Air Quality Update

Richmond Regional Transportation Planning Organization
Technical Advisory Committee

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Air Quality Planner
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Ozone Background

- Formation: VOC + NO\textsubscript{x} + sunlight = Ozone
  (volatile organic compounds + oxides of nitrogen + sunlight = ozone)
- Mainly a summertime pollutant
- Lung irritant: primary component of smog
- Heavily regulated by the Clean Air Act (National Ambient Air Quality Standards)
- Affected populations:
  - Children
  - Elderly
  - People with lung diseases
  - Heavy exposure/outdoor workers
Evolution of Federal Health-Based Ozone Requirements

• **1991 Standard**
  • 0.12 ppm (124 ppb)
  • Averaged over one hour

• **1997 Standard**
  • 0.08 ppm (84 ppb)
  • Averaged over eight hours

• **2008 Standard**
  • 0.075 ppm (75 ppb)
  • Averaged over eight hours

• **2015 Standard**
  • 0.070 ppm (70 ppb)
  • Averaged over eight hours
## CAA Ozone History: Richmond-Petersburg

<table>
<thead>
<tr>
<th>Standard</th>
<th>Richmond-Petersburg’s Obligations</th>
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<tbody>
<tr>
<td><strong>1991 Ozone NAAQS</strong></td>
<td>»1991-Moderate Nonattainment Area</td>
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<td><em>(124 ppb)</em></td>
<td>• Transportation Conformity, Stringent New Source Permitting, RACT</td>
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<td><em>(75 ppb)</em></td>
<td>»2013-Ozone Advance Action Plan</td>
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<tr>
<td><strong>2015 Ozone NAAQS</strong></td>
<td>»2017-Designated Attainment Area</td>
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<td><em>(70 ppb)</em></td>
<td>»Monitoring data is well below the standard</td>
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Ozone Air Quality

- Air quality has been good/in the healthy range
- No Code Red alert days recorded this summer to date
- Control programs
  - Industry
  - Power Plants
  - On Road Engines
  - Off Road Engines
- Improvements are expected to continue
Air Quality Data – Metro Richmond

2001-2003
2002-2004
2003-2005
2004-2006
2005-2007
2006-2008
2007-2009
2008-2010
2009-2011
2010-2012
2011-2013
2012-2014
2013-2015
2014-2016
2015-2017
2016-2018
2017-2019

Ozone, ppb

2008 Standard = 75 ppb
2015 Standard = 70 ppb
1997 Standard = 84 ppb
2017-2019* Average = 65 ppb

*2019 data is preliminary

Chesterfield
Henrico
Hanover
Charles City
Air Quality Alert Days, Richmond-Petersburg

Code Orange: Unhealthy for Sensitive Groups  8 hour average 71-85 ppb
Code Red: Unhealthy  8 hour average 86-105 ppb
Code Purple: Very Unhealthy  8 hour average 106-200 ppb

* 2019 data is preliminary
Virginia NOx Reductions by Sector

- **2008**: 376,293 tons NOx
  - Waste Processes
  - Petro & Related
  - Other Ind Processes
  - Off-Highway
  - Misc
  - Highway
  - Fuel Other
  - Fuel Ind
  - Fuel EGU
  - Chem&Allied Mfg

- **2011**: 313,711 tons NOx
  - Waste Processes
  - Petro & Related
  - Other Ind Processes
  - Off-Highway
  - Misc
  - Highway
  - Fuel Other
  - Fuel Ind
  - Fuel EGU
  - Chem&Allied Mfg

- **2014**: 276,721 tons NOx
  - Waste Processes
  - Petro & Related
  - Other Ind Processes
  - Off-Highway
  - Misc
  - Highway
  - Fuel Other
  - Fuel Ind
  - Fuel EGU
  - Chem&Allied Mfg

- **2028**: 138,473 tons NOx
  - Waste Processes
  - Petro & Related
  - Other Ind Processes
  - Off-Highway
  - Misc
  - Highway
  - Fuel Other
  - Fuel Ind
  - Fuel EGU
  - Chem&Allied Mfg
Ozone Advance Action Plan Update

• Plan to improve air quality

• Developed in 2012 and early 2013
  • Submitted to EPA in April 2013
  • 2010-2012 ozone average value was 79 ppb (standard was 75 ppb)
  • 2017-2019 ozone average value is 65 ppb (standard is 70 ppb)

• DEQ submitted five annual updates
  • Fifth and final update went to EPA 4/30/2018
  • Due to improvement in air quality, plan was closed out

• Plan and updates are published on EPA’s website: www.epa.gov/advance
Transportation Conformity

• Full Transportation Conformity Process – 1997 Ozone NAAQS

• Federal regs for the 2008/2015 ozone NAAQS for areas like Richmond-Petersburg (under a maintenance plan for the 1997 standard but attaining the 2008/2015 standards) did not require transportation conformity
  • Federal lawsuit (South Coast II court ruling)
  • EPA reinstated these requirements nationwide
  • Latest transportation conformity determination approved 10/29/2018

• Subsequent EPA guidance eliminated modeling/regional emissions analysis requirements

• Remaining conformity criteria: latest planning assumptions, fiscal constraint, and interagency consultation
Questions?
## Contact Information

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<tr>
<th>Category</th>
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<tr>
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