

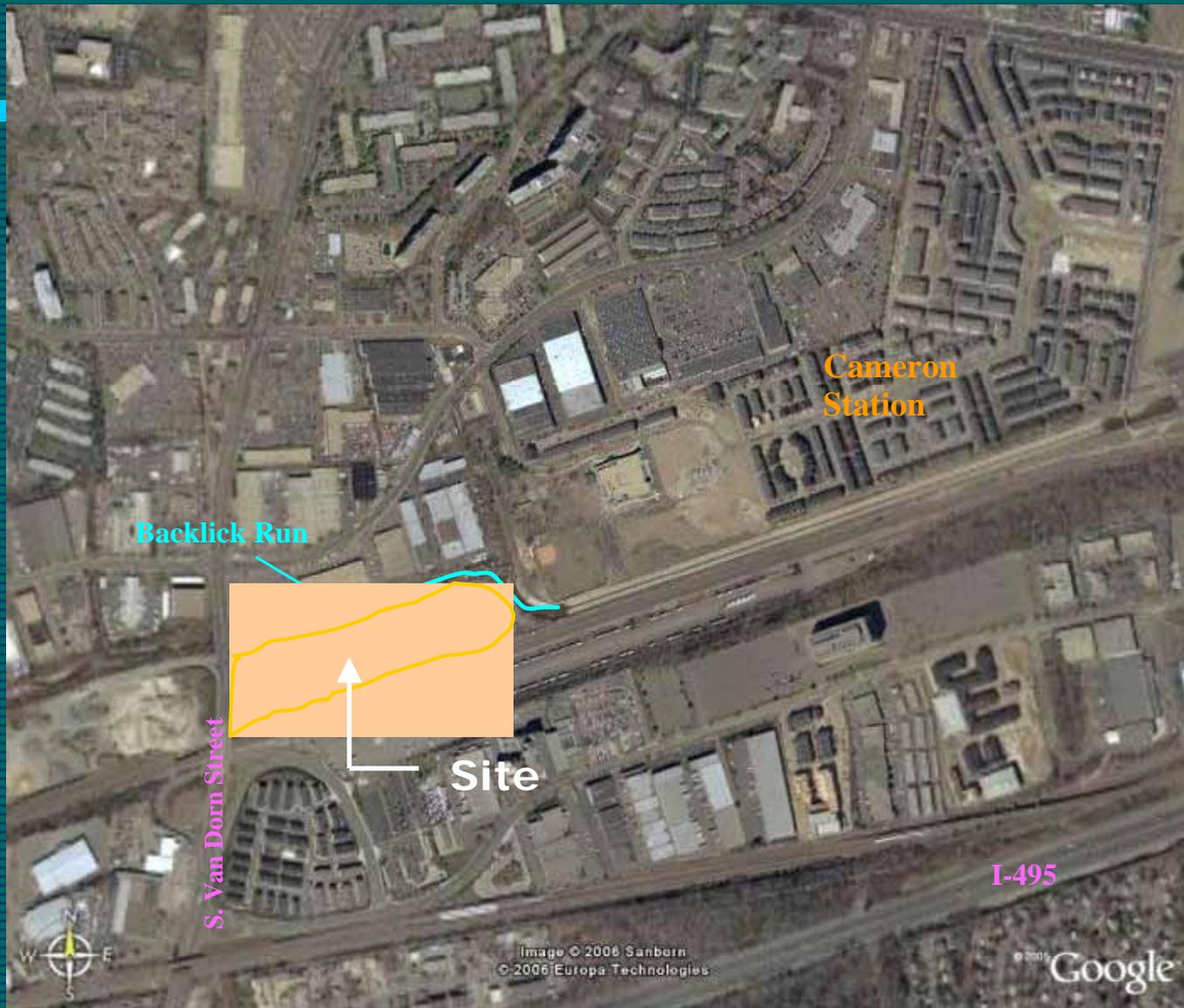
# **Planning Commission Work Session**

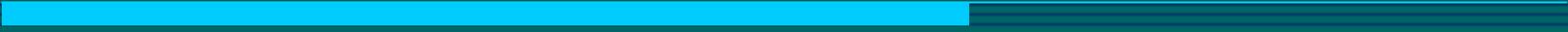
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**Virginia Paving Special Use Permit**

