



US EPA Region 4 Policy on Establishing, Discontinuing, or Relocating a State and Local Air Monitoring Station (SLAMS)

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Region 4 Air Monitoring QA Training

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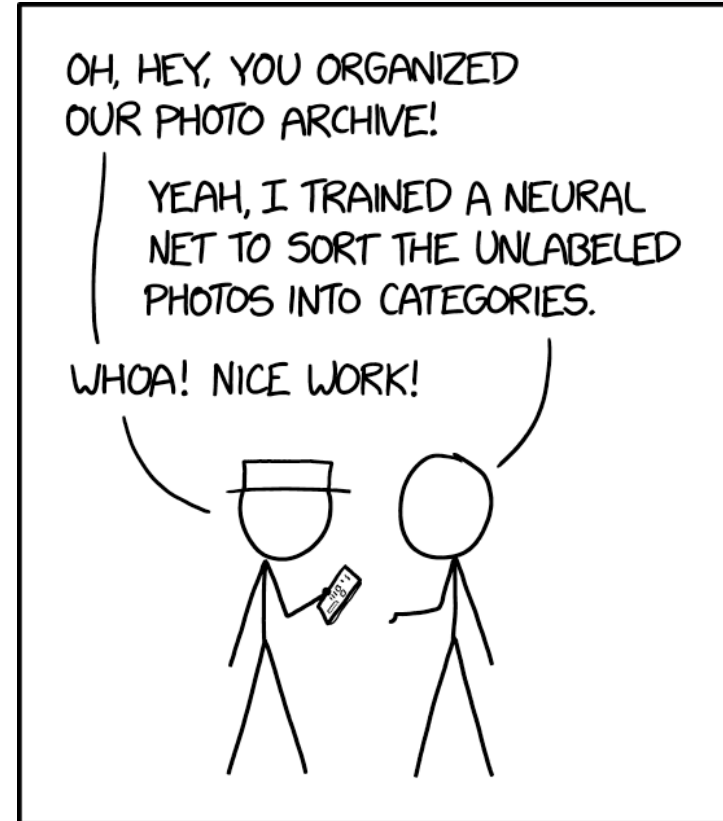
September 19, 2019



The Basics

- Regional guidance issued in 2016 after receiving comments from monitoring agencies
- The guidance is not intended to outline new requirements to create extra burden on agencies. It is intended to consolidate and clarify the existing requirements.
- Intended as a reference document when preparing your network plan (or separate site modification requests)

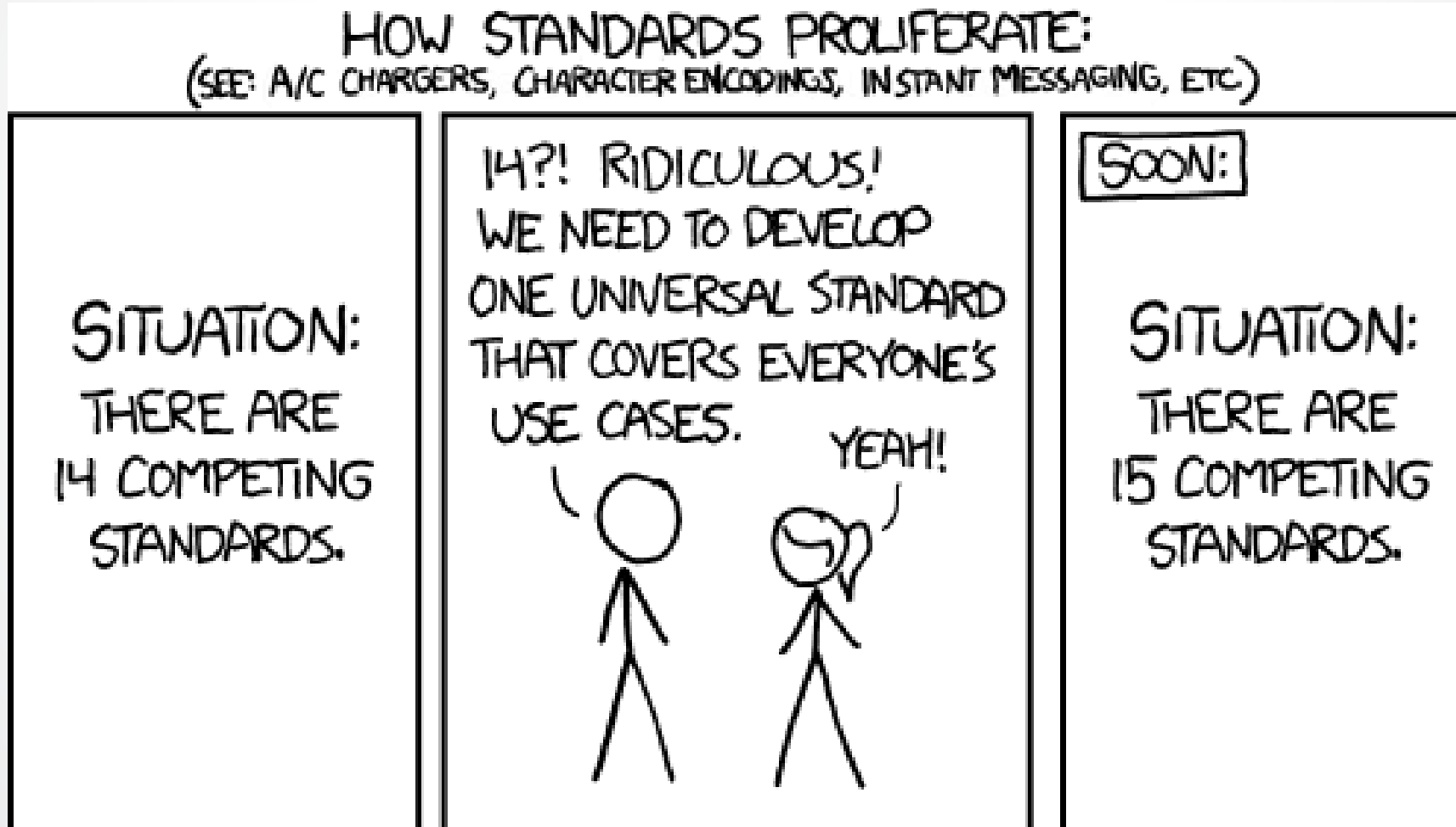
- Covers several types of network modifications:
 - New sites
 - Relocations
 - Discontinuations
- Examples from R4 network plans
 - Good ideas of how to present this information



