



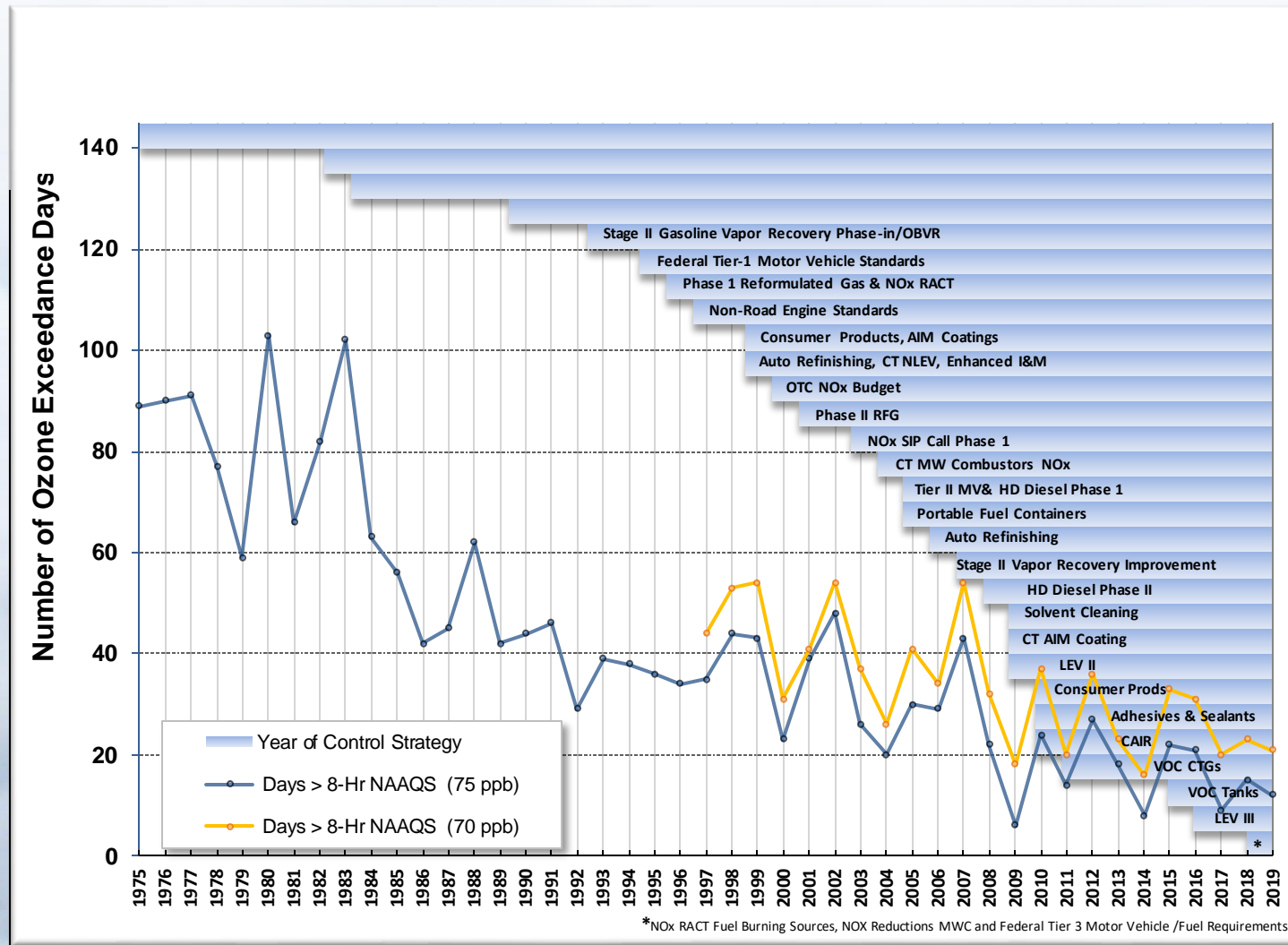
Connecticut Department of Energy and Environmental Protection



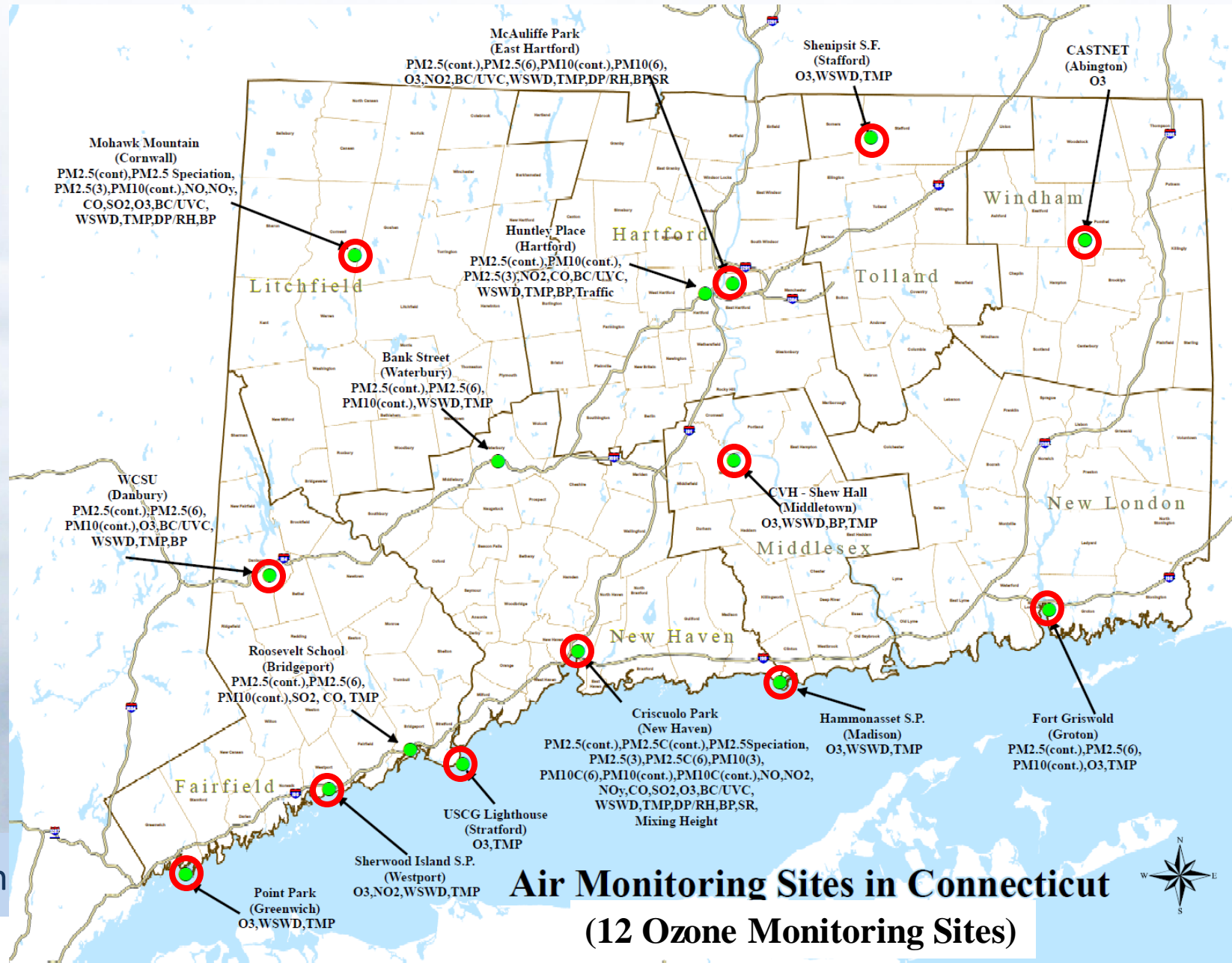
2019 Ozone Season Review and Looking Ahead for 2020

Michael Geigert

2019 Ozone Season: 21 Exceedance Days



CT Air Monitoring Sites



Conn

Air Monitoring Sites in Connecticut
(12 Ozone Monitoring Sites)



Ozone in Connecticut 2019

Connecticut Department of Environmental Protection 2019 8-Hour Ozone Daily Maximums*