**October 3, 2006**

**Briefing by Office of City Attorney  
Department of Planning and Zoning  
Department of Transportation and  
Environmental Services**





# Background

Office of City Attorney



## BACKGROUND

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- Plant has been in operation at present site since 1960
- Current Permits:
  - State Operating Permit (Feb 17, 2005)
  - State Stormwater Discharge Permit (Jul 01, 2004)
  - City Special Use Permit (Feb 10, 1960)



## BACKGROUND

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- **City Special Use Permit (Feb 10, 1960)**

**“That no operation of this plant requiring exit or entrance of vehicles be permitted after hours of darkness or during inclement weather or on Sundays or holidays.”**

- **Not an issue early on – night-time paving not prevalent at time plant was permitted and for many years thereafter.**



## BACKGROUND

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- ❑ **City Special Use Permit (Feb 10, 1960)**
- ❑ **Paving practices changed - populations became more dense, traffic increased, paving technology changed and night-time paving became the preferred method**
- ❑ **City did not enforce prohibition on night-time vehicular traffic – no complaints, plus no awareness of prohibition at time practices changed.**



## BACKGROUND

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- **SUP Enforcement by the City**
  - **Historically complaint-driven – very few complaints regarding plant prior to 2000**
  - **Current practice - City has changed Special Use Permit enforcement generally. Every site with an SUP will be reviewed for compliance at least once every three years, whether complaints are received or not**



## BACKGROUND

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### Complaints/Concerns

- ❑ After 2000, City began to receive more complaints in general vicinity of plant
- ❑ Primarily odor complaints, not attributed to paving plant specifically
- ❑ As time passed, the City also began to receive other complaints about soot, noise, smoke and air quality – again not specific to paving plant



## BACKGROUND

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### Complaints/Concerns

- ❑ Communicated concerns to plant in October of 2004: water quality, fire code and other items, as well as 1960 SUP issues regarding night-time operations and settling basins.
- ❑ Began to work with plant to correct code violations
- ❑ Plant applied for amendment to its SUP in March 2005 to allow for night time vehicular traffic.



## BACKGROUND

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- June 2005 and June 2006 - City Council allows limited night-time vehicular traffic to plant for:
  - Specific City paving projects
  - Specific Woodrow Wilson Bridge paving
  - Emergency work



# BACKGROUND

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## Specific Community Concerns

- Air Quality/Emissions – Is this “another Mirant?”
- Noise
- Traffic/Trucks
- Water Quality
- Proximity of plant to school/park



## BACKGROUND

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### 18-month process during which City has:

- Collected and shared information with applicant and communities closest to plant
- Consulted with scientific experts
- Researched and benchmarked with other jurisdictions
- Formulated and negotiated with applicant and community proposed SUP conditions to reasonably address City's and community's concerns



## BACKGROUND

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- ❑ Large amount of work by numerous City departments to ensure fair, balanced process for both residents and applicant.
- ❑ Proposed amended SUP terms give City far more control, particularly over air quality, than it would otherwise be entitled to under state and federal law.



# VIRGINIA PAVING SUP

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- Alternative is to go back to terms of 1960 SUP:
  - some storm water controls would be added
  - night time vehicular activity would stop
  
- No extensive environmental controls as negotiated with the plant in the context of an amended SUP
  
- Return to 1960 SUP terms would be a net loss for the City

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# Planning Issues

Department of Planning and Zoning



# Enforcement and Land Use Policy

## SUP Enforcement--Generally

- ❑ Changed from complaint-based to proactive in 2005
- ❑ All SUPs now inspected every three years
- ❑ Hierarchy of Enforcement:
  - Notice*
  - Fines*
  - Hearing*
  - Revocation*



# SUP Enforcement—Virginia Paving

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## Frequency of Inspections

- ❑ Review and inspect every 6 months for the first 2 years and then annually thereafter
- ❑ Targeted inspections to insure compliance with/implementation of date specific conditions
- ❑ Inspections conducted in response to complaints



# SUP Enforcement—Virginia Paving

## Penalties for Noncompliance with Specific Conditions

- ❑ Failure to comply with specific air quality conditions shall result in cessation of all night-time exit and entrance of vehicles from site; and
- ❑ The SUP will be docketed for review and action by City Council within 30 days.



