Update on Ozone Air Quality Planning

14th Annual Regulatory Update Conference
Air & Waste Management Association
Trenton, NJ
November 20, 2015

National Ambient Air Quality Standards (NAAQS)

Pollutant	Status
Carbon Monoxide (CO)	
Lead (Pb)	
Nitrogen Dioxide (NO_2)	
PM_{10}	

Pollutant	Status
$PM_{2.5}$	
Ozone	
SO_2	 
Regional Haze	

Ozone Health Effects

Healthy airway

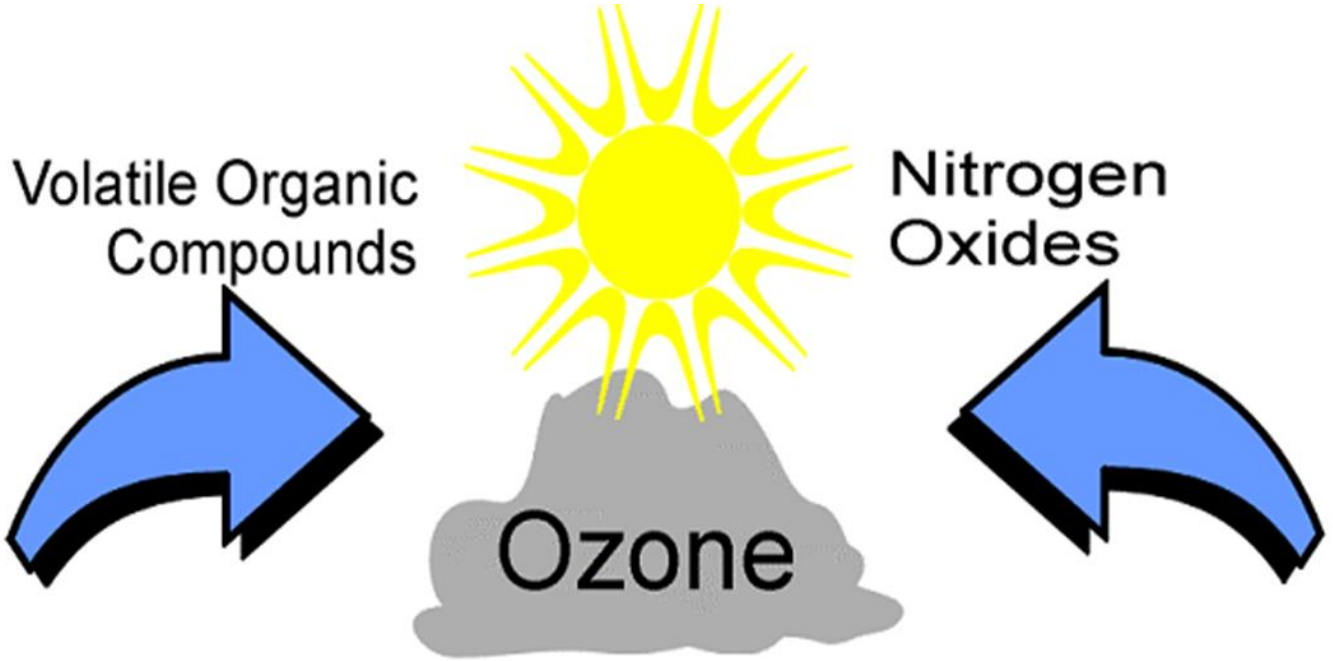
Inflamed airway due to ozone inhalation

Ozone Health Effects
• Decreases lung function
• Coughing and pain in the chest
• Increases susceptibility to respiratory infections
• Permanent damage to lungs
• Promotes allergic reactions
• Death