Site	June					July											August			Sept.		Total Count
	5	26	27	28	29	4	10	16	17	19	20	27	28	29	30	31	8	19	30	22	23	
Abington	60	52	52	52	56	48	58	68	52	66	47	M	M	69	64	56	59	47	72	64	54	1
Cornwall	67	53	46	M	M	56	52	62	42	45	43	58	54	62	66	41	51	47	51	69	59	0
Danbury	71	55	46	59	56	65	58	75	53	66	50	72	61	64	75	51	60	59	60	74	71	6
East Hartford	59	55	49	53	54	60	54	77	52	77	45	52	61	61	72	51	58	64	57	77	72	5
Greenwich	61	70	62	72	64	86	72	86	69	64	54	63	71	84	84	76	66	66	65	63	62	8
Groton	51	53	67	62	79	79	75	59	58	59	65	31	75	74	73	59	76	44	62	61	47	7
Madison	51	63	72	71	84	77	79	66	60	58	73	40	84	86	77	69	84	60	67	74	54	11
Middletown	58	58	53	58	60	64	60	87	60	77	53	48	73	82	76	60	65	70	76	76	64	7
New Haven	48	63	60	54	57	72	60	89	57	71	60	50	81	83	66	70	66	71	64	78	49	7
Stafford	70	54	50	54	54	44	55	75	51	78	44	53	61	62	73	56	55	54	56	75	72	5
Stratford	57	71	64	65	76	82	64	84	69	67	67	53	83	87	77	70	80	72	71	65	56	10
Westport	60	71	63	68	72	84	67	90	74	72	58	61	81	88	79	69	70	68	73	72	60	11
# days > Federal Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

Good (0-54 ppb)

Moderate (55-70 ppb)

Unhealthy for Sensitive Groups (71-85 ppb)

Unhealthy (86-105 ppb)

Very Unhealthy (>106 ppb)

Ozone Forecasts for Connecticut 2019

Actual Exceedance Days = 21

Forecast Exceedance Days = 10

Month	Actual Dates	Forecast Dates
May	None	None
June	5, 26, 27, 28 & 29	None
July	4, 10, 16, 17, 19, 20 27, 28, 29, 30 & 31	6, 10, 19, 20, 21, 27, 28, 29, & 30
August	8, 19 & 30	19
September	22 & 23	None
Total	21	10

Ozone production started to ramp up after June 26th.

CT Ozone 2019 Design Values

		2019 Compliance Status				
		x = Violating NAAQS				
	Site Name	To Date: Prelim 2019 DV	2015 NAAQS	2008 NAAQS	1997 NAAQS	# Needed to Next NAAQS in Violation (key monitors in each NA are highlighted in RED)
SWCT Portion of NYC Area	Danbury	73	X			4 more days > 80 ppb day(s) violate the 2008 NAAQS
	Greenwich	81	X	X		4 more days > 94 ppb day(s) violate the 1997 NAAQS
	Madison	80	X	X		4 more days > 91 ppb day(s) violate the 1997 NAAQS
	Middletown	77	X	X		4 more days > 98 ppb day(s) violate the 1997 NAAQS
	New Haven	75	X			1 more days > 80 ppb day(s) violate the 2008 NAAQS
	Stratford	82	X	X		4 more days > 90 ppb day(s) violate the 1997 NAAQS
	Westport	82	X	X		3 more days > 89 ppb day(s) violate the 1997 NAAQS
Greater CT	Cornwall	66				4 more days > 72 ppb day(s) violate the 2015 NAAQS
	East Hartford	70				1 more days > 75 ppb day(s) violate the 2015 NAAQS
	Groton	75	X			1 more days > 75 ppb day(s) violate the 2008 NAAQS
	Stafford	71	X			4 more days > 86 ppb day(s) violate the 2008 NAAQS
	Abington	70				1 more days > 66 ppb day(s) violate the 2015 NAAQS
Number of Exceedance Days to Date			21		The 1997 standard was repealed with the 2008 Implementation rule. Effective April 6, 2015	

Design value triggers for the NAAQS:

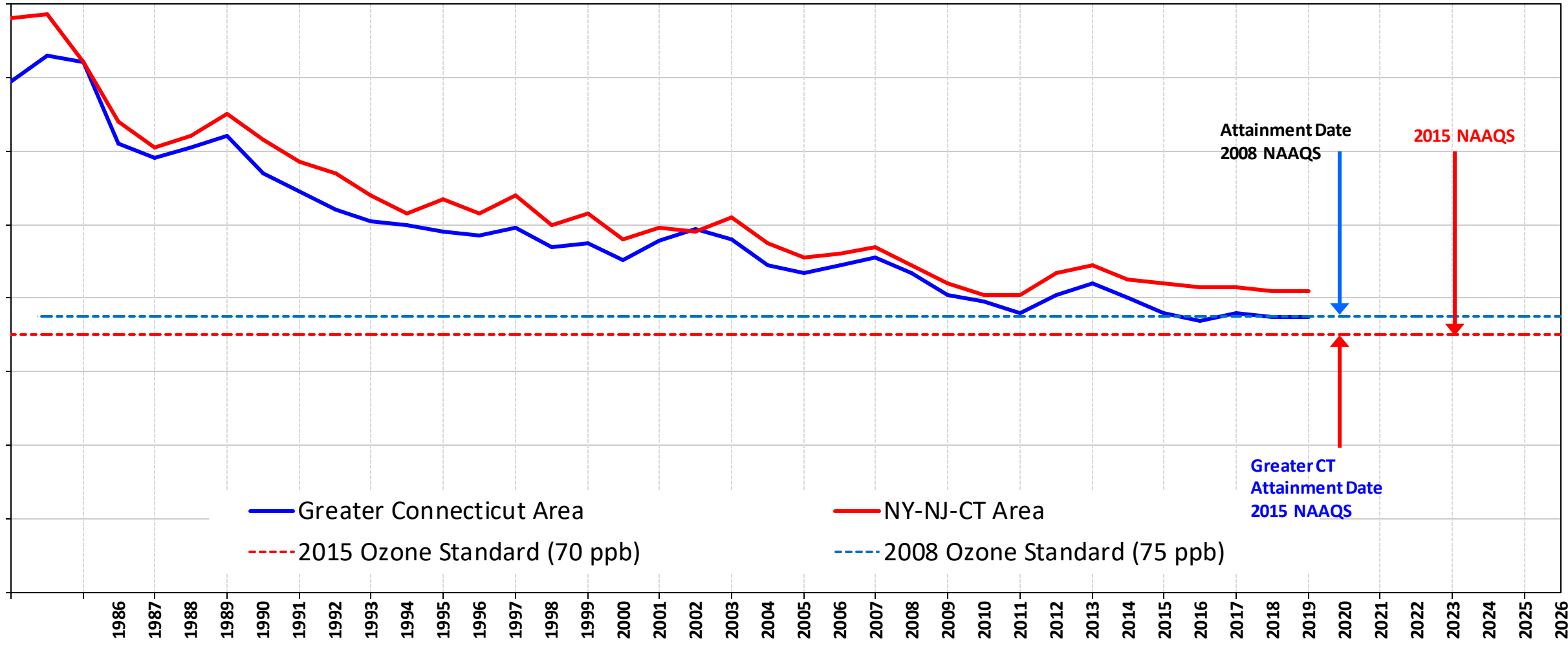
1997 = 85 ppb

2008 = 76 ppb

2015 = 71 ppb



Ozone NAAQS Attainment Dates



Connecticut is required to attain the 2008 standard by the end of 2020. Greater Connecticut is required to attain the 2015 standard by the end of 2020, and southwest CT by the end of 2023.