# SUP Enforcement—Virginia Paving

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## Community Outreach

- ❑ Designation of Va Paving employee as compliance officer with name and phone number provided to City and community
- ❑ Regularly scheduled meetings, at least once every 6 months, to discuss operations



# Long-Range Planning for West End

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- ❑ Industrial land use and zoning historically in and around area of asphalt plant
- ❑ Current planning effort underway for Landmark/Van Dorn area calls for retention of industrial uses
- ❑ Planning for Eisenhower West area, to commence in 2007, will consider land use policies for industrially zoned uses in and around asphalt plant

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# Environmental Issues

Department of Transportation and  
Environmental Services

## *EPA's PM Standards: Old and New*

	1997 Standards		2006 Standards	
	Annual	24-hour	Annual	24-hour
<b>PM2.5 (Fine)</b>	<b>15 <math>\mu\text{g}/\text{m}^3</math></b> Annual arithmetic mean, averaged over 3 years	<b>65 <math>\mu\text{g}/\text{m}^3</math></b> Annual arithmetic mean, averaged over 3 years	<b>15 <math>\mu\text{g}/\text{m}^3</math></b> Annual arithmetic mean, averaged over 3 years	<b>35 <math>\mu\text{g}/\text{m}^3</math></b> 24-hour average, 98 <sup>th</sup> percentile, averaged over 3 years
<b>PM10 (Coarse)</b>	<b>50 <math>\mu\text{g}/\text{m}^3</math></b> Annual average	<b>150 <math>\mu\text{g}/\text{m}^3</math></b> 24-hr average 99 <sup>th</sup> percentile	<b>Revoked</b>	<b>150 <math>\mu\text{g}/\text{m}^3</math></b> 24-hr average single expected exceedance averages over 3 years

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# PM Components: *fine and coarse*

## Fine Particles

### *Combustion, gases to particles*

Sulfates/acids  
Nitrate  
Ammonium  
Organics  
Carbon  
Metals  
Water



### **Sources:**

Coal, oil, gasoline, diesel, wood combustion  
Transformation of SO<sub>x</sub>, NO<sub>x</sub>, organic gases including biogenics  
High temperature industrial processes (smelters, steel mills)  
Forest fires



### **Exposure/Lifetime:**

Lifetime days to weeks, regional distribution over urban scale to 1000s of km

## Inhalable Coarse Particles

### *Crushing, grinding, dust*

Resuspended dusts (soil, street dust)  
Coal/oil fly ash  
Aluminum, silica, iron-oxides  
Tire and brake wear  
Inhalable Biological Materials (e.g., from soils, plant fragments)



### **Sources:**

Resuspension of dust tracked onto roads  
Suspension from disturbed soil (farms, mines, unpaved roads)  
Construction/demolition  
Industrial fugitives  
Biological sources

