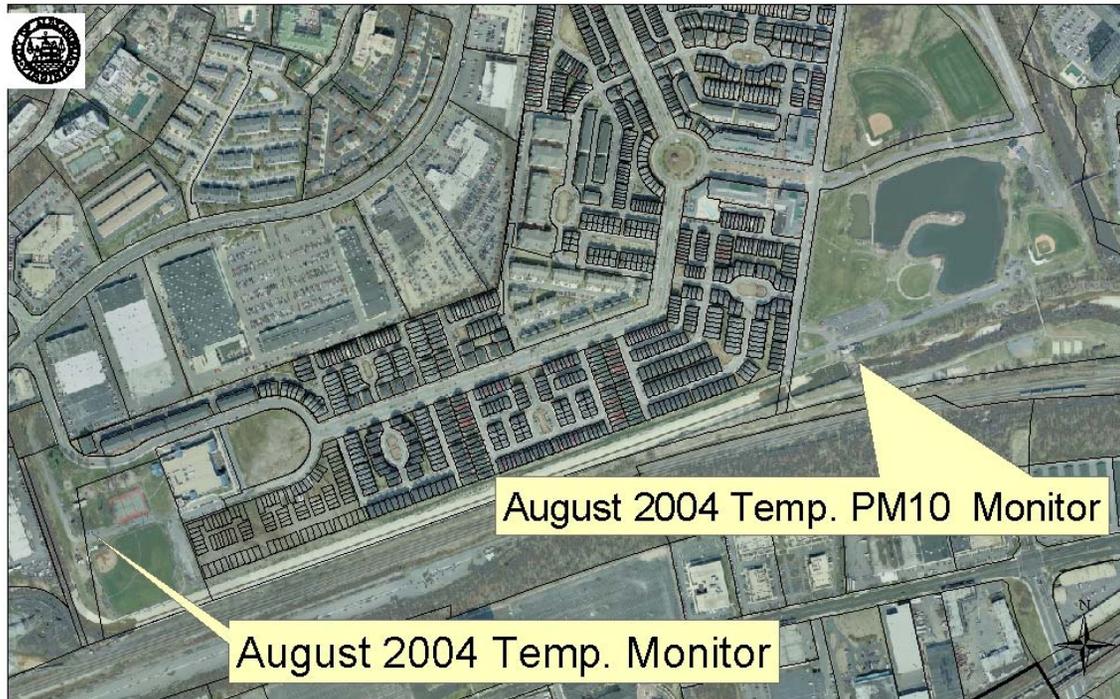
Historical Air Monitoring

Pollutant	Averaging Period	1991	1992	1993	1994	1995	1996	NAAQS
TSP	24-Hour	97	83	101	96	107	63	150
	Annual	43	36	39	n/a	39	n/a	75
PM-10	24-Hour	64	55	62	57	53	59	150
	Annual	28	n/a	23	n/a	n/a	n/a	50
Lead	Quarter	0.06	0.01	0.01	n/a	0.01	n/a	1.5
Cadmium	24-Hour	0	0	0	0	0	0	none
Mercury	24-Hour	0	0	0	0	0	0	none



Temp. Monitoring Aug 2004

August 2004 Temporary PM 10 Monitors



Environmental Issues & Concerns

- **Raised by community since 2000**
- **Air Quality**
 - **Emissions**
 - **Fugitive PM (dust)**
 - **Ambient Impacts**
- **Odors**
- **Noise**
- **Lighting**
- **Stormwater**



Environmental Review & Analysis

- **City's Review / Analysis**
 - **Evaluated baseline emissions**
 - **Performed dispersion modeling**
 - **Researched stringent controls & best management practices**
 - **Negotiated the proposed SUP that goes beyond all current permits**



AIR QUALITY

■ Permitting Process

- **Virginia DEQ has primary responsibility**
- **Classified as Minor Source (< 100 tons/yr)**
 - No modeling was required for criteria or toxic pollutants
 - Permit does not require stack testing
 - No ambient monitoring required
- **Burning of oil & recycled oil allowed**
- **Annual production limit on asphalt**
- **Emission limits for asphalt dryers and hot oil heaters**



Current VDEQ Permit Limits

- **Production Limit**
 - **Asphalt production = 1,500,000 tons/yr**
- **Emission Limits**
 - **NO_x = 21.9 tons/yr**
 - **CO = 77.5 tons/yr**
 - **SO₂ = 52.3 tons/yr**
 - **PM-10 = 18.3 tons/yr**
 - **VOC = 2.0 tons/yr**