ENGINEERING TIP:
WHEN YOU DO A TASK BY HAND,
YOU CAN TECHNICALLY SAY YOU
TRAINED A NEURAL NET TO DO IT.

New Site Proposals

What Should You Include?





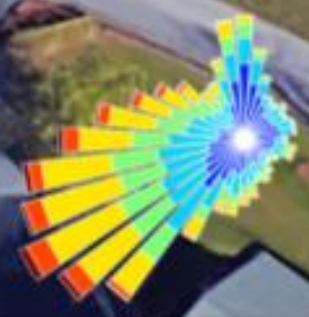
What should you include in a New site proposal?

- Statement of whether the monitor meets Part 58 requirements
- Location (address, coordinates)
- Site photos
- Measurement to any nearby trees or obstructions
 - Horizontal and vertical distance
- Probe height
- AQS ID
- Sampling and analysis methods
- Operating schedules
- Monitoring objective
- Spatial scale
- CBSA represented
- Public comments
- Description of your site selection process
- Map or aerial photos
- Wind rose
- Air modeling (if used)
- How you followed relevant guidance
- Pollutant-specific information

Legend

- 10 meters
- 15.8 meters
- 20 meters
- 34.8 meters
- 39 meters
- Proposed Site

Proposed Site



Google Earth

Map data © 2023



Example: Panorama Measurement of Obstructions



PREF

+036.03292° / -078.90427° 351ft 09:51:09

MAIL

MAP

POSITION - ALTITUDE - TIME



LOG

00

HORIZON

+01.6

ANGLE

+05

ELEVATION

-00.7°

ANGLE

-05

00

+05

● AZIMUTH - BEARING

088° N88E 1564mils MAG

ZERO

A-B

CAL

060

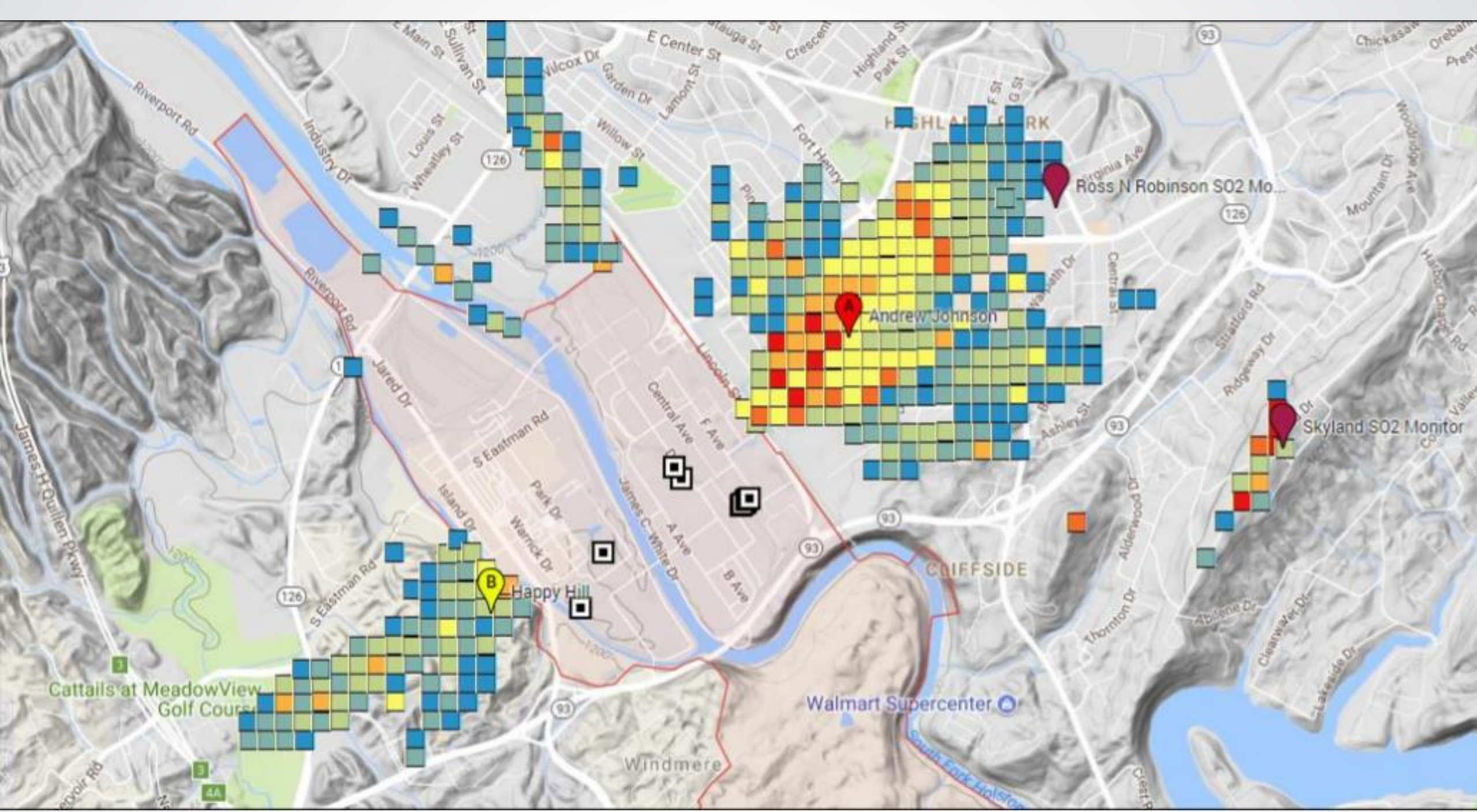


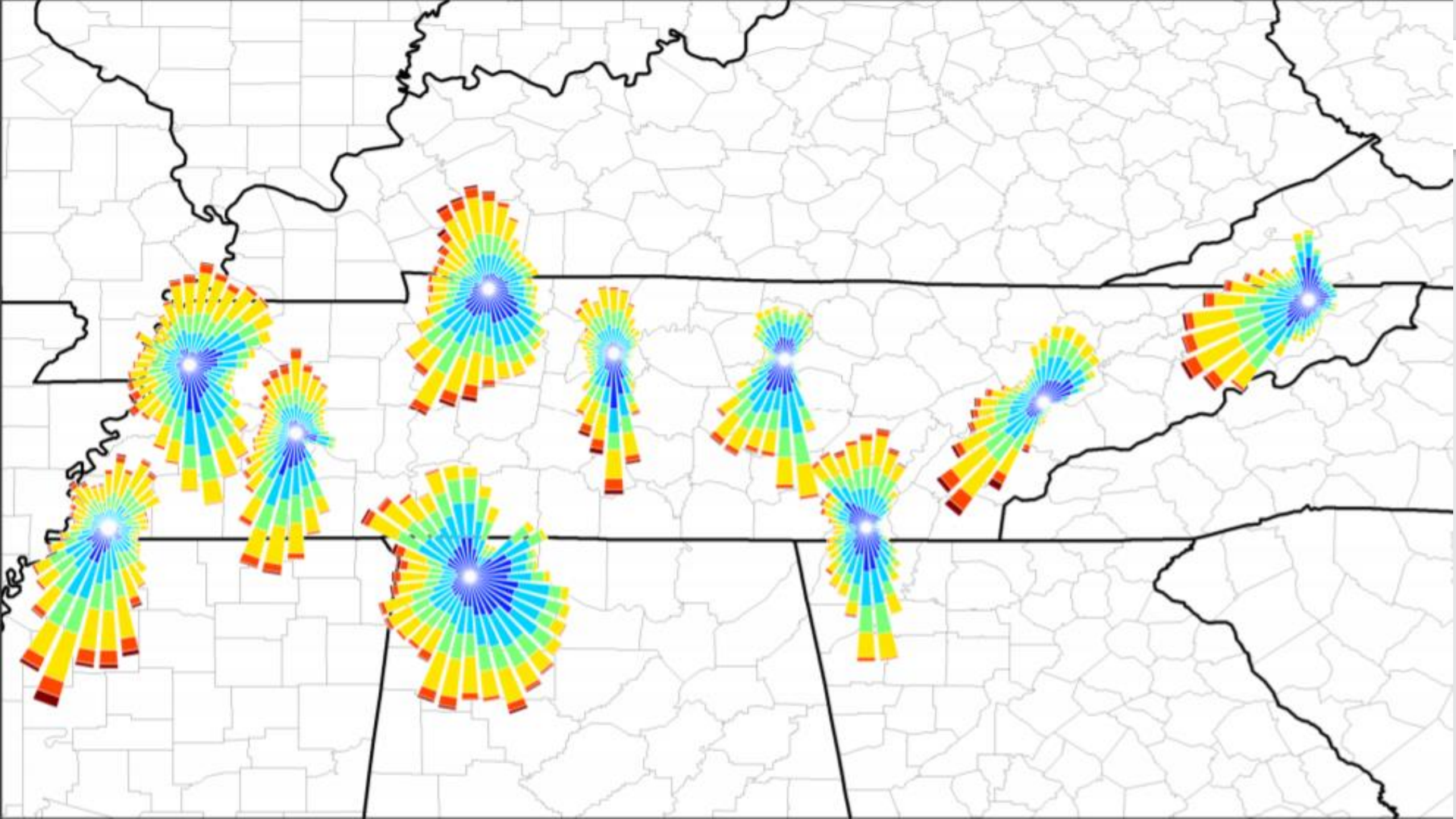
120

LENS

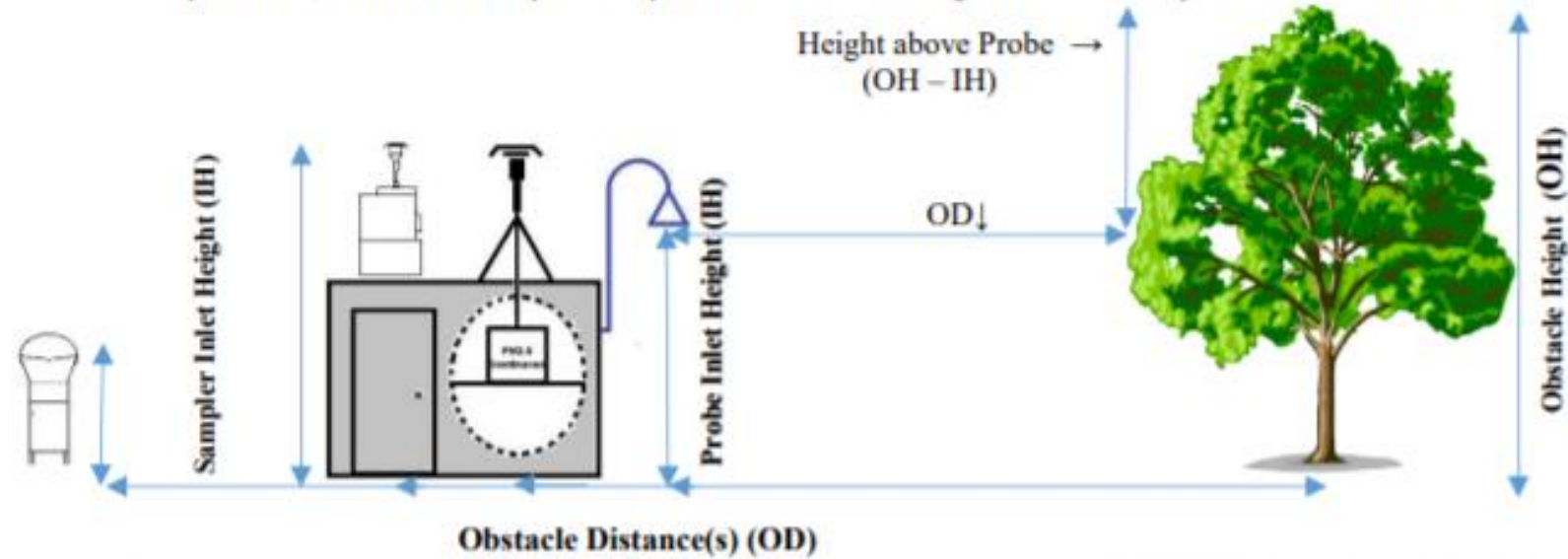
1.0X