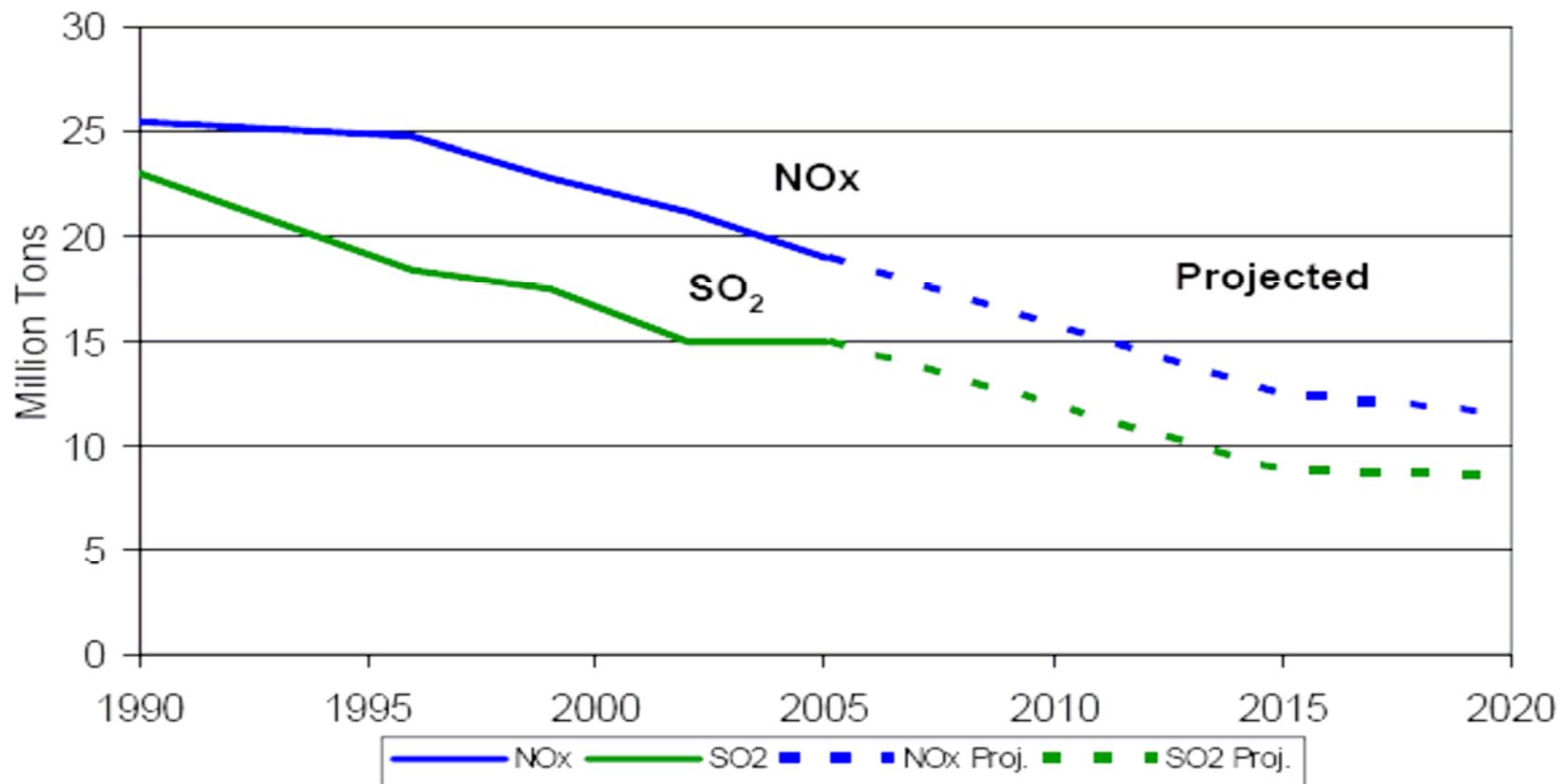
### **Exposure/Lifetime:**

Coarse fraction (2.5-10) lifetime of hours to 4 days, distribution up to 100s km

## *Expected Timeline for Revised PM<sub>2.5</sub> NAAQS*

Milestone	1997 PM <sub>2.6</sub> Primary NAAQS	2006 PM <sub>2.6</sub> Primary NAAQS
Promulgation of Standard	July 1997	Sept. 2006
State Recommendations to EPA	Feb. 2004 (based on 2001-2003 monitoring data)	Dec. 2007 (based on 2004-2006 monitoring data)
Final Designations Signature	Dec. 2004	Dec. 2009
Effective Date of Designations	April 2005	April 2010
SIPs Due	April 2008	April 2013
Attainment Date	April 2010 (based on 2007-2009 monitoring data)	April 2015 (based on 2012-2014 monitoring data)
Attainment Date with Extension	Up to April 2015	April 2020

## Reducing Particle Pollution Precursors National NO<sub>x</sub> and SO<sub>2</sub> Emissions From All Sources





## Suggested Change to Conditions 25 & 28

We suggest that condition 28 remain as written, with the following added:

In particular, since the 24-hr. standard for the PM<sub>2.5</sub> NAAQS has been revised from 65  $\mu\text{g}/\text{m}^3$  to 35  $\mu\text{g}/\text{m}^3$  (determined as the 98th percentile of three years of valid data), although this NAAQS is not enforceable by EPA until the year 2015, the following conditions shall apply:

- The City shall continue operating the PM<sub>10</sub> monitor at Samuel Tucker School until three years of valid data have been collected.
- The City shall determine the 98th percentile of these data, per the NAAQS, and then multiply that value by 75%, to impute a 98th percentile value for PM<sub>2.5</sub>.
- If the imputed value exceeds 35  $\mu\text{g}/\text{m}^3$ , then the City reserves the right to require VA Paving to demonstrate that the facility is not causing this imputed exceedance, pursuant to the deadlines to be set by the City, but in no circumstance to be less than 90 days from the date of notice by the City.