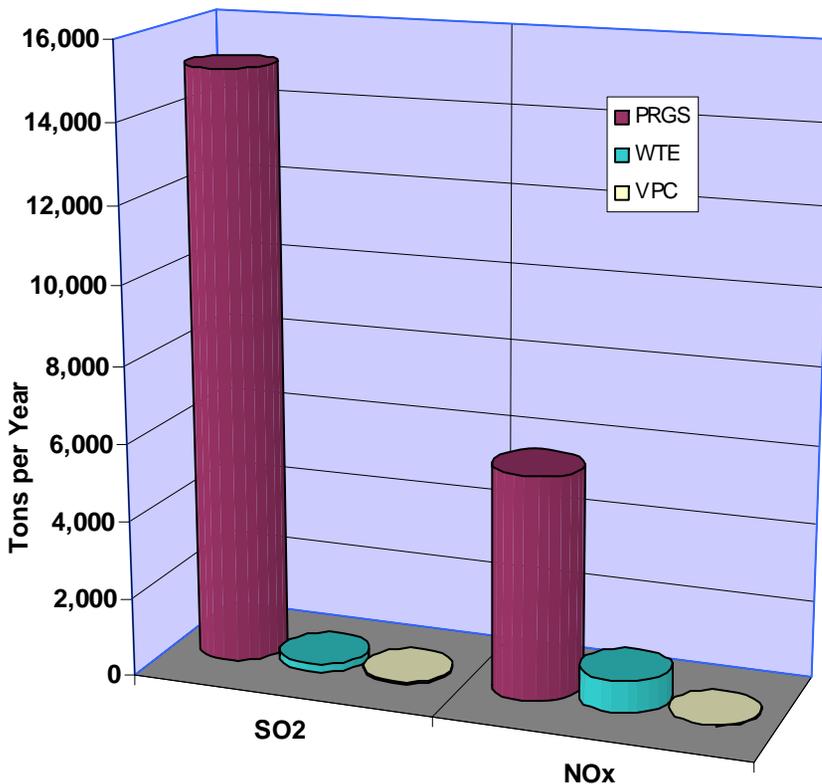
AIR QUALITY - Emissions

- **Point Sources (NO_x, CO, VOC, PM-10, PM-2.5, SO₂)**
 - **Two Drum Dryers**
 - **Two Asphalt Heaters**
 - **Lime Silo (currently not in use)**
- **Fugitive Sources (PM-10, PM-2.5)**
 - **RAP Crusher**
 - **Aggregate Handling (e.g., storage piles)**
 - **Road Dust and Diesel Engines**