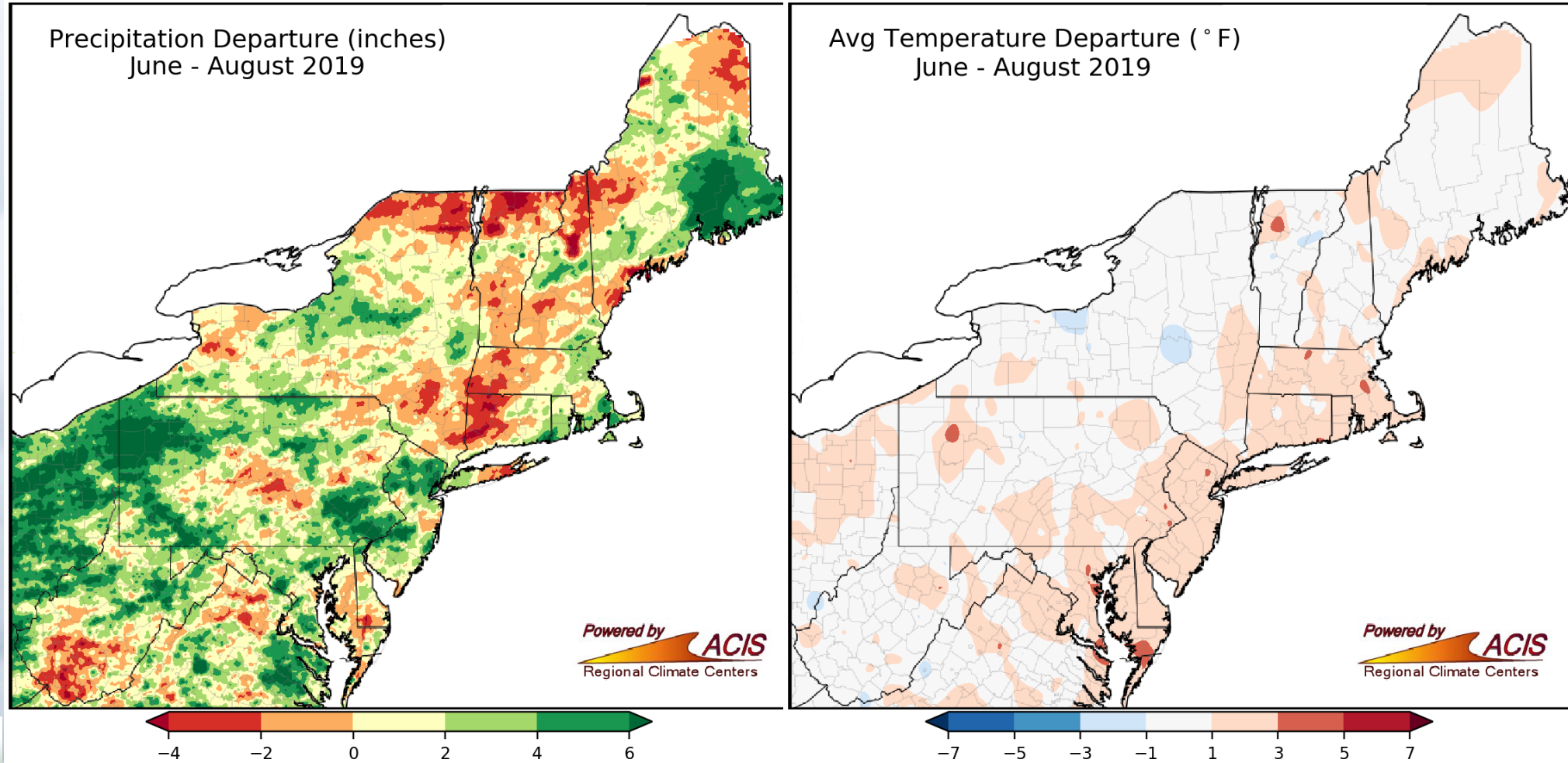
A Proposed Rule by the Environmental Protection Agency on 03/27/2020

- The Environmental Protection Agency (EPA) is proposing to determine that the Greater Connecticut Serious 8-hour ozone nonattainment area has attained the 2008 8-hour National Ambient Air Quality Standard (NAAQS) for ozone, based on certified 2016-2018 ozone data.
- In addition, quality controlled and quality assured ozone data for 2019 that are available in the EPA Air Quality System, but not yet certified, do not conflict with the conclusion that this area attains the 2008 8-hour ozone NAAQS.
- If this proposed determination is made final, the requirements for this area to submit an attainment demonstration, a reasonable further progress plan, contingency measures, and other planning State Implementation Plan (SIP) revisions related to attainment of the 2008 8-hour ozone NAAQS shall be suspended for so long as the area continues to attain the ozone NAAQS.

Connecticut does intend to submit this Attainment SIP on schedule.

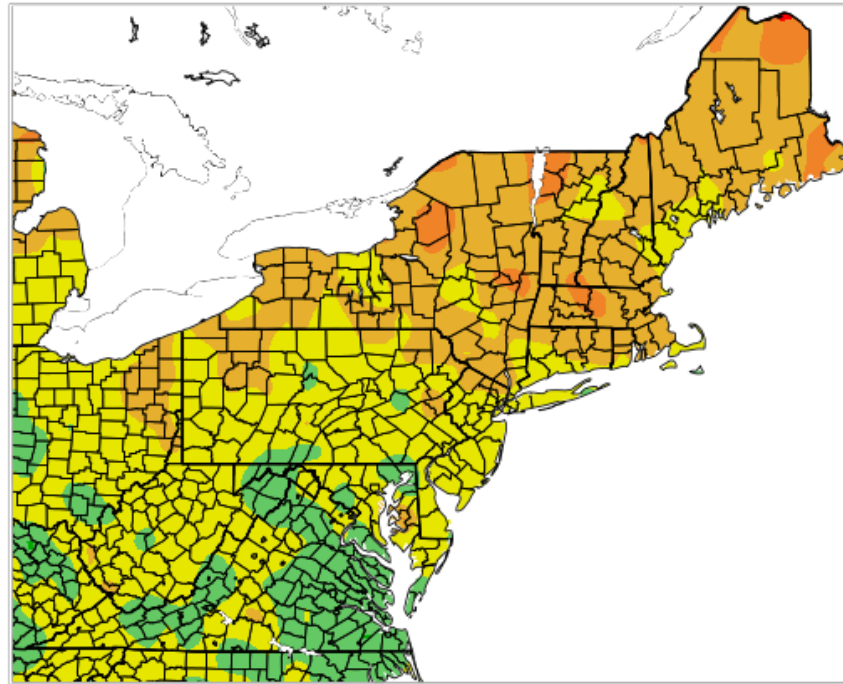
Summer 2019 Precipitation-Temperature Summary

Overall, a drier and slightly warmer summer for Connecticut



July 2018 Verses July 2019 Temperatures

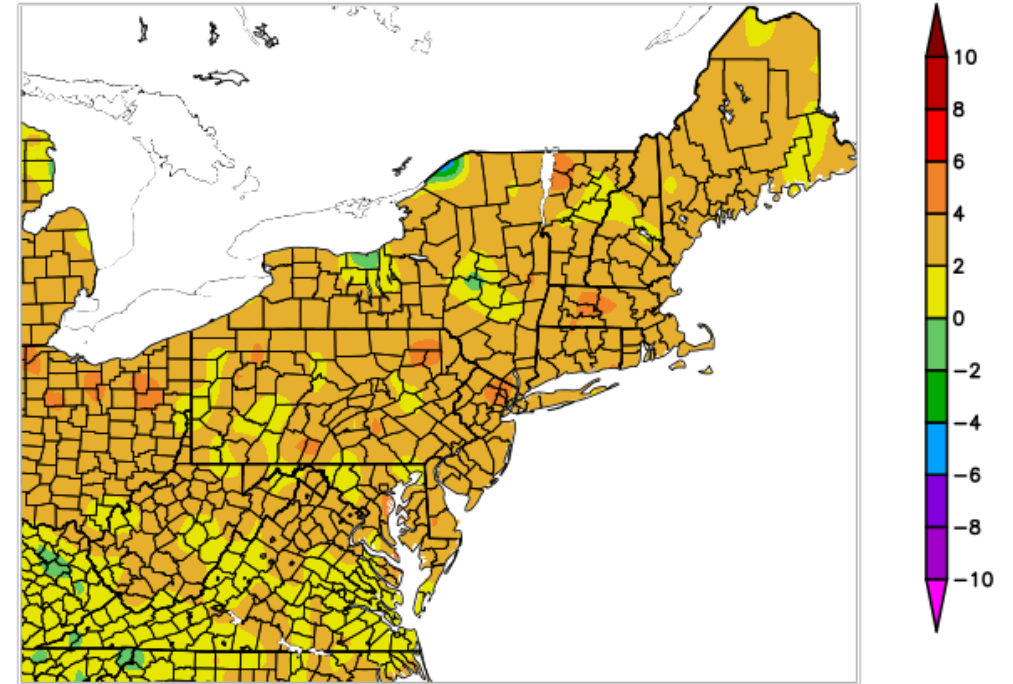
Departure from Normal Temperature (F)
7/1/2018 – 7/31/2018



Generated 8/20/2018 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Temperature (F)
7/1/2019 – 7/31/2019



Generated 8/20/2019 at HPRCC using provisional data.