Ozone Air Quality Challenges

- Attainment of NAAQS
  - 2008 75 ppb
  - 2015 70 ppb

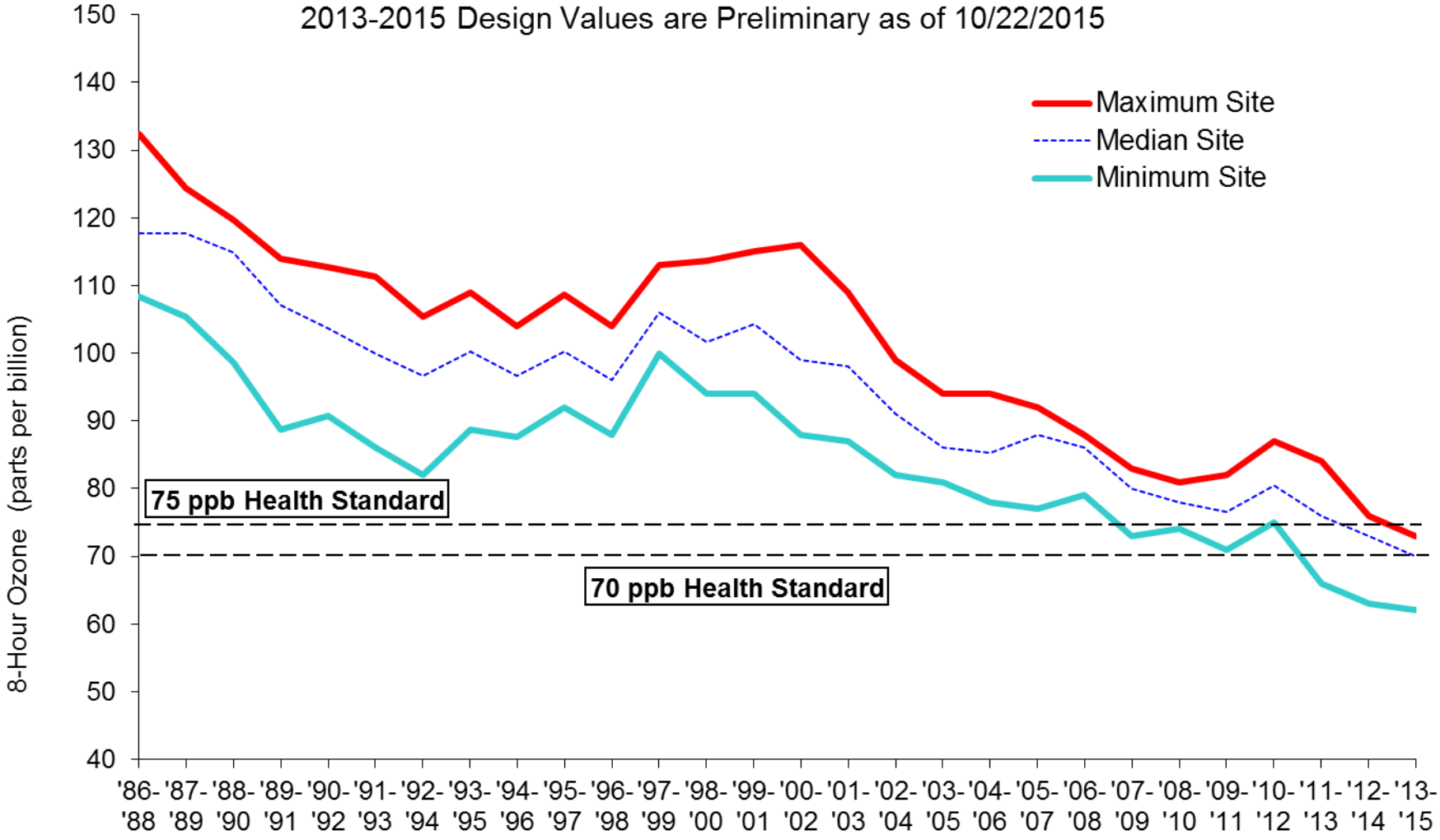
Air Quality Challenge:
Ozone



New Jersey 8-Hour Ozone Air Quality 1986 - 2015

Design Values - 3 Year Average of 4th Highest Daily 8-Hour Maximum

2013-2015 Design Values are Preliminary as of 10/22/2015



New Jersey 8-Hour Ozone Design Values 2013-2015

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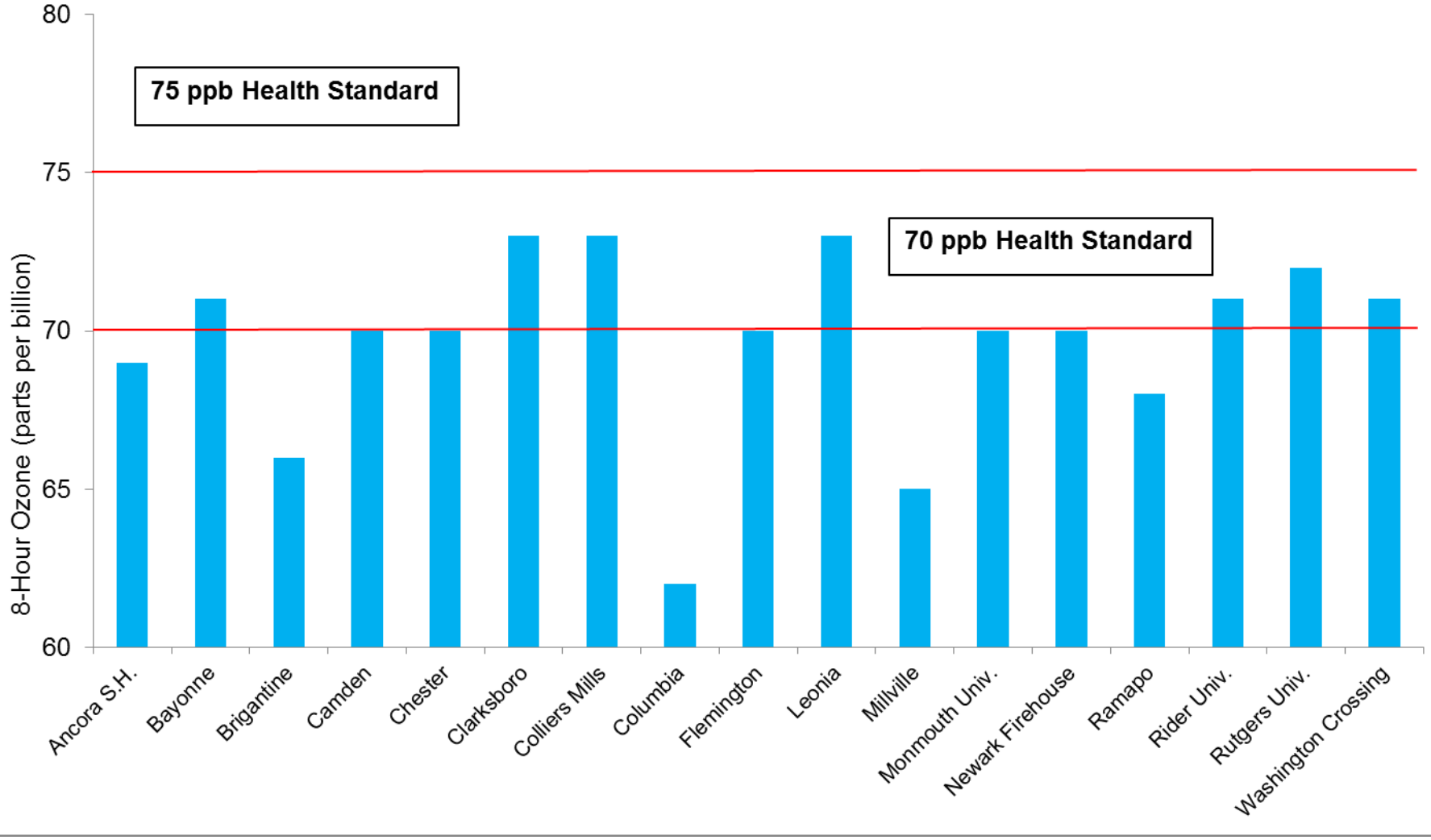
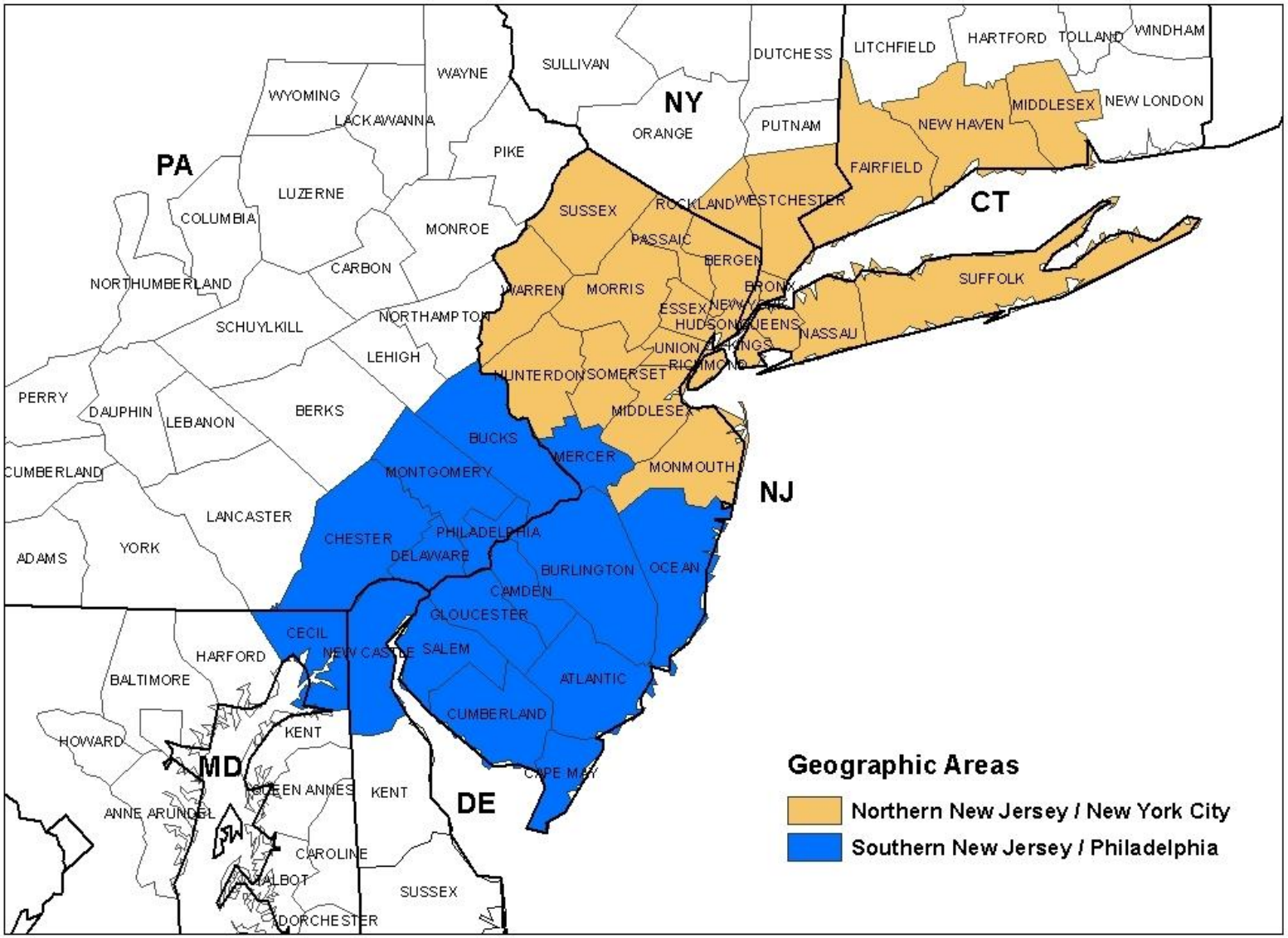