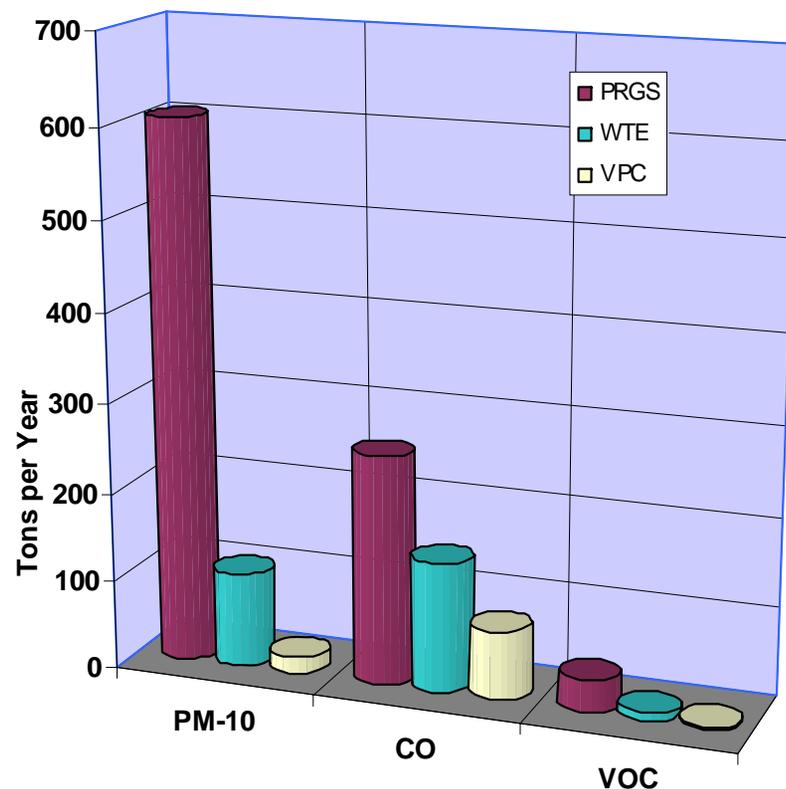


AIR QUALITY – Emissions Comparison

Emissions Comparison



Emissions Comparison



	SO2	NOx	PM-10	CO	VOC
Mirant PRGS (2003 Actuals)	15,138.6	5,749.7	605.8	256.8	36.3
Covanta WTE (Permit Limits)	206.0	830.0	106.0	145.5	9.1
VA Paving (Permit Limits)	52.3	21.9	18.1	77.5	2.0



AIR QUALITY - Modeling

- **What is modeling?**
 - **A tool to predict air quality impacts**
 - **Necessary because cannot monitor all areas**
 - **Modeling accounts for:**
 - **Emissions and physical data from the plant**
 - **Representative meteorological data**
 - **Local land use and terrain data**
 - **Widely used by agencies for permitting**



AIR QUALITY - Modeling

- **Scenarios modeled: baseline**
 - **Worst-case actual baseline scenario**
 - **Review of historical production**
 - **900,000 tons per year was maximum**
 - **Other inputs reflect current plant configuration and controls**
 - **Other nearby sources included**



AIR QUALITY - Modeling

- **Proposed SUP Scenario**
 - **Worst-case potential**
 - **1,200,000 tons per year**
 - **Other inputs reflect proposed SUP emission and impact mitigation techniques and controls**
 - **Other nearby sources included**



AIR QUALITY - Modeling

- **Criteria pollutants modeled**
 - **PM-10, PM-2.5**
 - **NO₂, CO, SO₂**
 - **Pb**
- **Hazardous air pollutants modeled**
 - **VOC –acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, quinone**
 - **PM – lead**



AIR QUALITY - Modeling

Pollutant	Averaging Period	Monitored Background Concentration ($\mu\text{g}/\text{m}^3$)	City's Baseline Scenario ($\mu\text{g}/\text{m}^3$)	City's SUP Scenario ($\mu\text{g}/\text{m}^3$)	VA Paving's SUP Scenario ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)
CRITERIA POLLUTANTS						
PM-10	24-Hour	43	346	124	102	150
	Annual	19	35	30	25	50
PM-2.5	24-Hour	35	125	58	68	65
	Annual	13	18	16	16	15
NOx	Annual	45	74	63	54	100
CO	1-Hour	4,580	7,467	5,817	5,202	40,000
	8-Hour	3,206	4,820	3,887	3,668	10,000
SO ₂	3-Hour	238	2,508	1,392	534	1,300
	24-Hour	60	648	326	194	365
	Annual	16	58	56	54	80
Lead	Quarter	0.013	0.040	0.030	0.015	1.5