NOAA Regional Climate Centers

Well above average 2019 July temperatures, compared with 2018, helped produce nearly as many exceedance days as 2018.



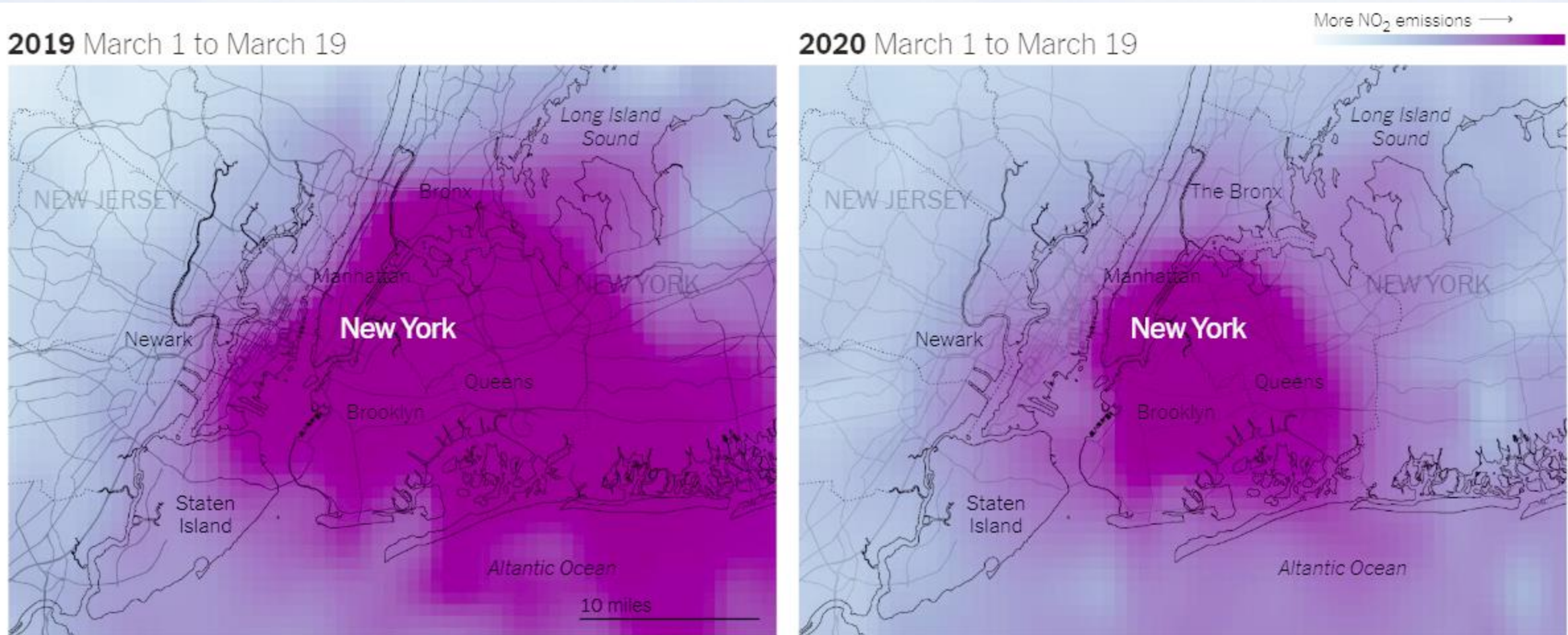
Connecticut Department of Energy and Environmental Protection

2019 Ozone Season Summary

- 21 exceedance days in 2019, compared with 23 in 2018;
- A hot, dry, summer weather pattern set up from late June through August, which pushed the highest ozone levels from high NOX and VOC emissions along the I-95 corridor and NYC into Connecticut.
- The NOAA & Barons models generally under predicted in May and early June, and again in September, and some model over predictions began in late June and continued into late August;
- We also under-predicted ozone when smoke was present for a few events this summer based on the modeling. Smoke may have hindered the model performance due to solar attenuation and not including its chemistry; therefore models may have under-predicted an additional 5-10 ppbs.

What About 2020?

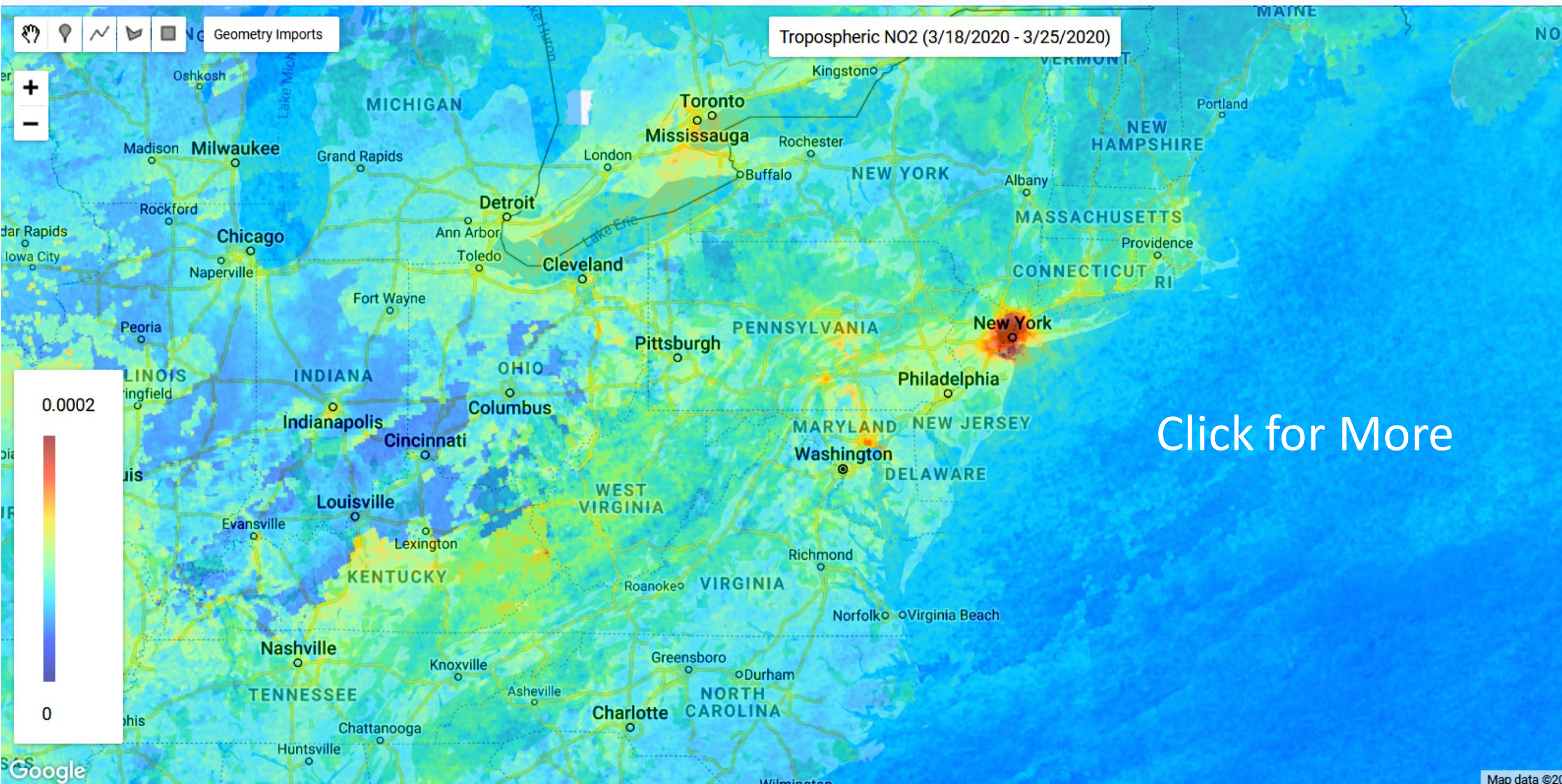
- With the economic downturn resulting from COVID-19, it is expected that ozone precursor emissions throughout the region will decrease, which should decrease ozone production on most days. TROPOMI satellite images are already showing decreased NO₂ emissions.