OBSTRUCTION(s): Distance from sampler, probe to obstacle, such as a building, must be at least twice the height the obstacle protrudes above the sampler and probe. Sites not meeting this criterion may be classified as middle scale.



All distances in meters

OD MUST be $\geq [2 * (OH - IH)]$

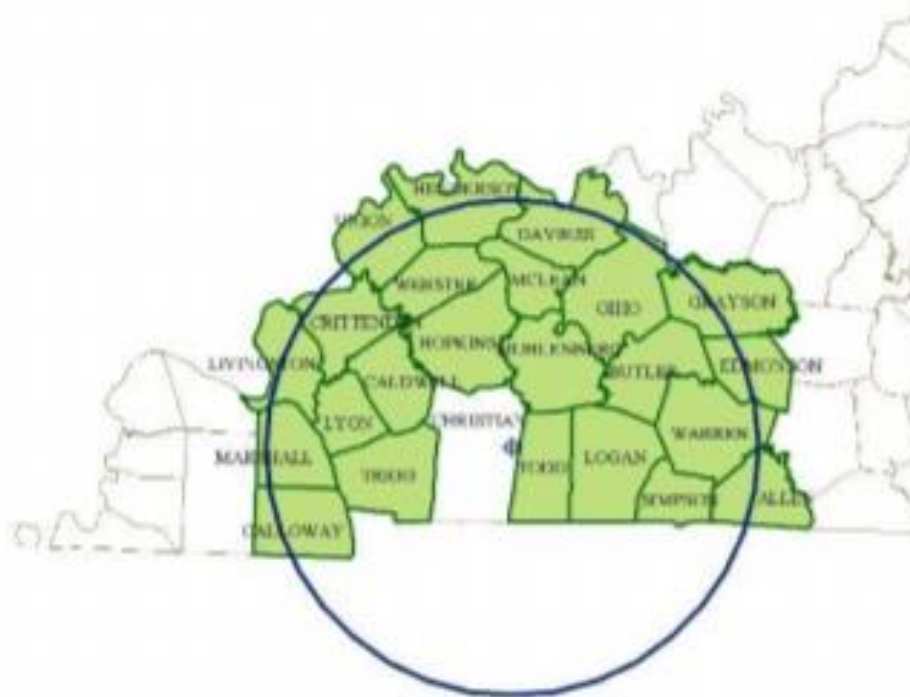
Object	Object Height(OH)	$[2 * (OH - IH)]$	Object Distance
Tree #1	23.6 m	41.2 m	17.4 m
Tree #2	23.6 m	41.2 m	27.4 m
Tree #3	23.6 m	41.2 m	51.0 m
Tree #4	5.8 m	5.6 m	15.4 m
Tree #5	8.4 m	10.8 m	26.4 m
Tree #6	20.0 m	34.0 m	35.4 m
Tree #7	16.8 m	27.6 m	39.0 m

IH is inlet height (3.0 meters is the minimum allowable probe height according to 40 CFR Part 58)

Probe will be > 3 meters and placed on north side of shelter

Tree #1 will be remove during site set up.