AIR QUALITY - Modeling

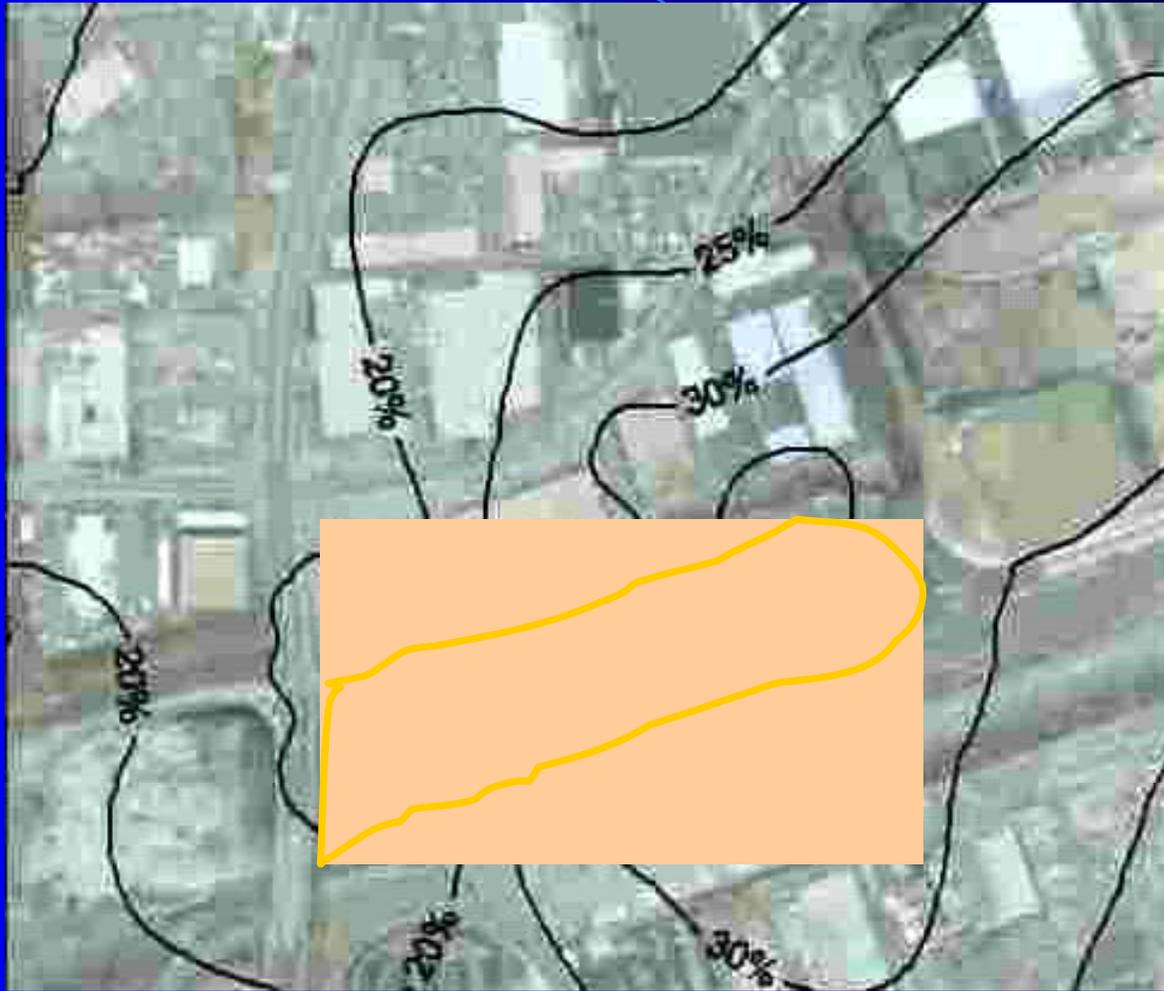
Pollutant	Averaging Period	City's SUP Scenario ($\mu\text{g}/\text{m}^3$)	VA Paving's SUP Scenario ($\mu\text{g}/\text{m}^3$)	SAAC ($\mu\text{g}/\text{m}^3$)
HAZARDOUS AIR POLLUTANTS				
Lead	1-Hour	0.1	n/a	7.5
	Annual	0.007	n/a	0.3
Formaldehyde	1-Hour	22.6	14.6	62.5
	Annual	1.7	0.21	2.4
Acrolein	1-Hour	0.2	n/a	17.3
	Annual	0.02	n/a	0.46
1,3 Butadiene	1-Hour	0.09	n/a	1,100
	Annual	0.004	n/a	44
Benzene	1-Hour	2.9	n/a	1,600
	Annual	0.2	n/a	64
Acetaldehyde	1-Hour	9.3	n/a	6,750
	Annual	0.7	n/a	360
Quinone	1-Hour	9.1	0.73	22
	Annual	0.7	0.01	0.8