Source: Sentinel-5P satellite data processed by [Descartes Labs](#)

TROPOMI Satellite time averaged NO₂ column.

TROPOMI NO2 Column Trends (Preliminary DATA)



March 2020 CTDOT Traffic Counts

Select Town & Route

- Berlin CT-15
- Branford I-95
- Clinton CT-81
- East Lyme I-95
- East Windsor US-5
- Hamden CT-15
- Kent US-7
- Middlebury I-84
- Milford I-95
- New Canaan CT-124

Days (Select One or More)

- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

Date Filter

3/1/2020 3/31/2020

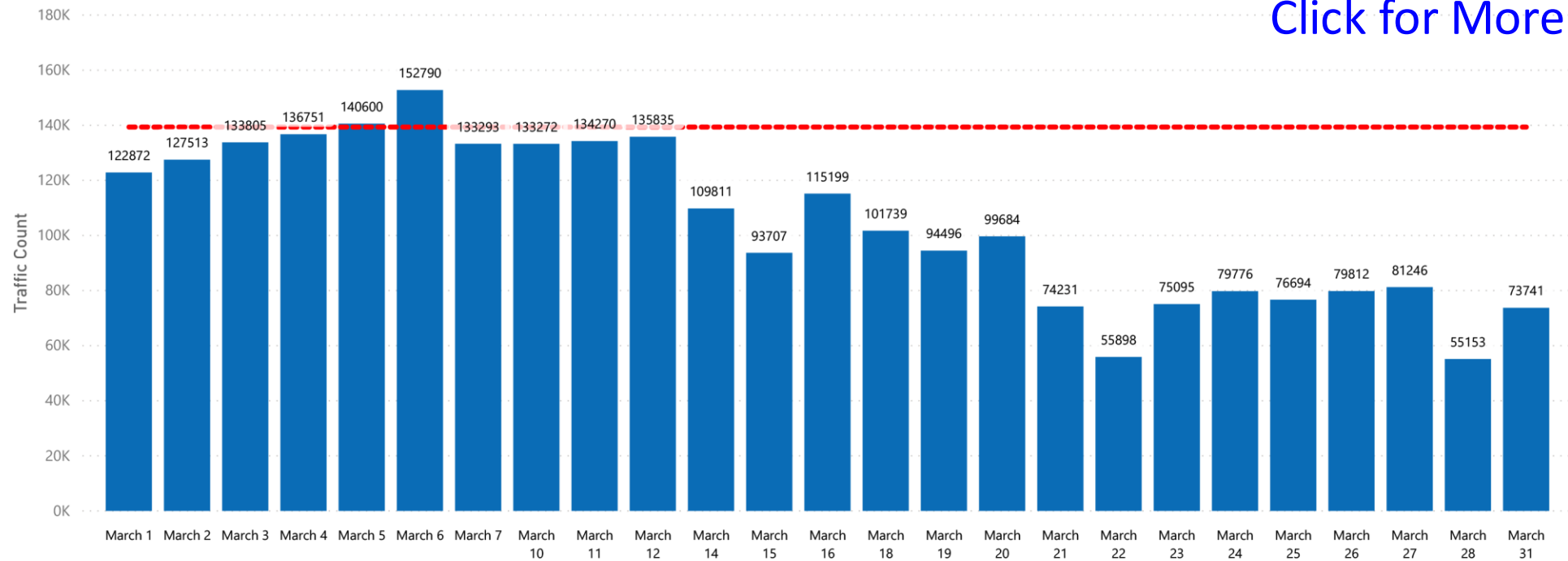
Milford I-95



Continuous Count Stations 2020

Connecticut
Department of Transportation
Traffic Monitoring Unit

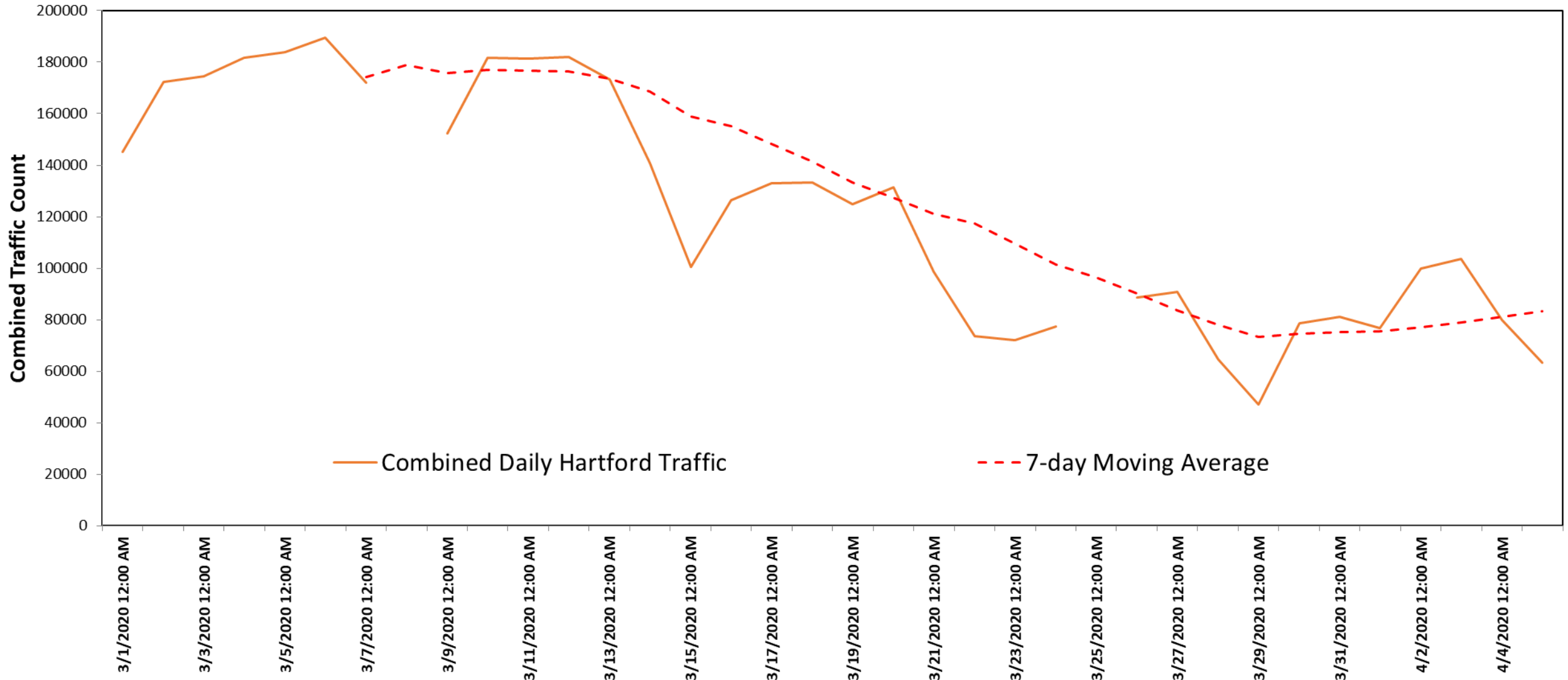
Station ● Milford I-95 - - - 2019 Average Annual Daily Traffic