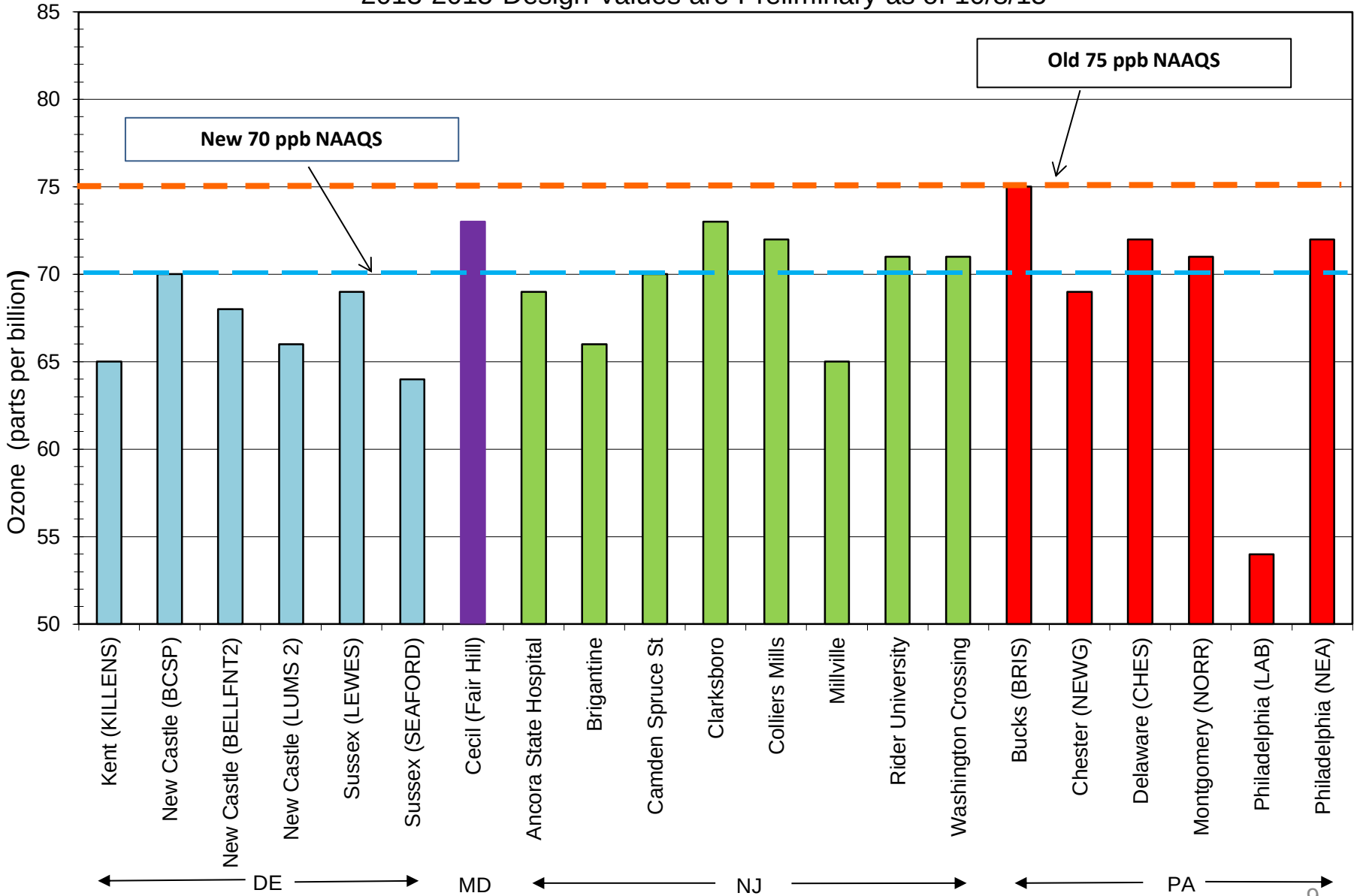
New Jersey 8-Hour Ozone Multi-State Nonattainment Areas



Preliminary 8-hour Ozone Design Values 2013-2015

Southern New Jersey-DE-MD-PA Nonattainment Area

2013-2015 Design Values are Preliminary as of 10/8/15



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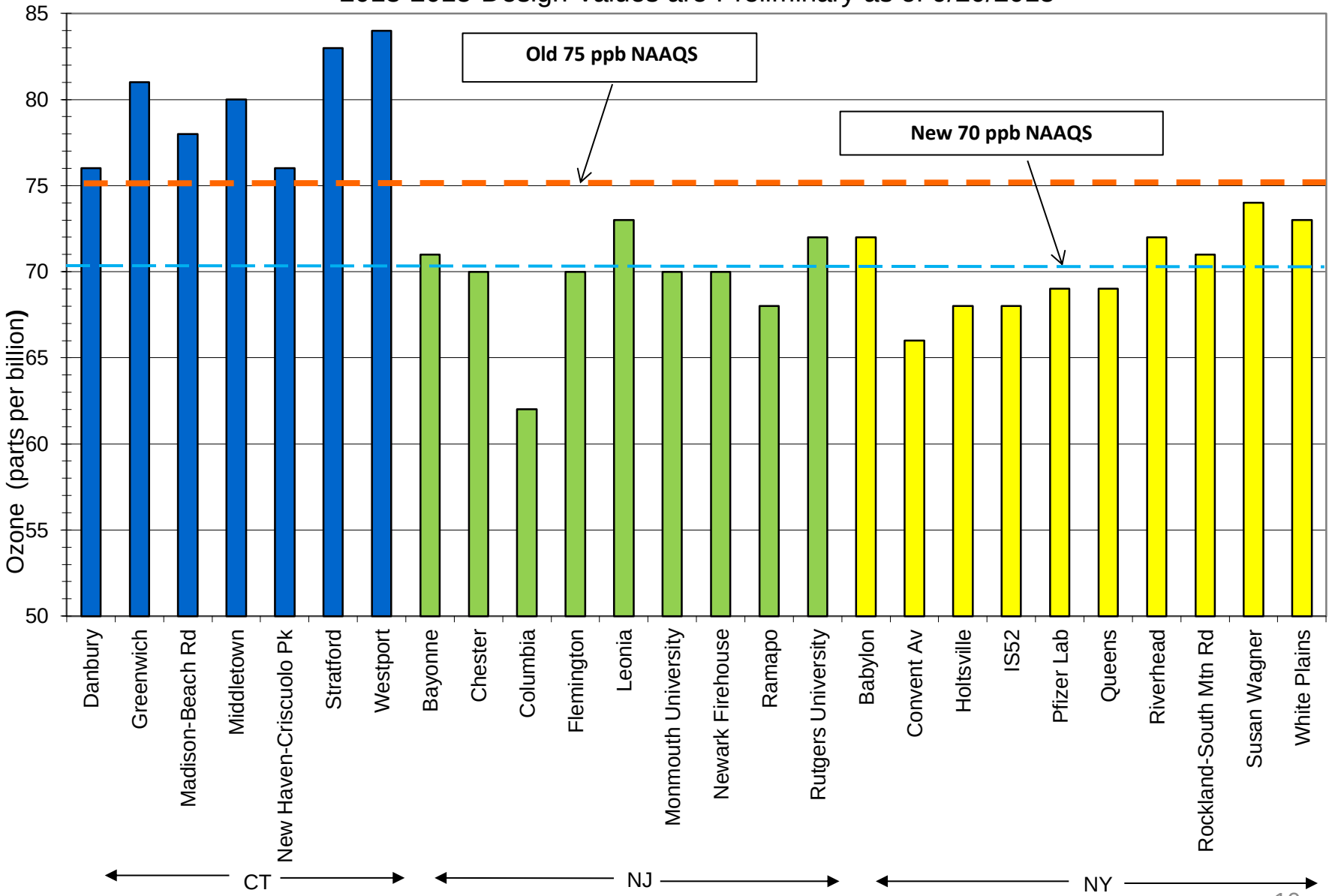
Preliminary 8-hour Ozone Design Values 2013-2015

Northern New Jersey-CT-NY Nonattainment Area

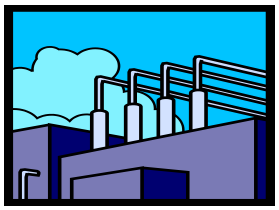
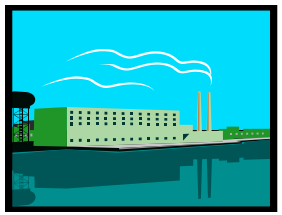
2013-2015 Design Values are Preliminary as of 9/20/2015



Emission Source Categories

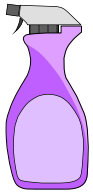
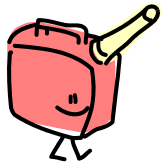
Point

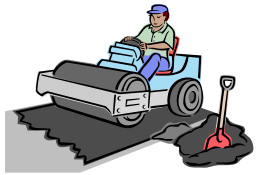


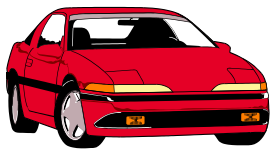
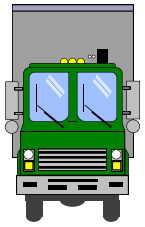
Area