AIR QUALITY - Modeling

SUP vs. Baseline, % Reduction in Impacts

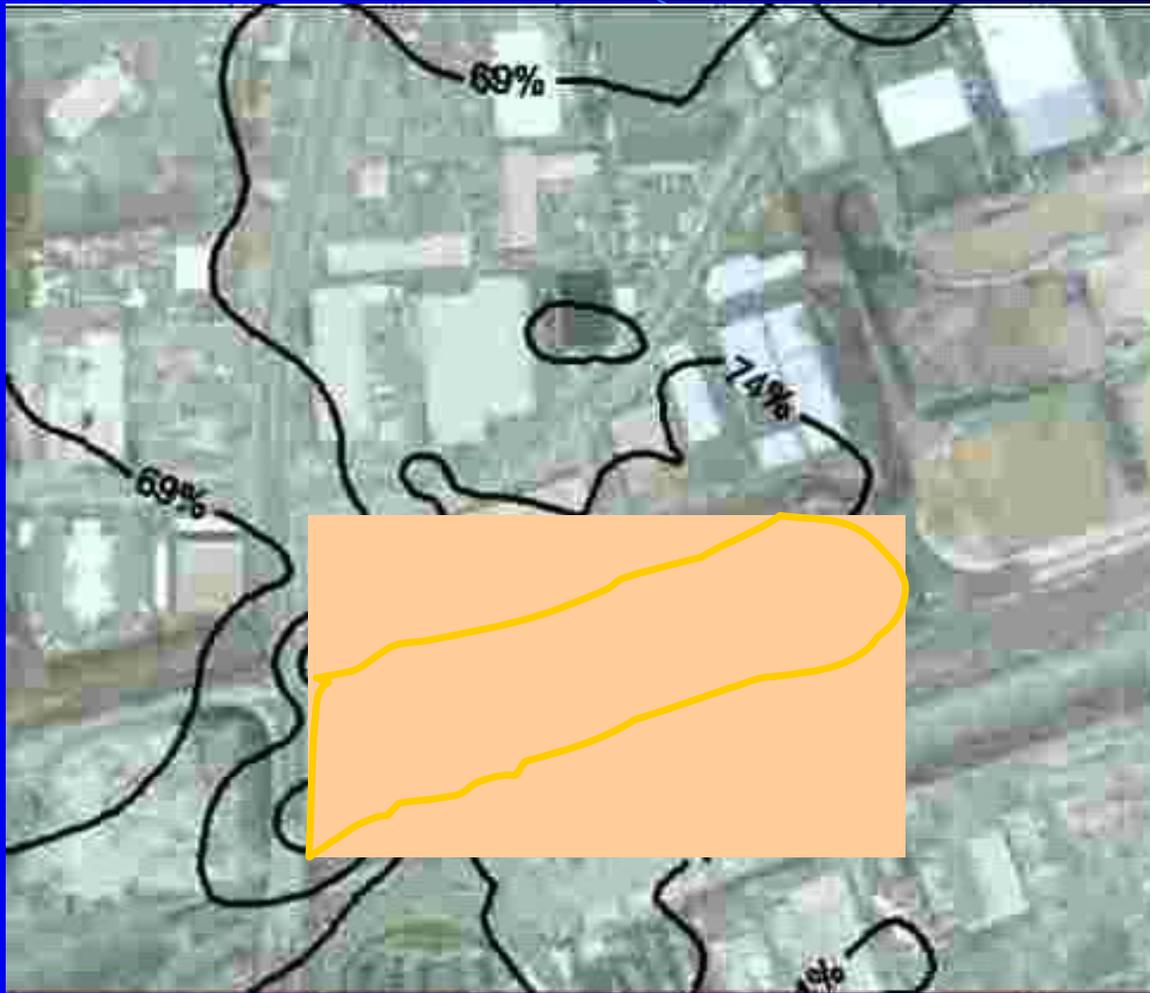
PM-10
Annual



AIR QUALITY - Modeling

SUP vs. Baseline, % Reduction in Impacts

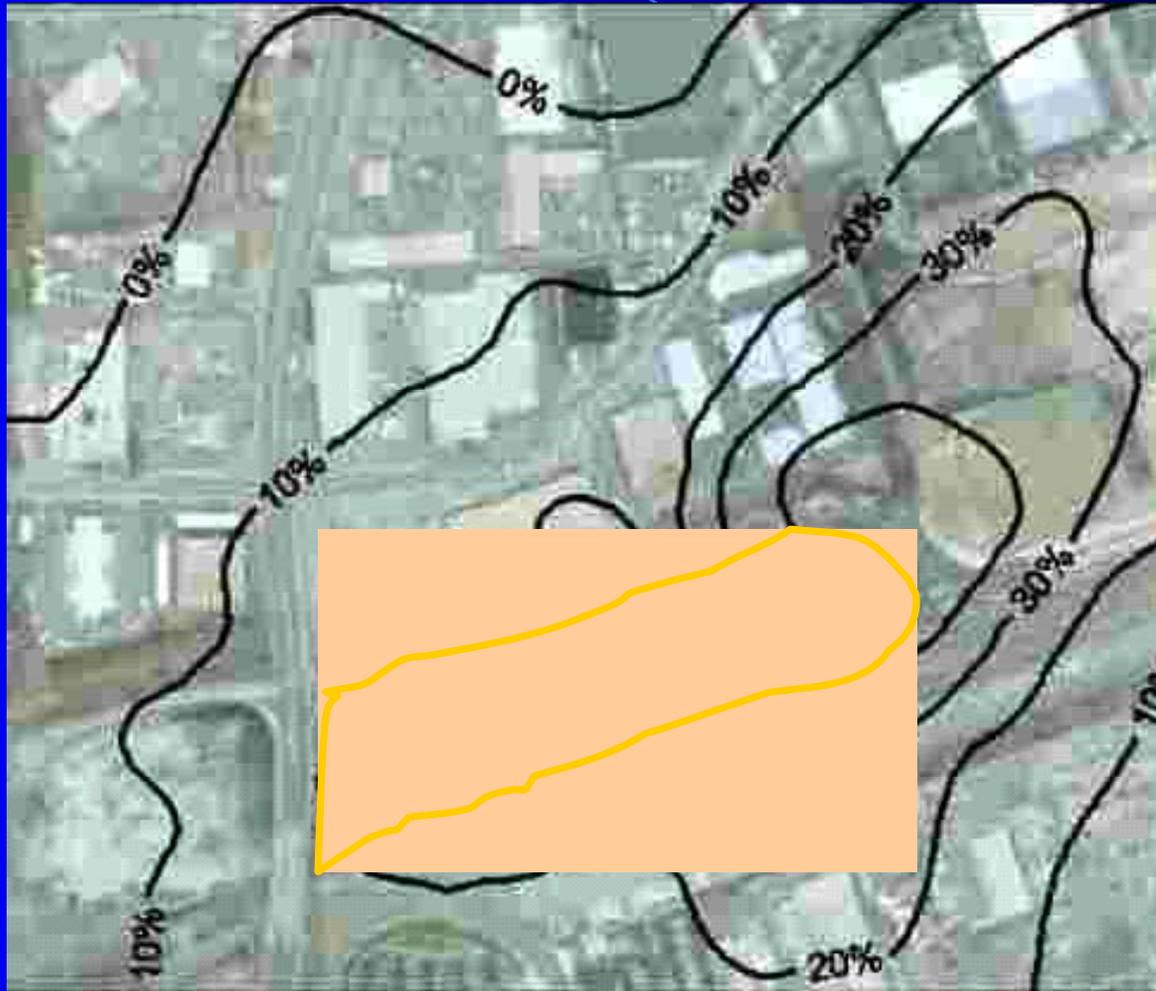
**PM-10
Daily**



AIR QUALITY - Modeling

SUP vs. Baseline, % Reduction in Impacts

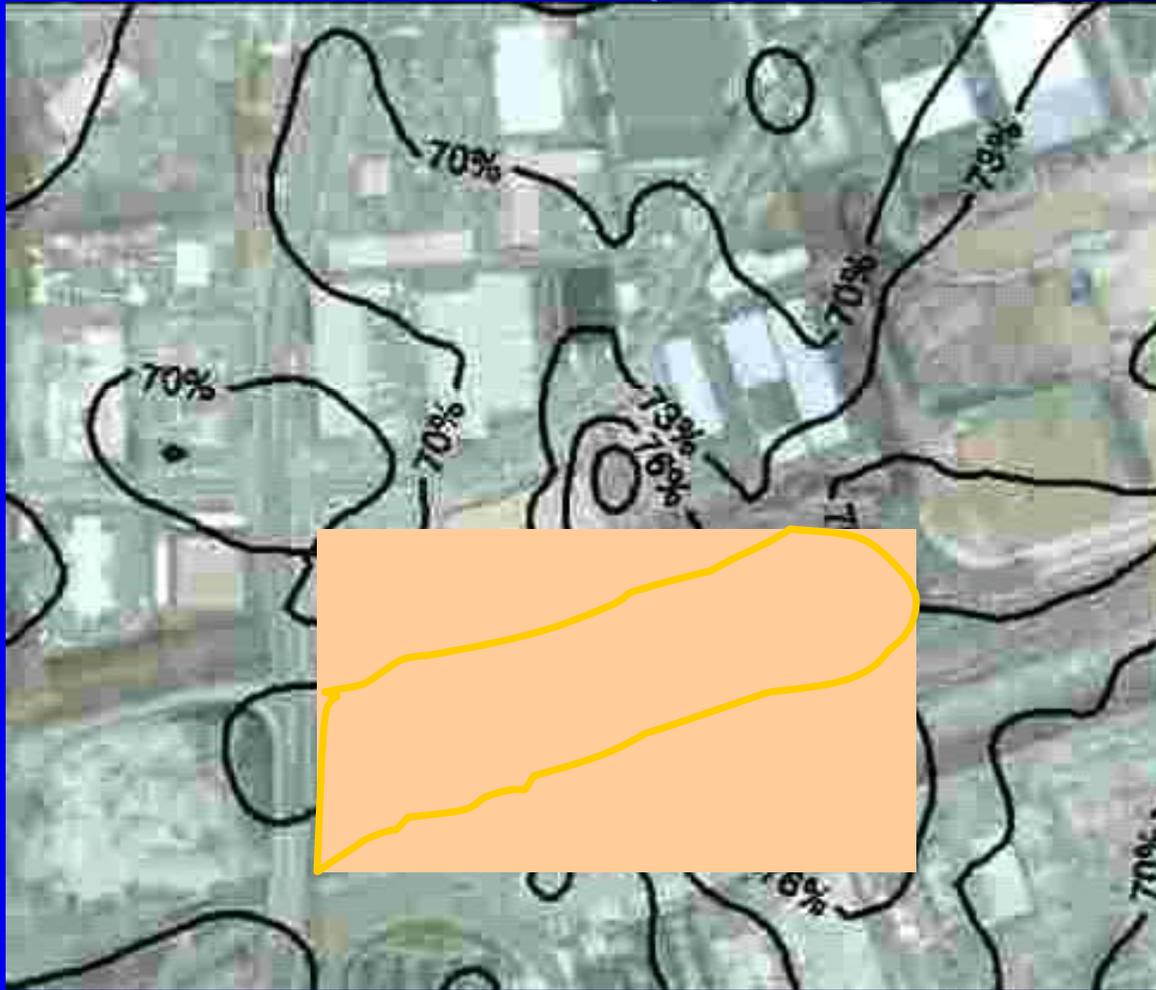
**PM-2.5
Annual**



AIR QUALITY - Modeling

SUP vs. Baseline, % Reduction in Impacts

**PM-2.5
Daily**



Proposed SUP – Limiting Operation

- **Production Cap**
 - **900,000 tons/year until June 2008**
 - **1,200,000 tons/year after June 2008**
 - **10,000 tons/day, 1,000 tons/hour**
- **Hot Oil Heaters**
 - **Only one heater can operate at a time**
 - **Only burn No. 2 oil (100,000 gallons/year)**
- **Limited operation at night**
 - **Only 1 dryer and 1 skid steer**



Proposed SUP – Limiting Emissions

- **Blue Smoke Control** (asphalt conveyor, storage, loadout)