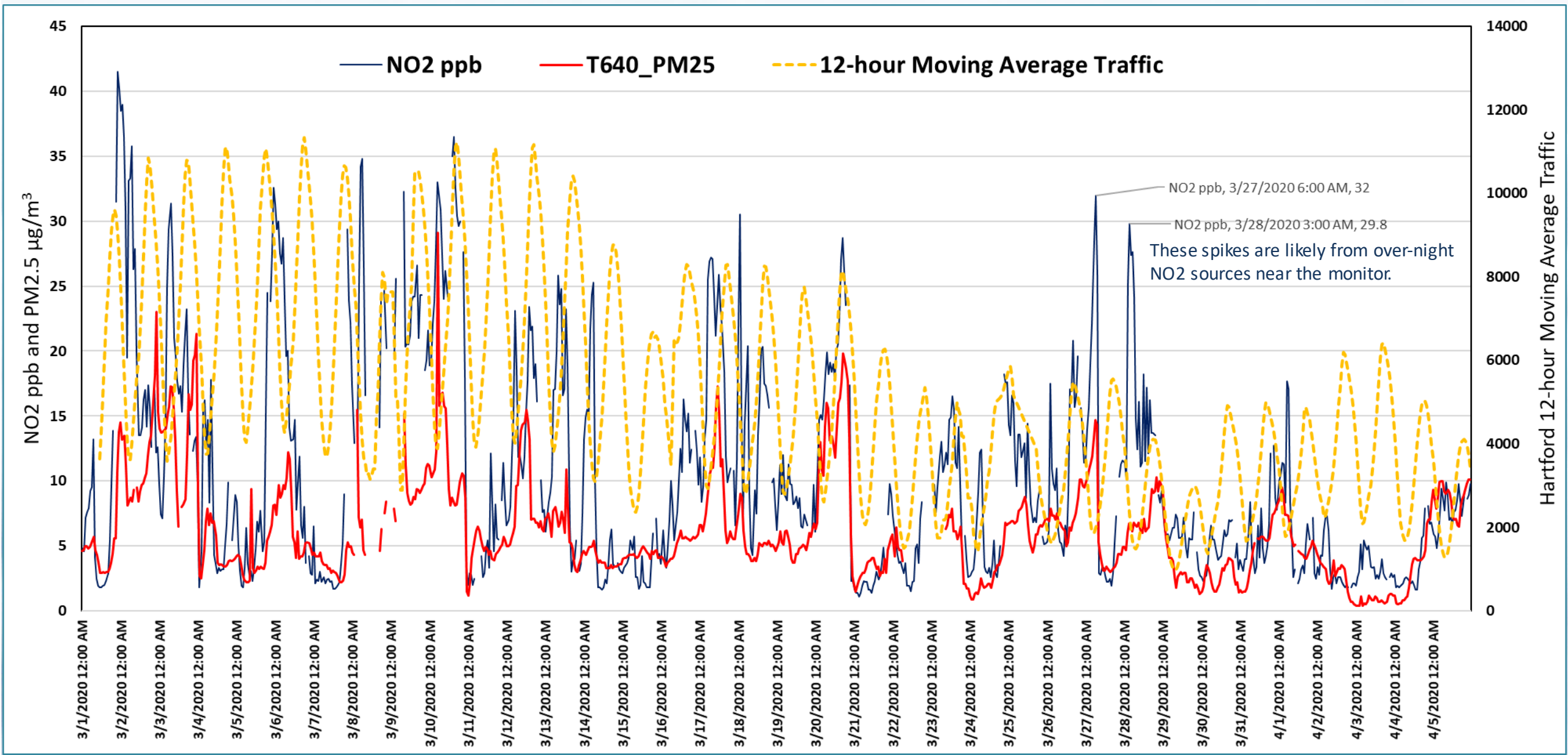
[Click for More](#)

Hartford- CTDEEP Huntley Monitor Traffic Count

Daily Hartford Traffic March 1- April 5, 2020 (East-West Combined)



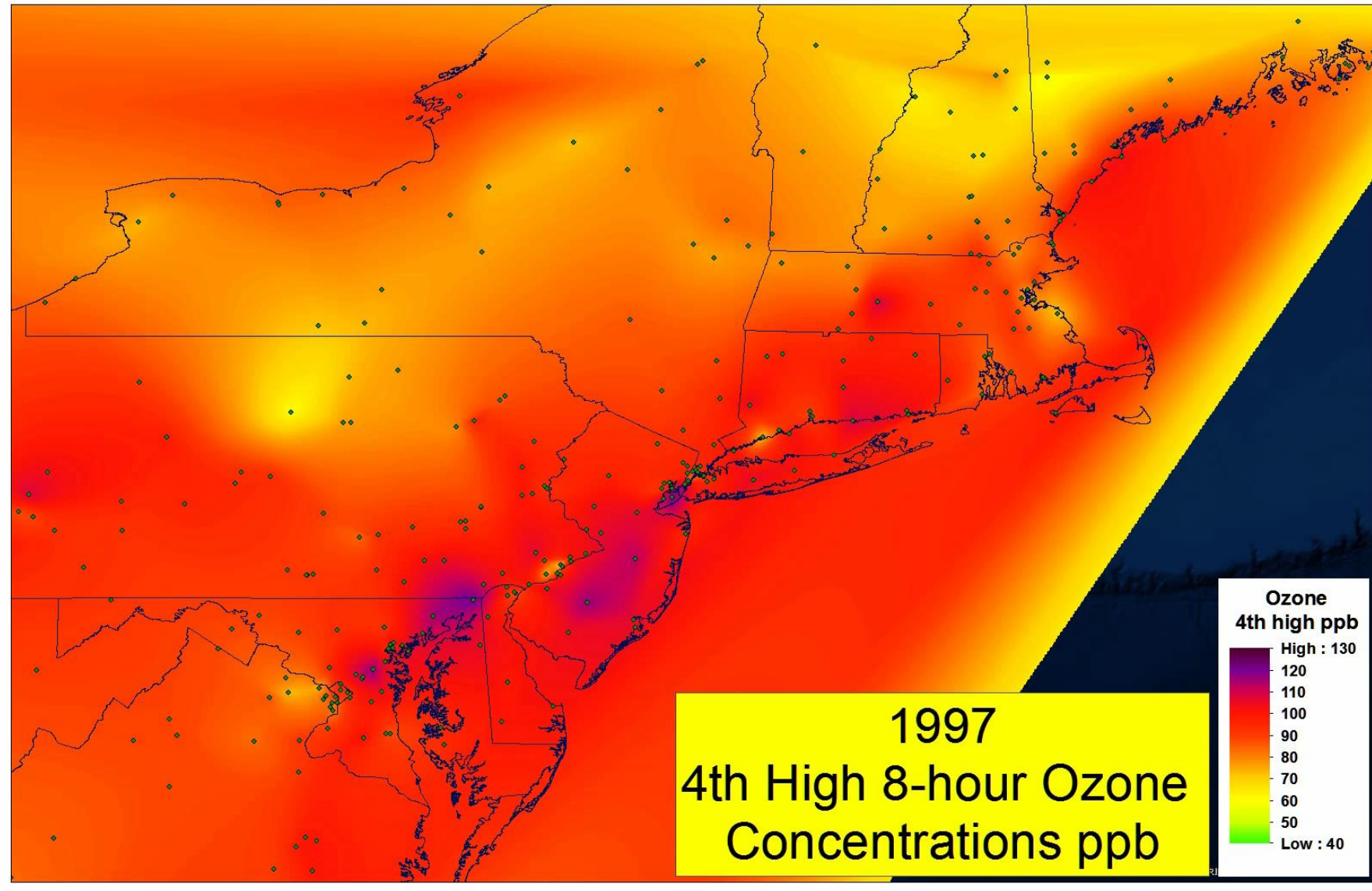
Hartford- Huntley Monitor NO2, PM2.5 & Traffic Count



Summer 2020 Ozone Forecasts

- After the 2008 economic recession, the emission reductions that followed resulted in lower ozone levels during the summer of 2009;
- 2009 was also a cooler and wetter summer, which would have also reduced ozone levels by itself;
- The following slides show the ozone trends followed by the 2009 climate summary and the current climate predictions for the summer of 2020;