We also suggest that condition 25 be modified to add PM<sub>2.5</sub> to the list of emissions for which stack tests are required and test dates are moved 1 year ahead of earlier schedule.



# BACKGROUND

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- **Air Monitoring at Cameron Station**
  - 1991 through 1996
  - No violations of TSP & PM-10 standards
  - No metals 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
- **Extensive environmental testing at the time of base closure**



# Environmental Issues & Concerns

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



# Environmental Review & Analysis

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- **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

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- ❑ **Permitting Process**
  - Virginia DEQ has primary responsibility
  - Classified as Minor Source (< 100 tons/yr)
    - ❑ No modeling required for criteria or toxic pollutants
    - ❑ No stack testing required
    - ❑ No ambient monitoring required
  - Burning of oil & recycled oil allowed
  - City's Role: Local Ordinance, Special Use Permit
- ❑ **Other States**
  - Stringent Controls (e.g., California)
  - 70-90% of asphalt plants burn Natural Gas



# AIR QUALITY - Emissions

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- **Point Sources** ( $\text{NO}_x$ , CO, VOC, PM-10, PM-2.5,  $\text{SO}_2$ )
  - Two Drum Dryers
  - Two Asphalt Heaters
  - Lime Silo
- **Fugitive Sources** (PM-10, PM-2.5)
  - RAP Crusher
  - Aggregate Handling (e.g., storage piles)



# AIR QUALITY - Modeling

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- Criteria pollutants modeled
  - PM-10, PM-2.5
  - NO<sub>x</sub>, CO, SO<sub>2</sub>
  - 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 ( $\mu\text{g}/\text{m}^3$ )
<b>CRITERIA POLLUTANTS</b>						
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 <sub>2</sub>	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

EPA has announced a new PM<sub>2.5</sub> 24 hr standard of 35  $\mu\text{g}/\text{m}^3$  with 2015 attainment date



# 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 ( $\mu\text{g}/\text{m}^3$ )
<b>HAZARDOUS AIR POLLUTANTS</b>				
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



# New SUP – Limiting Operation

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- Production Cap
  - 900,000 tons/year until all new controls in place
  - 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



## New SUP – Limiting Emissions

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- ❑ **Blue Smoke Control** (asphalt conveyor, loadout)
- ❑ **Low-NO<sub>x</sub> 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**
  - **Asphalt storage - condensers/filters**
  - **RAP Crusher – 80% PM control, 10% opacity**



## New SUP – Limiting Impacts

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- ❑ 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



## New SUP – New Source Testing

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- PM test for baghouses, initially every 2 years
  - PM-10
- NO<sub>x</sub>, SO<sub>2</sub>, CO test every five years
- Blue Smoke test upon installation
  - Demonstrate 99% control efficiency for particulate matter (PM-2.5 and PM-10)



## New SUP - BMPs

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- **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

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- ❑ Liquid asphalt/asphalt product causes odor
- ❑ Resident complaints since 2000
- ❑ New SUP requires:
  - Blue Smoke Control (asphalt transfer points, loadouts and silos)
  - Condensers & filters (asphalt storage)
  - Must prevent odor from leaving property