- **Low-NO_x burners on dryers**
- **PM limit of 0.03 gr/dscf for baghouses**
- **0.05% sulfur in No. 2 oil**
- **Lower constituent limits on recycled oil**
- **Other controls**
 - **Diesel engines - particle traps**
 - **Liquid asphalt storage - condensers/filters**
 - **RAP Crusher – PM control, 10% opacity**



Proposed SUP – Limiting Impacts

- **Increase dryer stack height to 20 m**
- **Increase hot oil heater stack height to 6 m**
- **Only No. 2 oil in dryers during air quality action days**



Proposed SUP – Add'l Source Testing

- **PM test for baghouses every two years**
 - **PM-10**
 - **PM-2.5**
- **NO_x, SO₂, CO test every five years**
- **Blue Smoke test upon installation**
 - **Demonstrate 99% control efficiency for particulate matter (PM-2.5 and PM-10)**



Proposed SUP - BMPs

- **Best Management Practices**
 - **Frequent water spraying, vacuum sweeping**
 - **Pave eastern end of plant**
 - **Water sprays on transfer points**
 - **Enclosed conveyors**
 - **Wetting or chemical suppressant for storage piles**
- **Inspection and Recordkeeping for all BMPs**



ODOR

- **Liquid asphalt/asphalt product causes odor**
- **Resident complaints since 2000**
- **New SUP requires:**
 - **Blue Smoke Control (asphalt conveyors, loadout)**
 - **Condensers & filters (asphalt storage)**
 - **Low-odor anti-strip additive**
 - **Must prevent odor from leaving property**



Proposed SUP – Lower Limits

Parameter	State Limit	Proposed SUP Limit
Production	1,500,000 tons/year	1,200,000 tons/year
	No daily limit	10,000 tons/day
	No day/night restriction	Only one dryer at night
Hot Oil Heater	No. 2 & recycled oil	No. 2 oil only
No. 2 Oil	0.5% sulfur	0.05% sulfur
Recycled Oil		
Sulfur	0.5%	0.5%
Arsenic	5 ppm	3 ppm
Cadmium	2 ppm	2 ppm
Chromium	10 ppm	7 ppm
Lead	100 ppm	50 ppm
Halogens	1,000 ppm	1,000 ppm
PCB	49 ppm	2 ppm
Baghouse PM	0.04 gr/dscf	0.03 gr/dscf
RAP Crusher Opacity	15%	10%