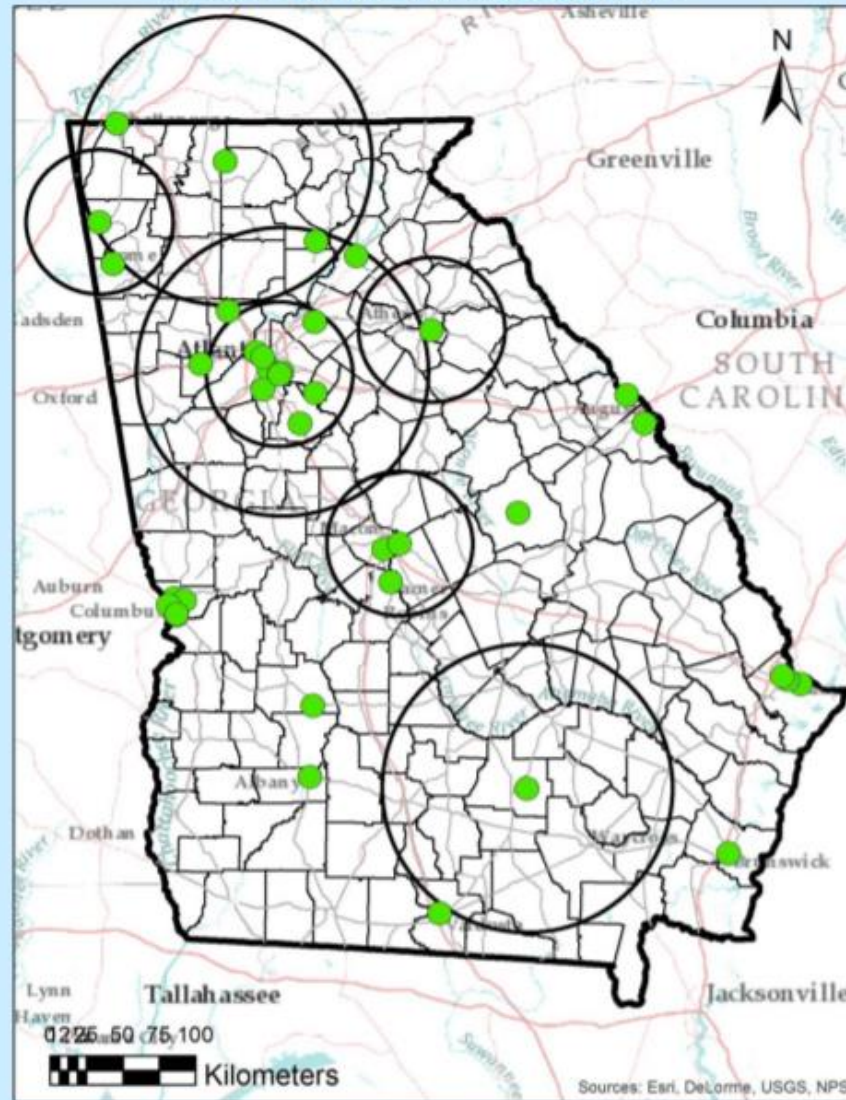
Regional Scale: Ozone, Particulates



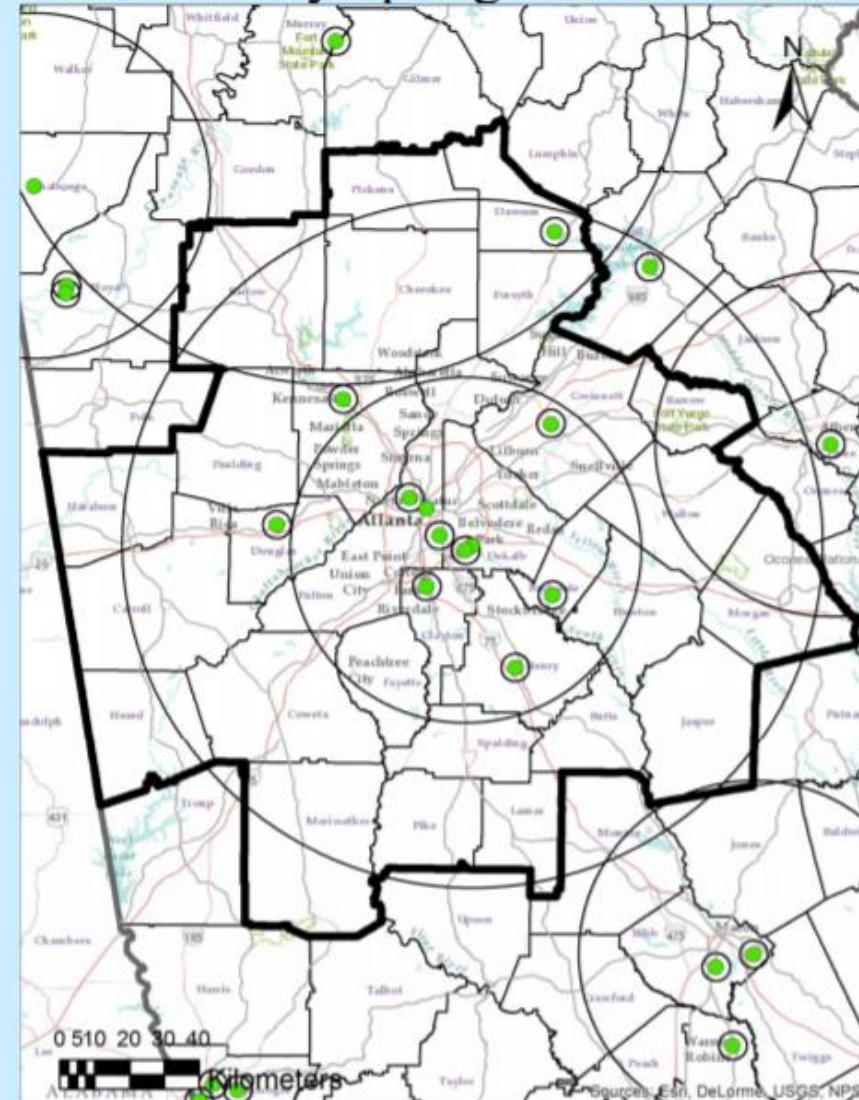
Middle Scale: Particulates and Metals



Spatial Scales of GA AAMP's Ambient Air Monitors



Atlanta-Sandy Springs-Marietta MSA





Site Discontinuation Proposals

What Should You Include?