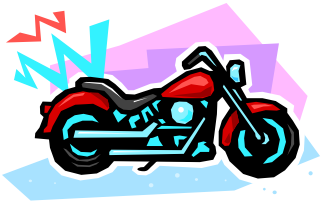


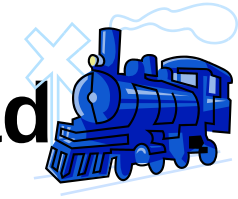


OnRoad

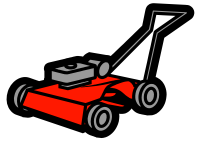



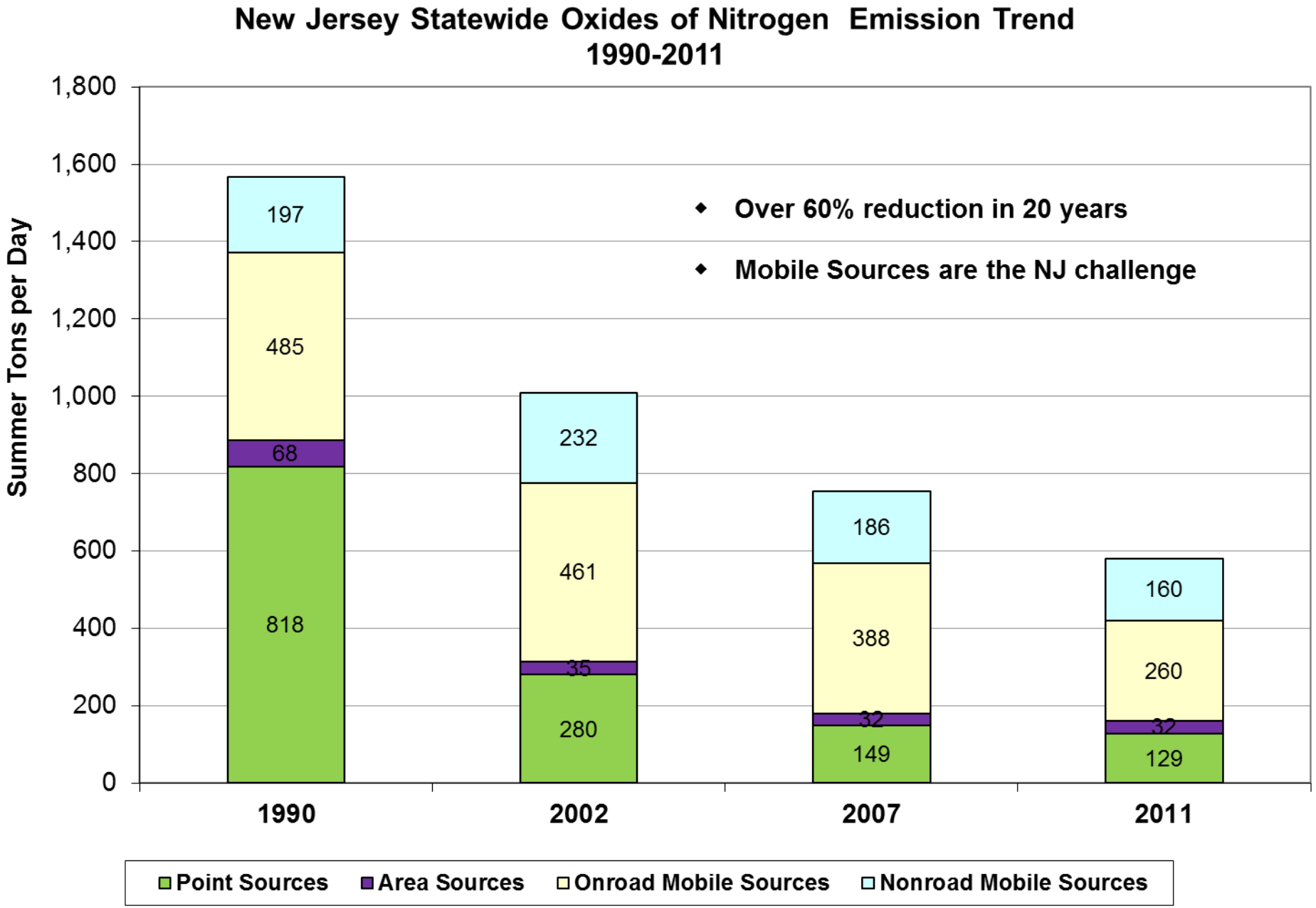


NonRoad









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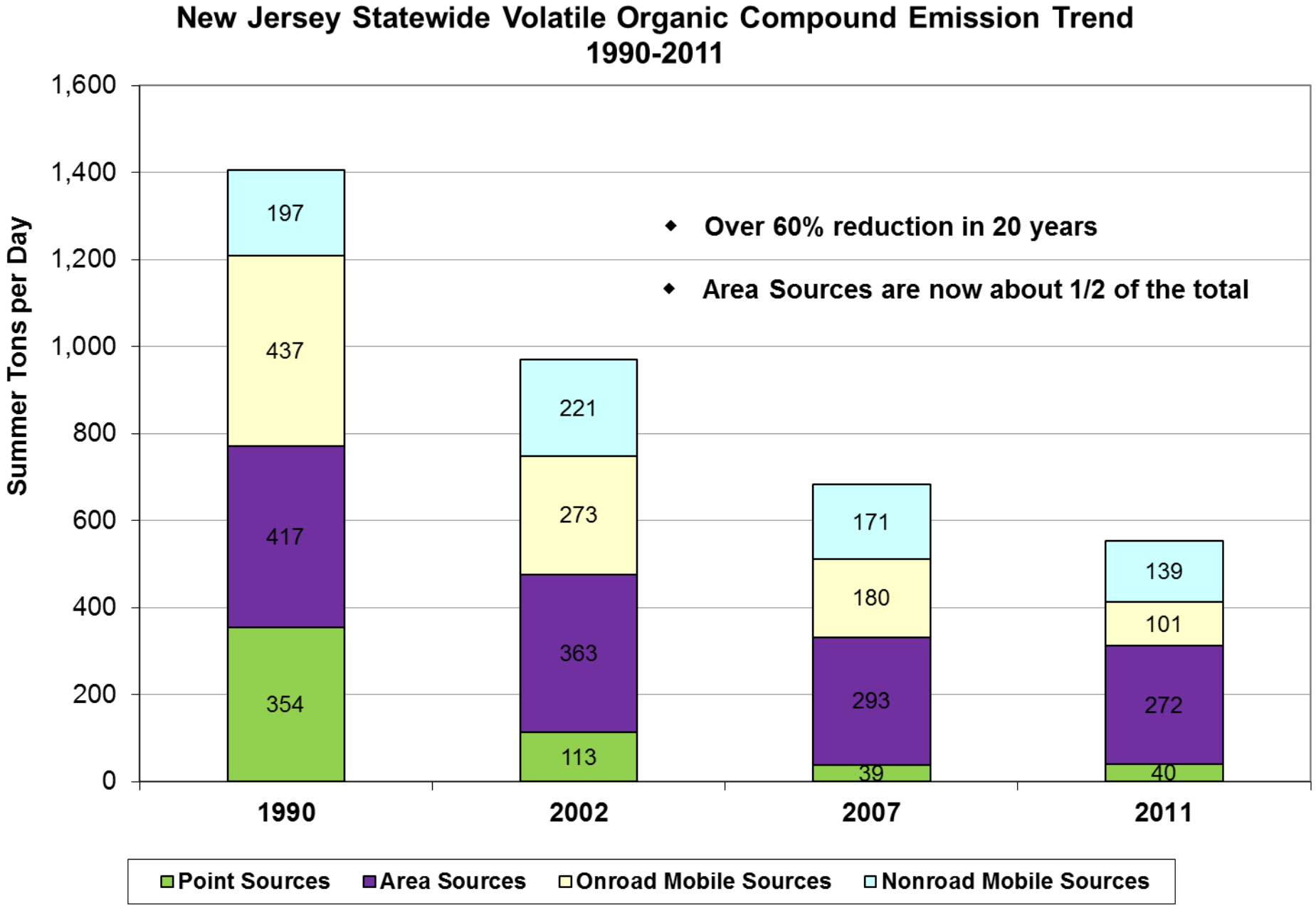