# New SUP – Lower Limits

Parameter	State Limit	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

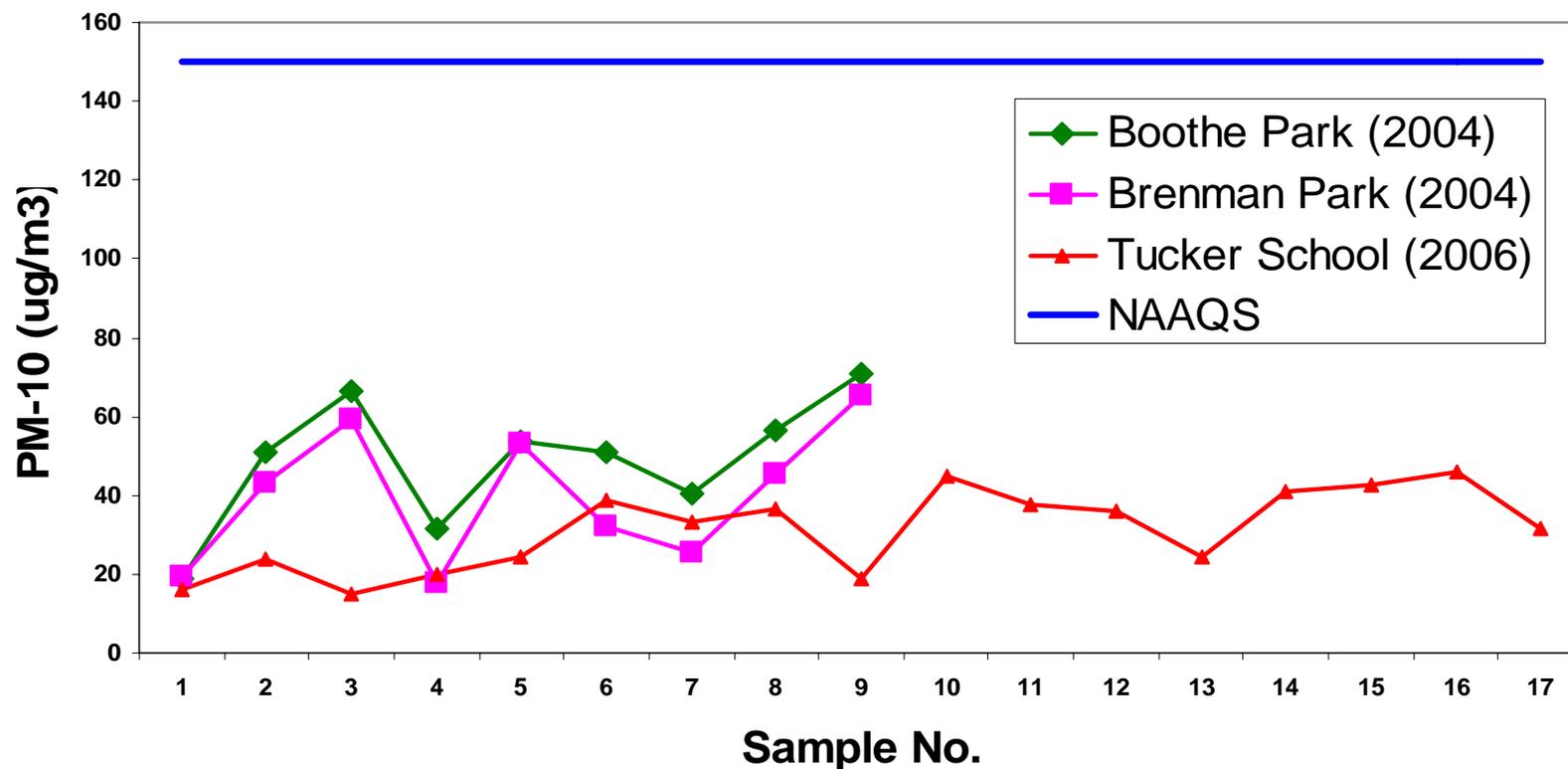
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- ❑ City installed new PM10 monitor
  - Permanent PM monitor
  - Location of new monitor based on:
    - ❑ Modeling
    - ❑ Areas of concern (schools, residences, etc.)
    - ❑ In consultation with community's consultant & Virginia DEQ
- ❑ Purpose of monitoring is to ensure compliance



# AIR QUALITY – New Monitoring Data

## PM-10 24-hr Average Concentrations





# NOISE

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- 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

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- **New SUP requires:**
  - **Must meet City's Noise Control Code**
  - **No amplified sound audible at property line**
  - **Rail delivery/unloading during daytime only**
  - **RAP crusher limited to daytime only**
  - **Minimize truck backup alarms**



# NOISE

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- ❑ **New SUP requires:**
  - **No tailgate banging (install signs)**
  - **No engine brakes on site (install signs)**
  - **Night operation limited to 1 dryer, 1 skid steer, 1 mobile crane, and trucks only as needed**
- ❑ **City to review noise abatement measures**
- ❑ **May require a sound barrier**