What should you include in a site Discontinuation request

- Analysis of the data
 - Current design value
 - Recent trends
 - Correlation with nearby sites
 - Probability of exceeding the NAAQS
 - Recent network assessment findings
 - Decision matrices
- Documentation of reasons for site discontinuation
 - Loss of access
 - Siting criteria issues
 - Resources reallocated to other sites
 - ~~Concentrations were too high~~
- How minimum monitoring requirements will continue to be met

Table 3.2 Site and Monitor Evaluation Summaries for Discontinuation

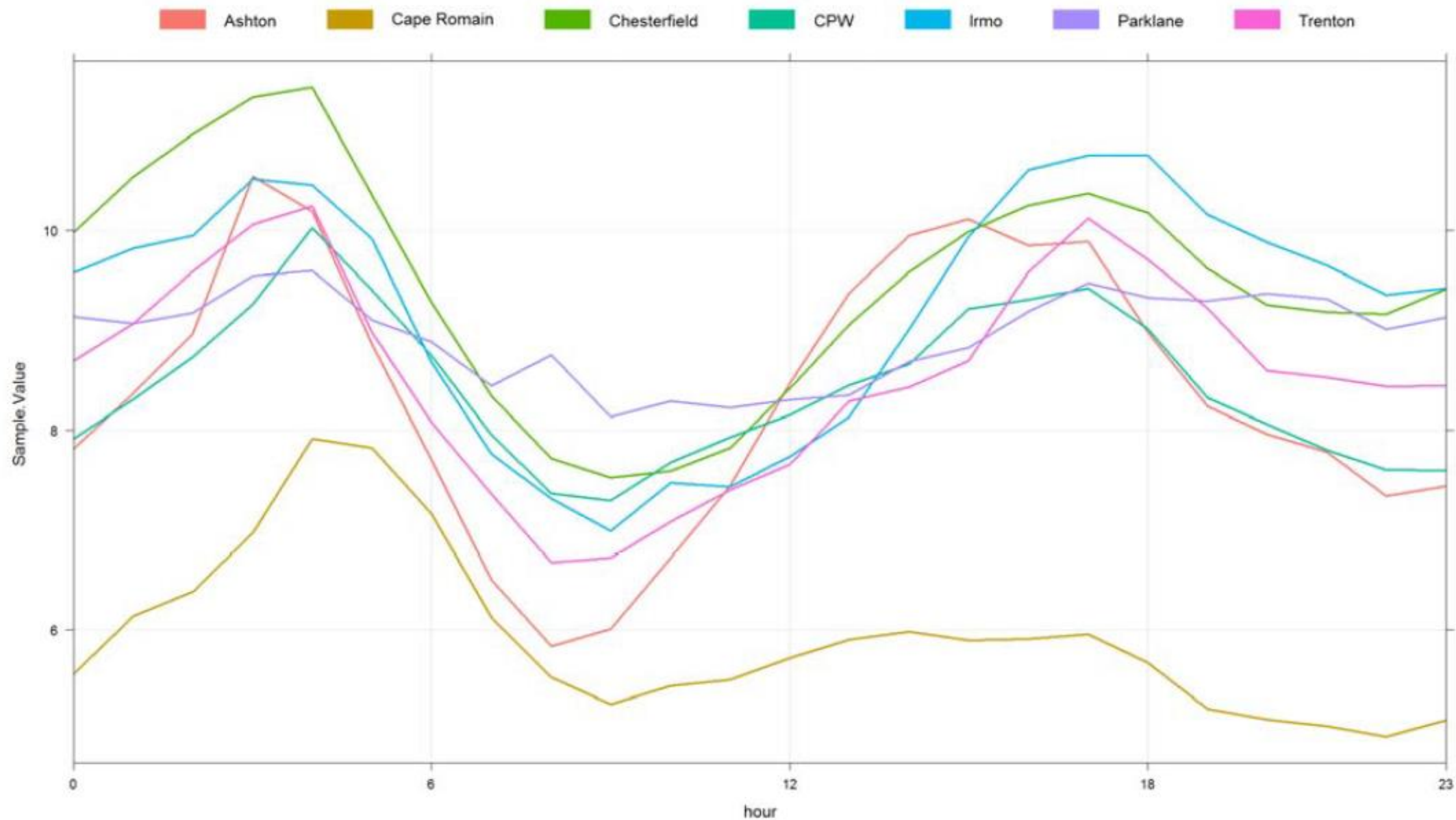
AQS Site #	Site Name	Type	Pollutant	Showed Attainment 2012-2016	Probability <10% Monitor Will Exceed 80% of NAAQS	Monitor Specifically Required by Attainment or Maintenance Plan	Last Monitor in Nonattainment or Maintenance Area	CFR Required	Modification	Comments
12-031-0084	Rosselle	SLAMS	CO	Yes	Yes	No	No	No	CLOSE	See calculation results in Table 3.14
12-031-0097	Fort Caroline	SLAMS	SO ₂	Yes	Yes	No	No	No	CLOSE	See calculation results in Table 3.14
12-103-1009	Sandy Lane	SLAMS	PM _{2.5}	Yes	Yes	No	No	No	CLOSE	See calculation results in Table 3.14
12-103-3004	County Motorpool	SLAMS	PM ₁₀	Yes	Yes	No	No	No	CLOSE	See calculation results in Table 3.14

Table 3.3 40 CFR Part 58.14(c) and Ambient Air Monitoring Network Assessment Guidance Calculations