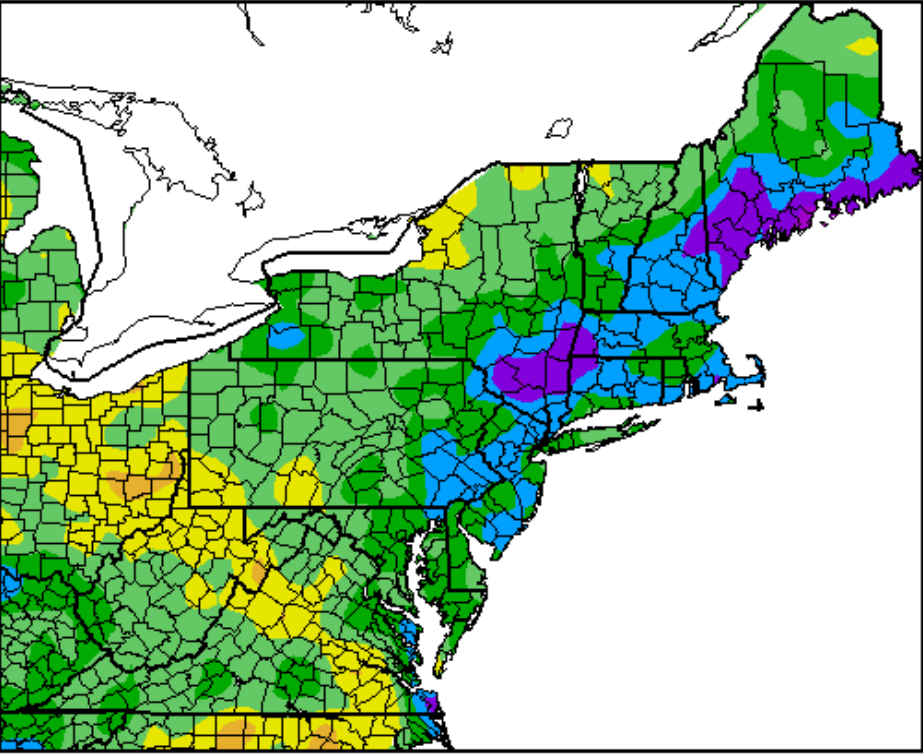
Animation of 4th High Ozone (ppb) 1997-2018



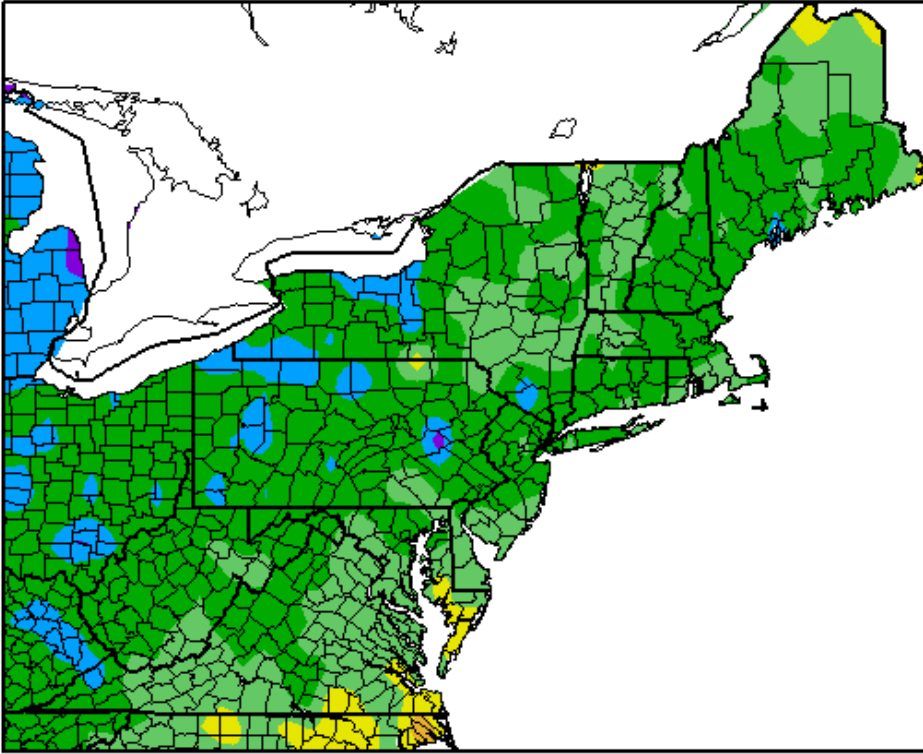
- Note the decrease in ozone during 2009, following the recession of 2008.

2009 Precipitation and Temperatures

Departure from Normal Precipitation (in)
6/1/2009 – 8/31/2009



Departure from Normal Temperature (F)
6/1/2009 – 8/31/2009



Generated 6/18/2012 at HPRCC using provisional data.