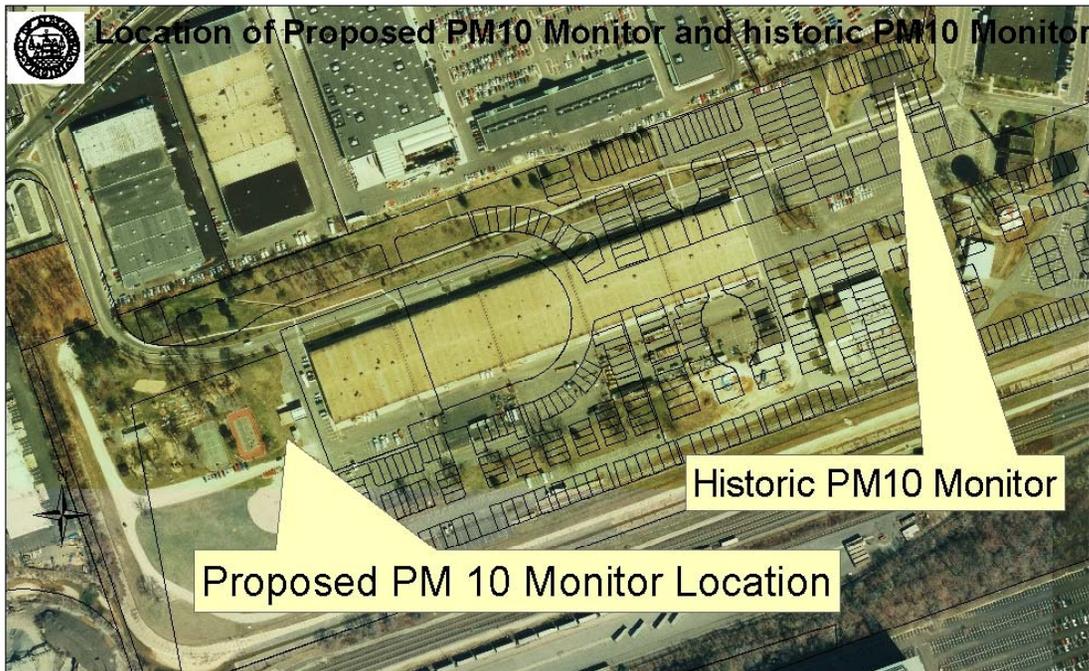


AIR QUALITY – New Monitoring

- **City to initiate new monitoring**
 - **Permanent PM monitor**
 - **Location of new monitor based on:**
 - **Modeling**
 - **Areas of concern (schools, residences, etc.)**
 - **In consultation with community's consultant & Virginia DEQ**
- **Purpose is to monitor impacts**



AIR QUALITY – New Monitoring



NOISE

- Sources of noise:
 - **Railroad delivery & unloading**
 - **Trucks (backup alarms, tailgate banging)**
 - **Aggregate handling equipment**
 - **RAP crusher**
 - **Intercom speakers**
- Resident complaints regarding noise at night



NOISE

- **Proposed SUP requires:**
 - **Must meet City's Noise Control Code**
 - **No amplified sound audible at property line**
 - **Rail unloading during daytime only**
 - **RAP crusher limited to daytime only**
 - **Prohibit use of west RAP pile at night**
 - **Minimize truck backup alarms**



NOISE

- **Proposed SUP requires:**
 - **Install signs regarding tailgate banging and engine brakes**
 - **Night operation limited to 1 dryer, 1 skid steer, 1 mobile crane, and trucks only as needed**
- **City to review noise abatement measures in two years**



LIGHT

- **Lighting issues:**
 - **Nighttime operation**
 - **Bright area lights**
- **Proposed SUP requires:**
 - **Adjust lights to eliminate glare (point downward)**
 - **Only operate lights required for operation**



New SUP – Water Issues

- **Stormwater Management Facility**
 - **Located on site**
 - **SWM Plan currently under review**
 - **Proposal includes stormwater media with perlite media**
 - **High level of stormwater treatment**
- **Asphalt pile pulled back from stream**
- **VA Paving to restore buffer and stabilize stream bank**
- **Vegetative buffer on Boothe Park**



Stormwater BMPs Concept Plan