Site	Site Name	Pollutant	Averaging Period	Design Value					\bar{X}	s	t	n	NAAQS	80% of NAAQS	90% Confidence Interval	Pass
				2013	2014	2015	2016	2017								
12-031-0084	Rosselle	CO ¹	8-hr	0.9	1.1	1.2	1.7	1.4	1.26	0.30	2.13	5	9	7.2	1.55	Yes
			1-hr	1.2	1.6	1.7	4	2.6	2.22	1.12	2.13	5	35	28	3.29	Yes
12-031-0097	Fort Caroline	SO ₂	1-hr	21	21	23	18	14	19.40	3.51	2.13	5	75	60	22.74	Yes
12-103-1009	Sandy Lane	PM _{2.5}	Annual	6.6	6.6	6.5	6.5	6.6	6.56	0.05	2.13	5	12	9.6	6.61	Yes
			24-hr	19	17	16	14	16	16.40	1.82	2.13	5	35	28	18.13	Yes
12-103-3004	County Motorpool	PM ₁₀ ¹	24-hr	36	35	42	31	48	38.40	6.66	2.13	5	150	120	44.74	Yes

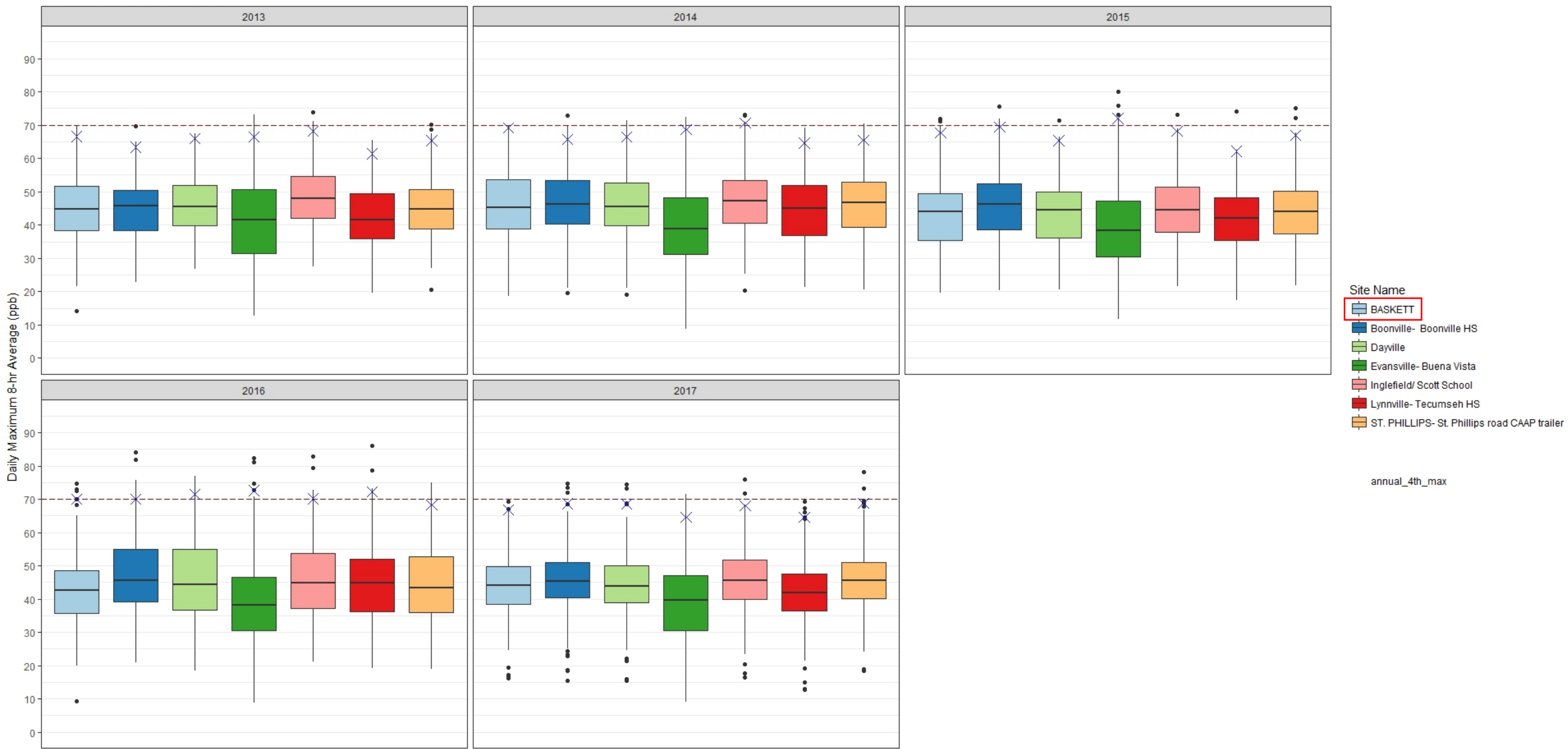
¹ The 1st highest concentration for each year was used in probability calculation.