# LIGHT

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



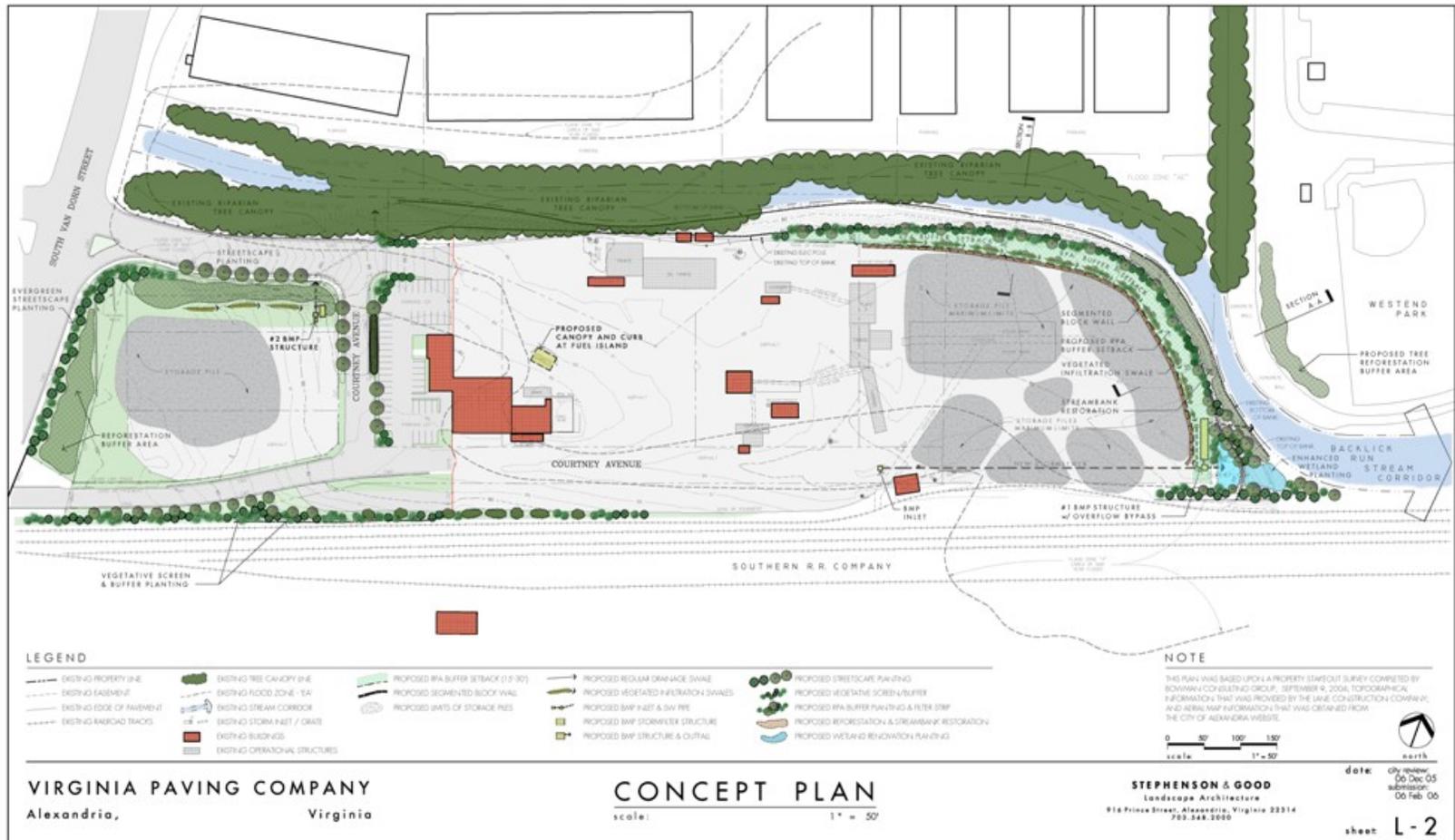
## New SUP – Water Issues

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- ❑ **Stormwater Management Facility**
  - Located on site
  - Design to be approved by City
  - VA Paving to follow O&M procedures
  - City-approved maintenance contract
  
- ❑ Asphalt pile pulled back from stream
- ❑ VA Paving to stabilize stream bank
- ❑ Vegetative buffer on West Park



# Stormwater BMPs Concept Plan





# VIRGINIA PAVING SUP

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- Alternative is to go back to terms of 1960 SUP:
  - some storm water controls would be added
  - night time vehicular activity would stop
  
- No extensive environmental controls as negotiated with the plant in the context of an amended SUP
  
- Return to 1960 SUP terms would be a net loss for the City