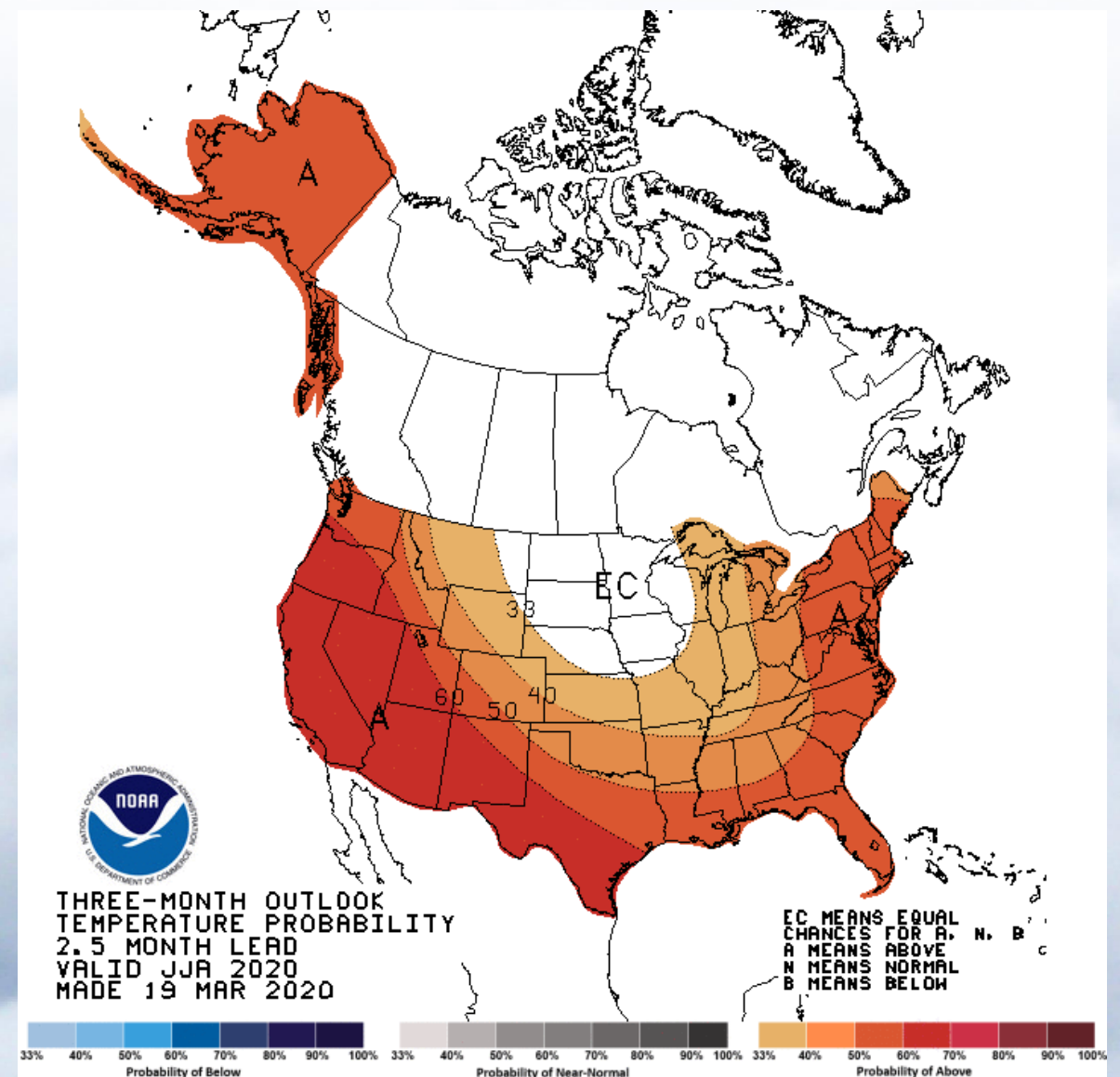
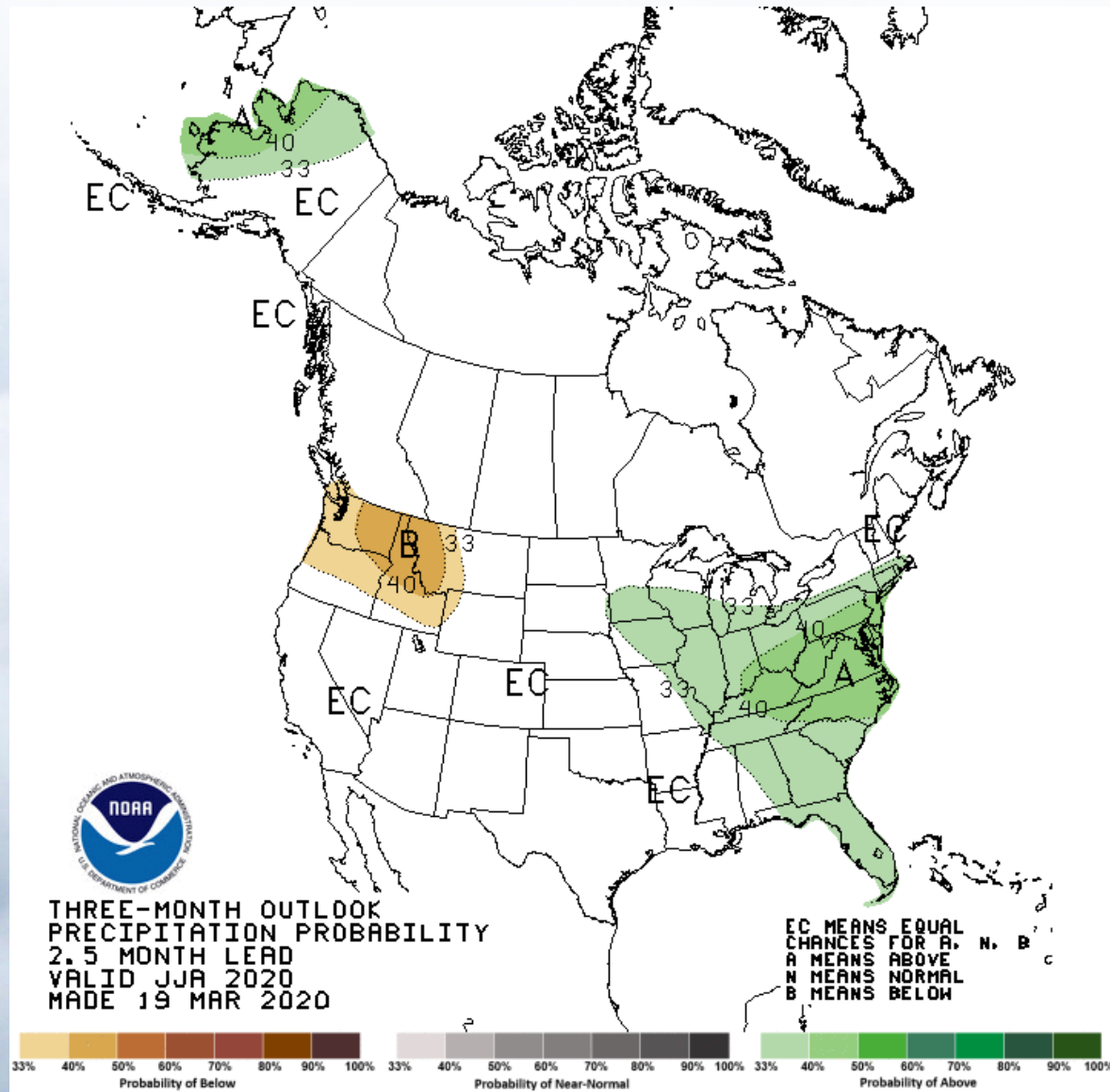
Regional Climate Centers

Generated 6/18/2012 at HPRCC using provisional data.

Regional Climate Centers

- 2009 was a cool wet summer, which would have reduced ozone production by meteorology alone.

2020 Forecast Precipitation and Temperatures




- Forecasted above normal temperatures may counteract the full effects of reduced emissions.

2020 Ozone Forecasting Season

- Ozone Forecasting Season May 1- Sept 30.
- CTDEEP forecasters have complete capability to make forecasts and notify the public and regulated community while working remotely:
 1. List-server emails
 2. Phone messaging
 3. [CTDEEP AQI web page](#)
 4. EPA Airnow forecasts

Receive notice of Daily AQI:

- [EnviroFlash](#) - Subscribe to receive air quality information by e-mail
- [Twitter](#) - Follow the air quality forecasts
- Subscribe to the [DEEP Air Quality Information listserv](#) to receive a daily ozone forecast between May 1 through September 30, and a daily PM2.5 forecast year round.
- Subscribe to the [DEEP Ozone Forecast listserv](#) to receive a daily 8-hour ozone forecast that is disseminated to Connecticut's Industrial and Electric Generating Units' combustion sources from May 1 through September 30.

 CT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION

**Ozone Forecast
For the Regulated Community**

The Ozone Forecast for Friday, March 27, 2020 is:

GOOD

No Forecast Dependent Restrictions

Under regulations, permits and orders administered by the Bureau of Air Management, the regulated community uses the ozone forecast to determine whether certain operating restrictions apply for the forecasted day. These restrictions are imposed to limit unnecessary emissions of nitrogen oxides (NOx), which contribute to the development of ozone on high ozone days.

Owners of most emergency engines (usually diesel powered generators) use the ozone forecast to determine whether they can operate for routine, scheduled testing or maintenance. Such operations are restricted on days forecasted to have ozone air quality index (AQI) levels classified as unhealthy for sensitive groups (USG, or worse) anywhere in Connecticut.

A limited number of sources operate under an exemption in RCSA section 22a-174-22e that prohibit operation on days forecasted to reach the USG (or greater) AQI level for ozone.

The current ozone forecast for the regulated community is provided through a pre-recorded telephone message (860-424-4152), and an electronic message provided to the affected sources on request and on DEEP's primary AQI webpage. The web page provides the forecast as a traffic light indicator, with red meaning restrictions are in place for the forecasted day and green meaning that restrictions are not in place for the forecasted day.

For more information, visit the DEEP AQI Web Site:
<http://www.ct.gov/deep/AQI>

DEEP's Air Quality Index: (860) 424-4152
or (800) 249-1234
ALA's air pollution or lung health information: (800) LUNG-USA
State clean air programs: (800) 249-1234
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127

Reminders for an Ozone Action Day

Drive Less

- Walk or ride a bicycle
- Use public transportation
- Combine errands
- Join a carpool or vanpool
- Telecommute



Be a Smart Driver

- Refuel your vehicle after dusk
- Stop refueling when the nozzle clicks off
- Drive at fuel-saving, moderate speeds
- Tune your car regularly
- Avoid idling your vehicle unnecessarily
- Test vehicle emissions on time

In the Yard

- Use electric or hand powered equipment
- Reduce use of garden chemicals
- Delay mowing your lawn or using gas powered garden equipment until evening
- Refrain from recreational wood burning



Around the House

- Set air conditioners to 78°
- Wait 'til 8 to use energy intensive appliances. Use energy efficient products (LED light bulbs, Energy Star rated appliances etc.) Buy environmentally-friendly cleaners Avoid using aerosol products Select water-based paint



Drive Clean

- Consider purchasing or leasing a plug-in electric vehicle



Questions?