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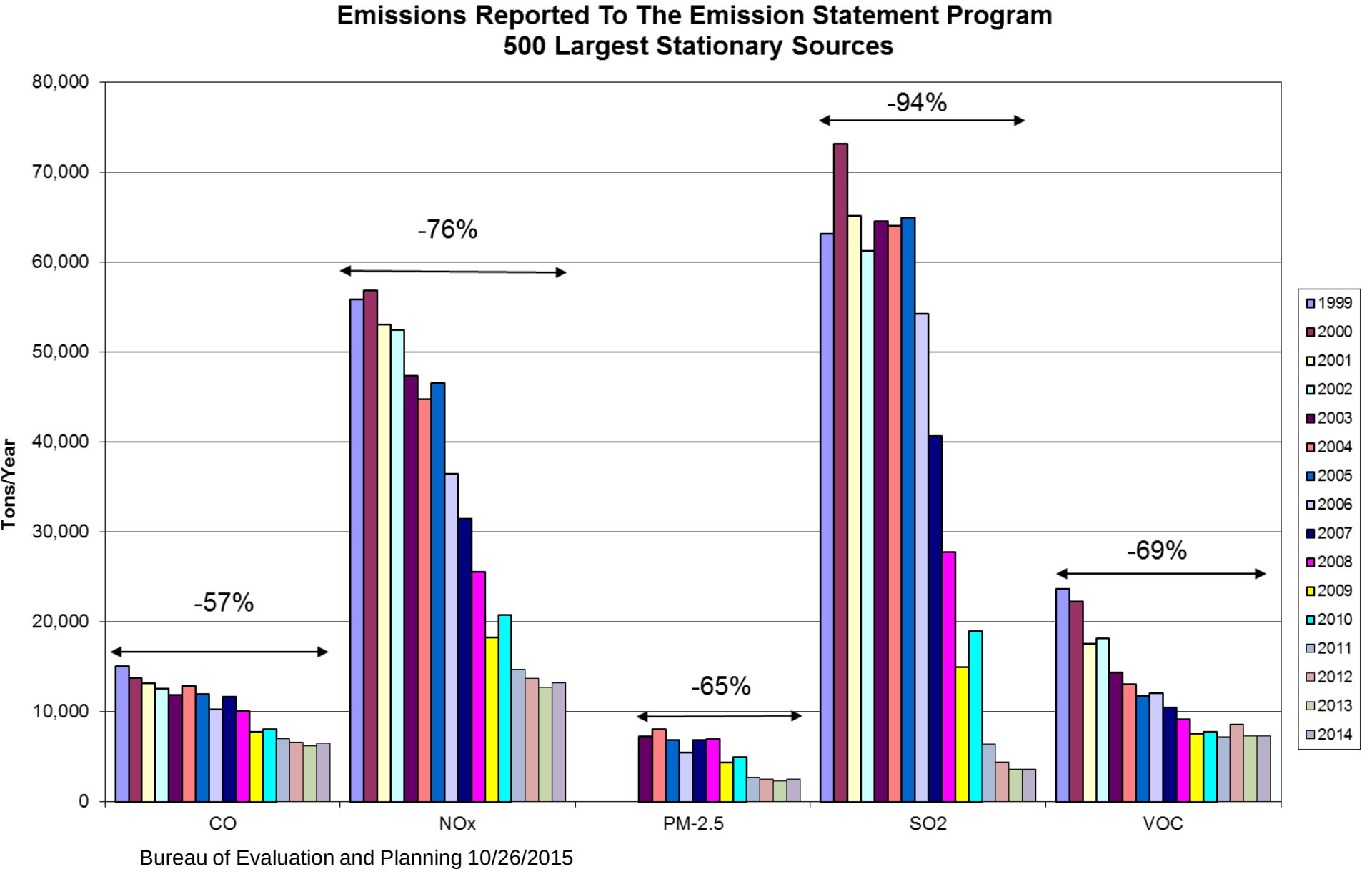

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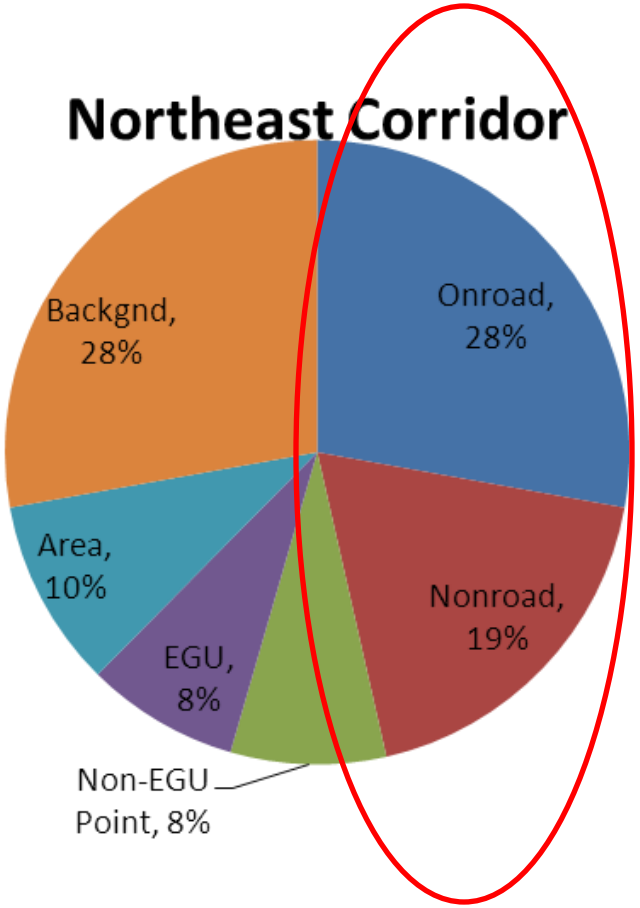
Mobile Sources Are Important Contributors to Elevated Ozone Levels

- Mobile Sources are the Largest Contributor to Elevated Ozone Levels

- <u>Caveat</u>
  - USEPA 2011 Analysis
  - CAIR based modeling platforms

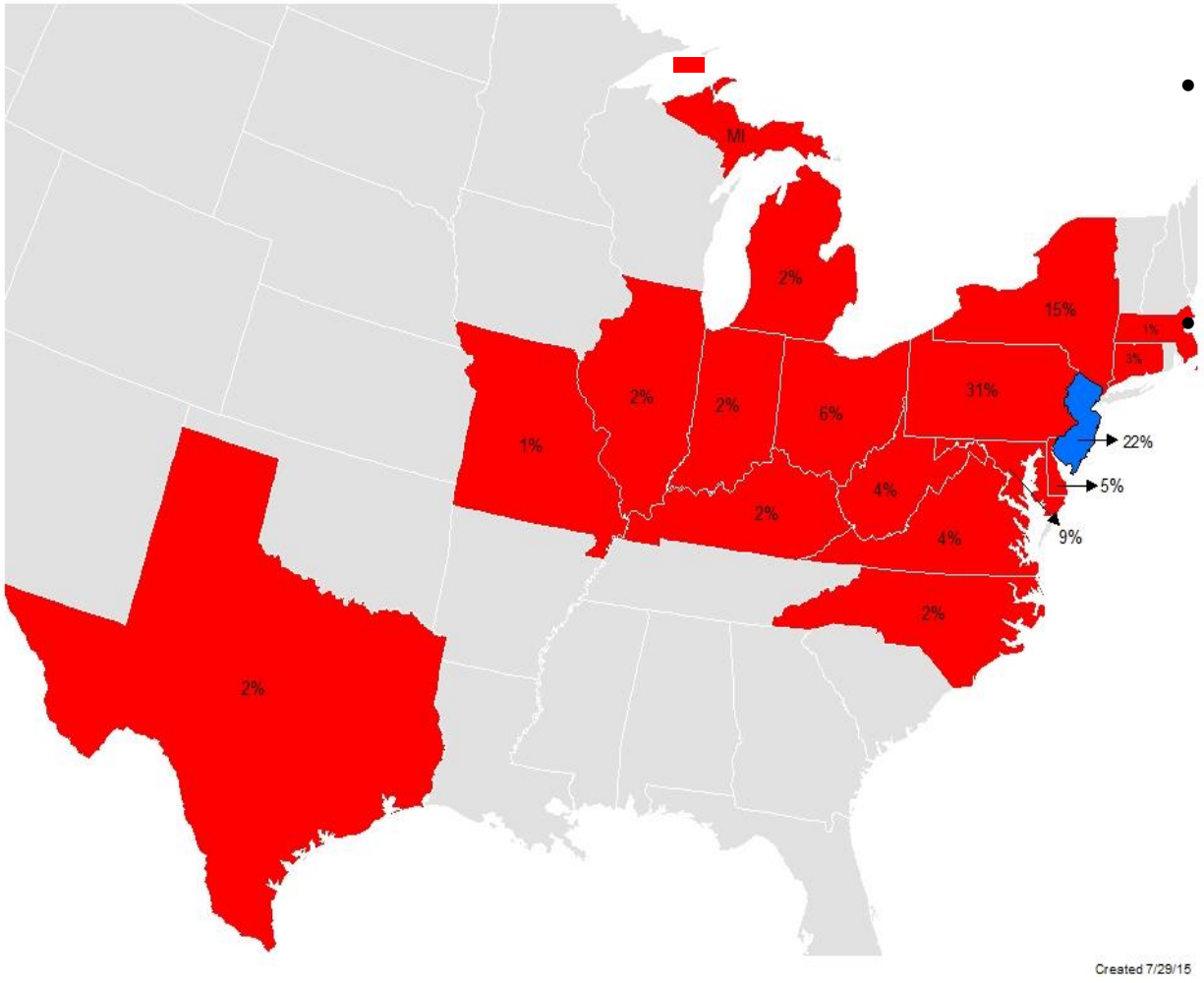


Contributions from Other States (interstate transport)

- USEPA performed Transport Modeling
  - http://www.epa.gov/airtransport/ozonetransportNAAQS.html
- Emission inventories for 2011 and projected 2017;
- Predicts ozone contributions located in states to individual monitoring sites throughout country;
- Rulemaking for interstate ozone transport for the 75 ppb ozone NAAQS.

2017 Significant Contributors to Poor Ozone Air Quality in New Jersey

Maximum Contribution to Any One Monitor in New Jersey



- Significant Contributors are States contributing ≥1% (0.75 ppb) of the Ozone NAAQS
- Based on USEPA Transport Modeling for the 75 ppb Ozone Standard (July 2015)

Ozone Contribution of Other States on New Jersey

State	Maximum Contribution ppb (%)	Average Contribution ppb (%)	Range (ppb)
PA	21 (31%)	14 (20%)	6.2 – 21.2
NJ	15 (22%)	10 (14%)	3.5 – 14.9
NY	10 (15%)	3 (5%)	0.6 – 10.
MD	7 (9%)	2 (3%)	0.6 – 7.1
OH	4 (6%)	3 (4%)	1.5 – 4.2
OTHER OTC STATES	10 (13%)	3 (4%)	0.0 – 3.5
OUTSIDE STATES	13 (17%)	7 (10%)	0.1 – 1.7

"Other OTR States" includes CT, DE, ME, MA, NH, RI, VT, and VA;

"Outside OTR States: includes AL, AR, FL, GA, IL, IN, IA, KS, KY, LA, MI, MN, MS, MO, NE, NC, ND, OH, OK, SC, SD, TN, TX, WV, and WI

2017 Significant State Contributors

Ozone Monitoring Locations

PA's Maximum Contribution	ppb	(%)
Pennsylvania	21	(31%)
New Jersey	4	(5%)
New York	1	(2%)
Maryland	2	(4%)

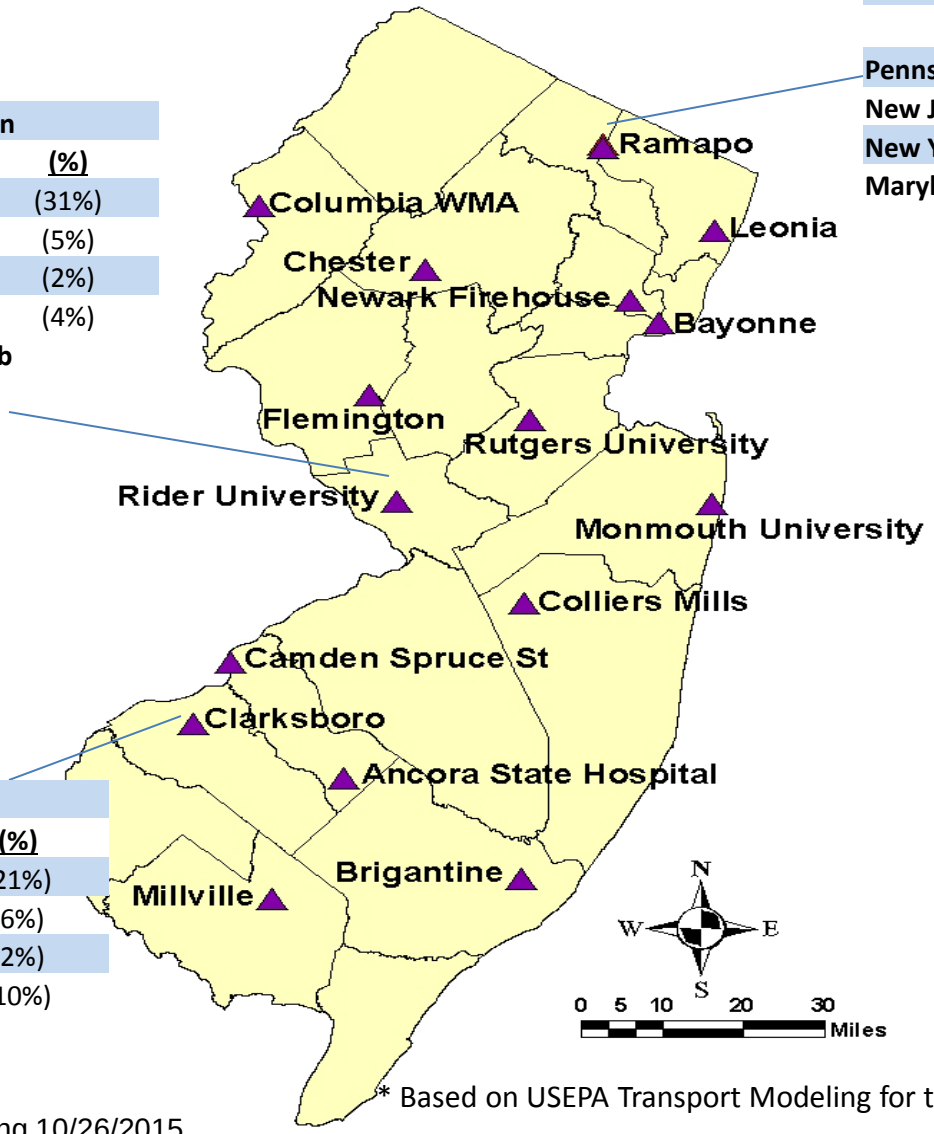
2017 Projected DV = 73 ppb

NJ's and NY's Maximum Contribution	ppb	(%)
Pennsylvania	6	(9%)
New Jersey	15	(22%)
New York	10	(15%)
Maryland	1	(2%)

2017 Projected DV = 69 ppb

MD's Maximum Contribution	ppb	(%)
Pennsylvania	16	(21%)
New Jersey	4	(6%)
New York	1	(2%)
Maryland	7	(10%)

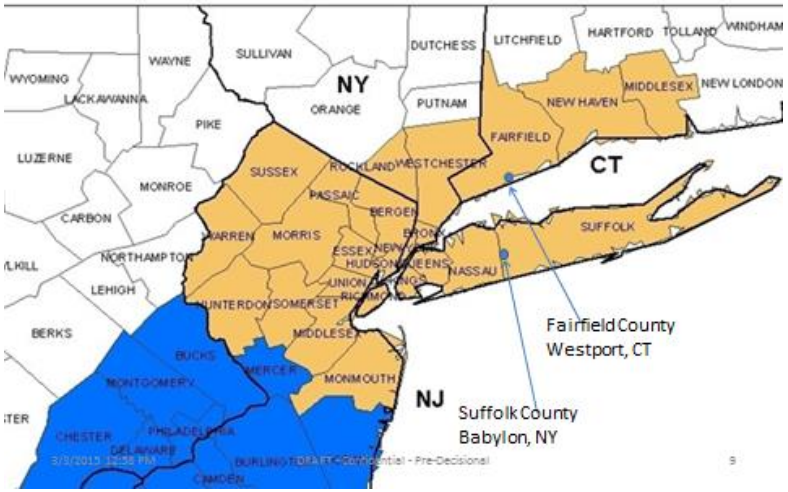
2017 Projected DV = 77 ppb



* Based on USEPA Transport Modeling for the 75ppb Standard (July 2015)

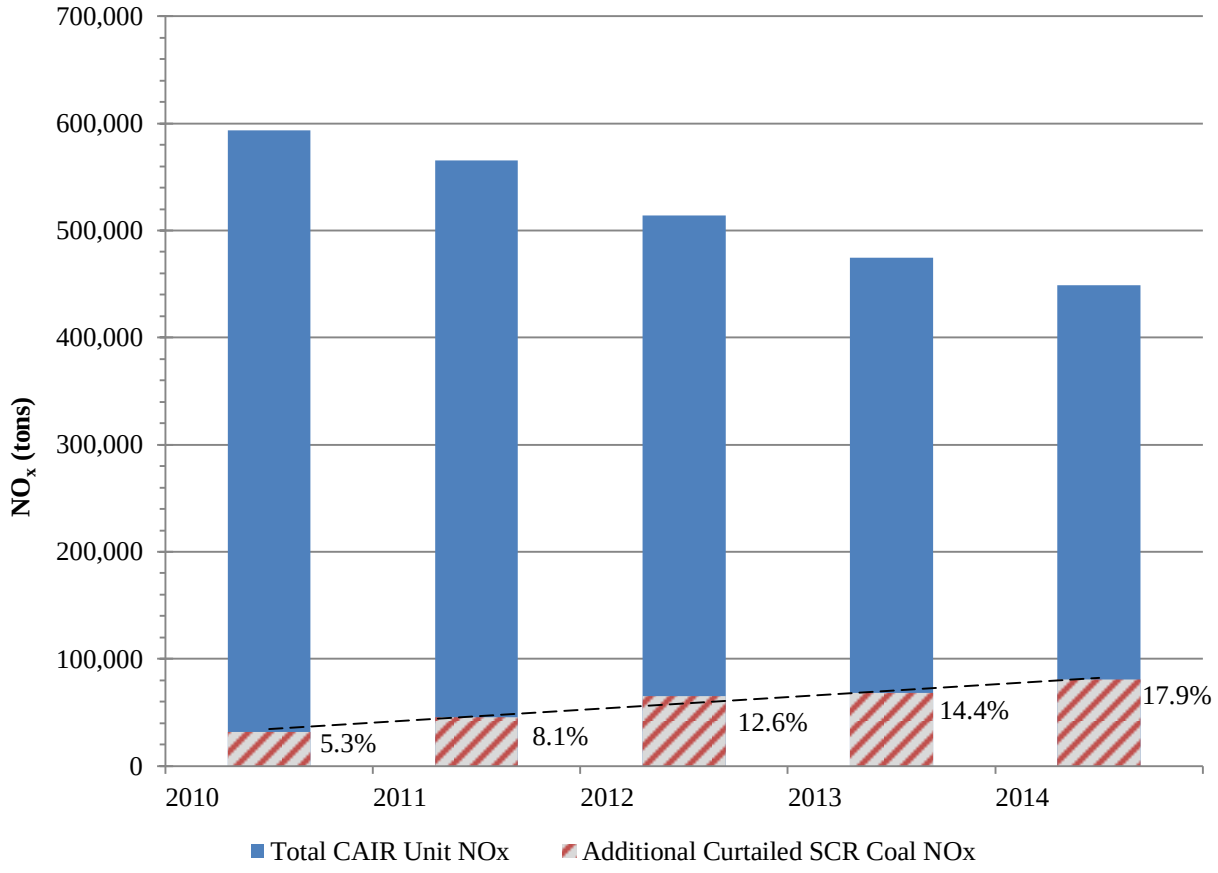
Contribution to Nonattainment in the NYC Metropolitan Area

Location of Suffolk County, NY and Fairfield County, CT Monitors

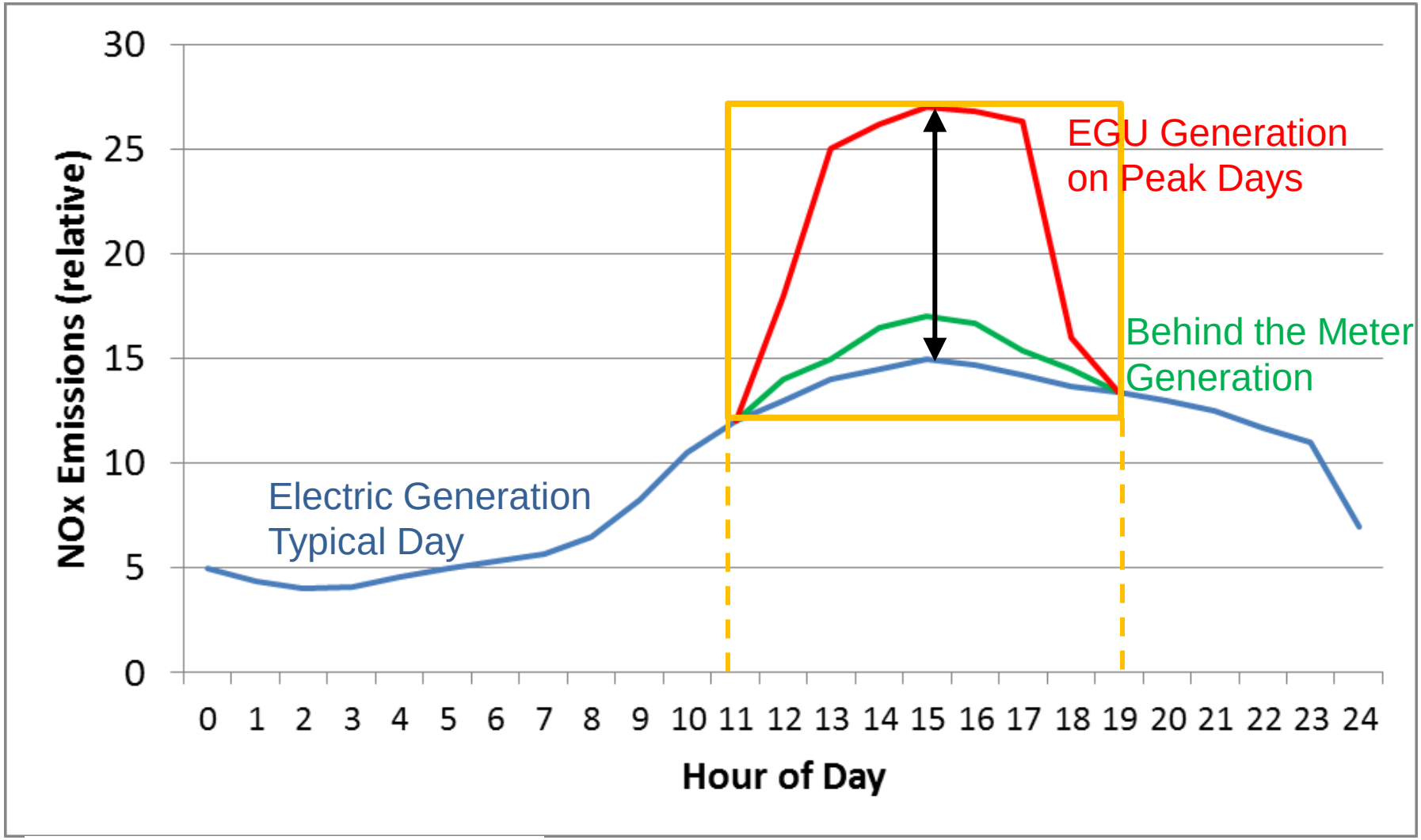


	Westport, CT ppb(%)	Suffolk, NY ppb (%)
New York	16 (24%)	16 (24%)
Pennsylvania	9 (13%)	9 (13%)
New Jersey	9 (13%)	11 (16%)
Connecticut	5 (7%)	0 (0%)
Maryland	2 (3%)	1 (2%)
Other States/ Background	39 (46%)	45 (54%)
2017 Maximum Projected DV =	78 ppb	79 ppb

Lost Benefits – Power Plants Curtailing Operation of Controls



Ozone Episode: Conceptual NOx Emissions



75 ppb Ozone SIP Timeframes

- Jun 2015 NJ State Implementation Plan
  - 2011 Emission Inventory
  - Reasonably Available Control Technology (RACT) SIP
- Aug 2015 USEPA Proposal
  - Extends attainment date for SNJ NAA
  - Reclassifies NNJ NAA to moderate
- Jan 2017
  - Attainment Demonstration (NNJ NAA)
- Attainment Date – 2018
  - Based on 2015, 2016, and 2017 Air Quality Data

NO_x/VOC RACT Rule Proposals

- Natural Gas Compressor (NGC) Stations
  - Non-Electric Generating Units
  - NOx limitations
  - Engines 250 - 500 hp
  - natural gas turbines for storage or transport
- Four Control Technique Guidelines (CTGs)
  - VOC limitations
  - Industrial Cleaning Solvents
  - Miscellaneous Metal and Plastic Parts Coatings
  - Fiberglass Boat Manufacturing Materials
  - Paper, Film, and Foil Coatings
- Combined rule proposal
- Anticipated schedule
  - Draft rule proposal: February 2016
  - Public Hearing: March/April 2016

Current 70 ppb Ozone Actions

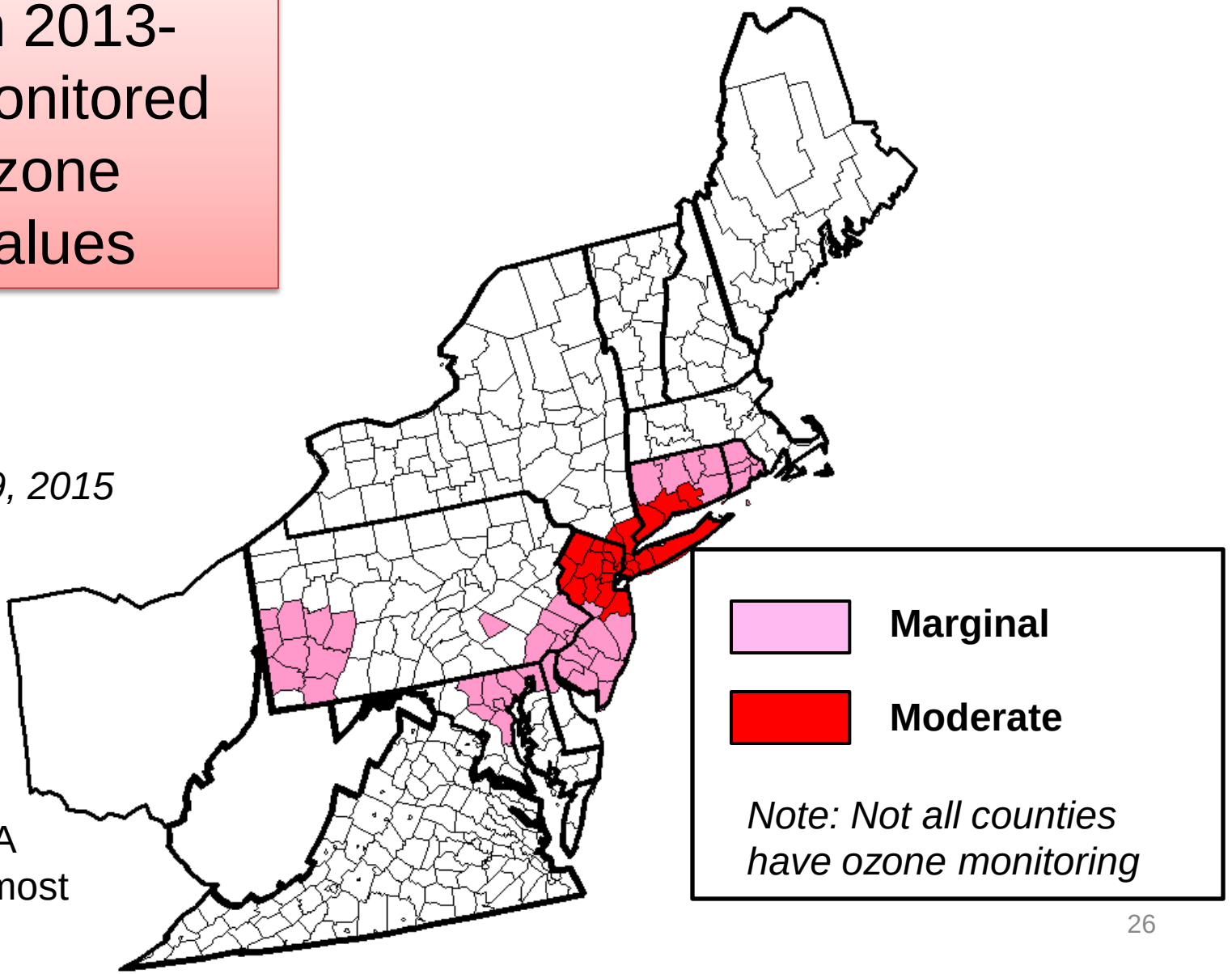
- USEPA Final NAAQS signed October 1, 2015
- Air Quality Index to reflect new levels
- Air monitoring
  - New ozone monitoring seasons
- Initiates Implementation of Standard
  - Designation classifications
  - Infrastructure SIP
  - Attainment Date
  - Attainment Plans

Based on designation classifications

Potential Nonattainment – 70ppb NAAQS

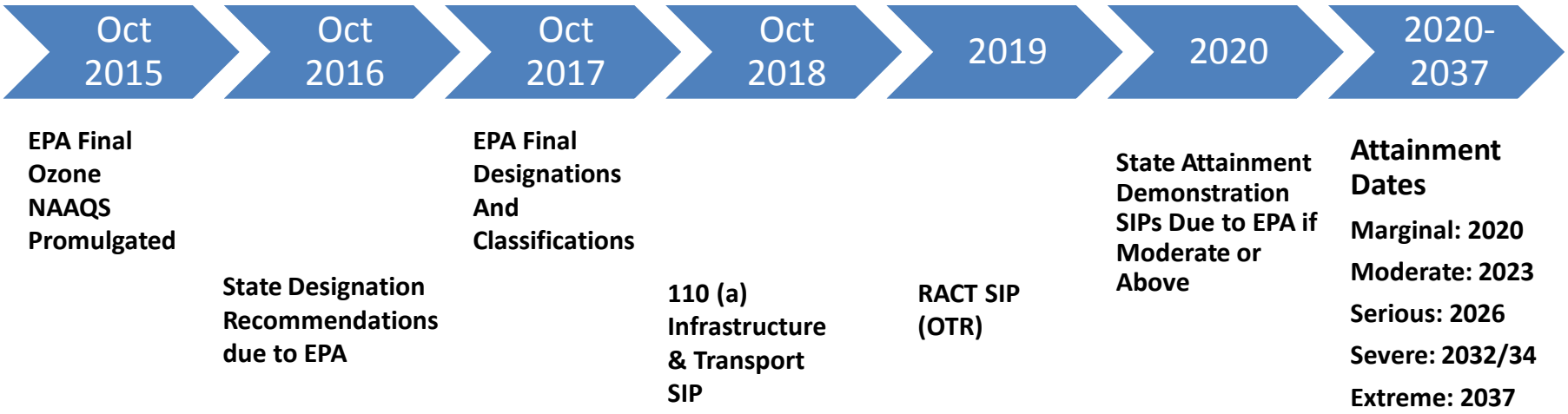
Based on 2013-2015P Monitored 8-hour Ozone Design Values

Data through September 19, 2015



Based on CBSA Boundaries in most cases

70 ppb Ozone NAAQS Timeline



Looking Ahead…

- All of SNJ-DE-MD-PA area meets 75 ppb, not 70 ppb
- Only CT's portion of the NNJ-NY-CT area does not meet 75 ppb; area does not 70 ppb
- Significant portion of NJ's air quality problem comes from out of state
- Challenges
  - Getting reductions from upwind states
  - Emission reductions from mobile sources
  - Addressing episodic emissions