Figure 13: Comparison of South Carolina PM_{2.5} Continuous Monitors

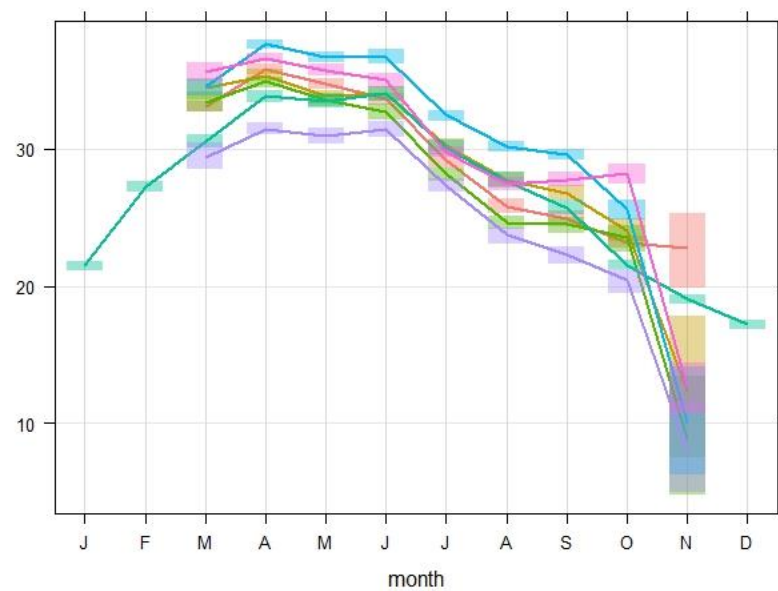
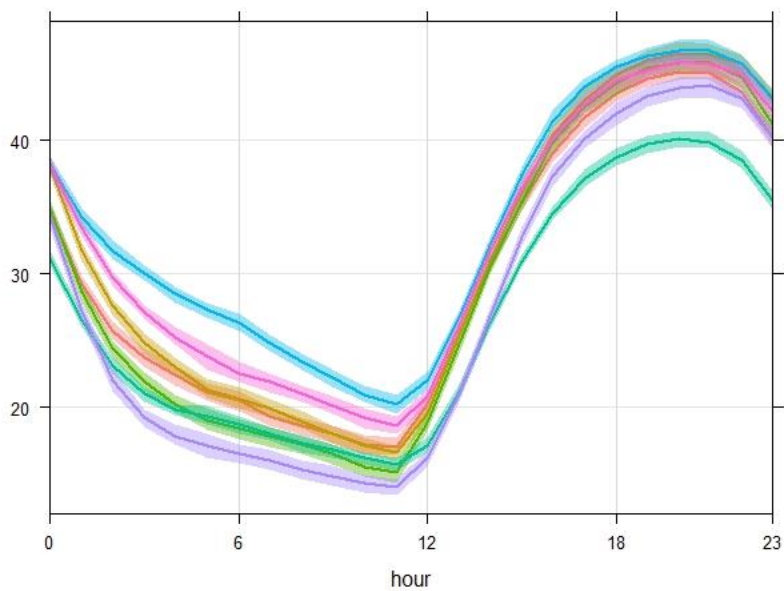
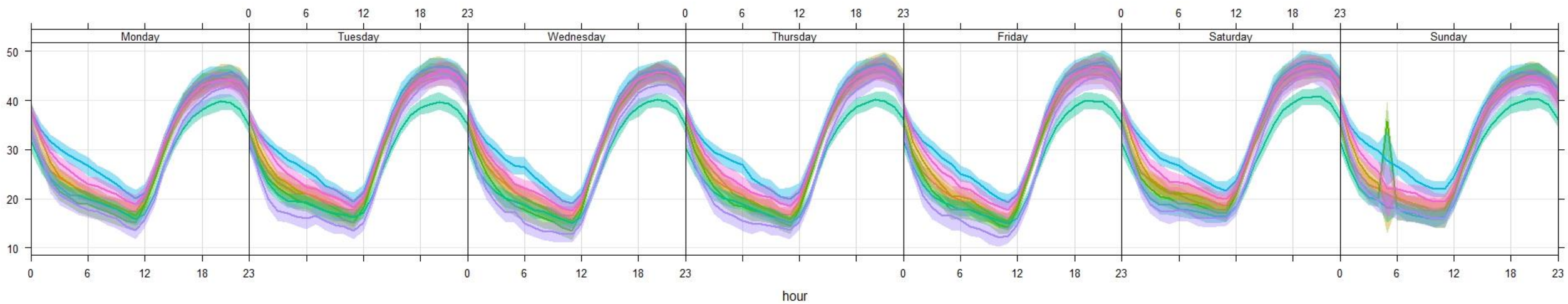


Ozone Daily Max 8 Hour Boxplots by Site Side by Side (2013-2017)

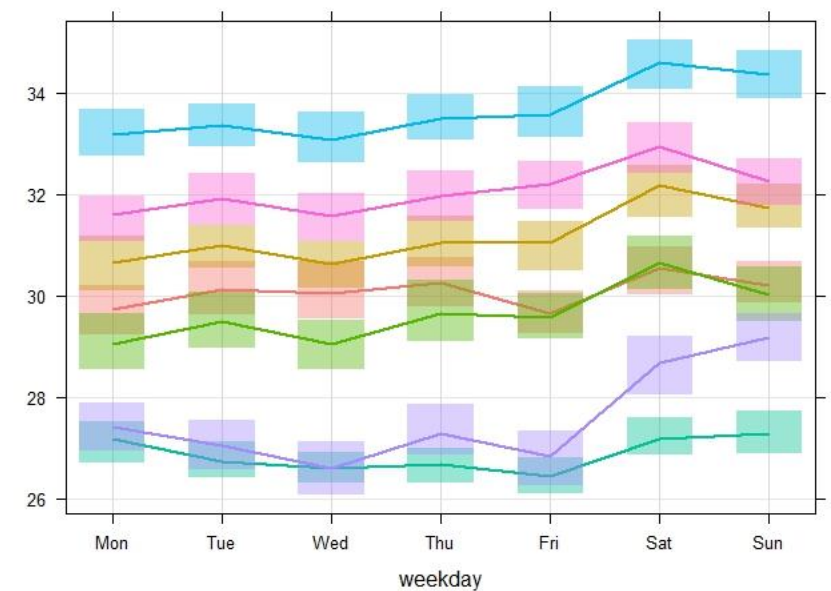
Annual Ozone Boxplots by Site



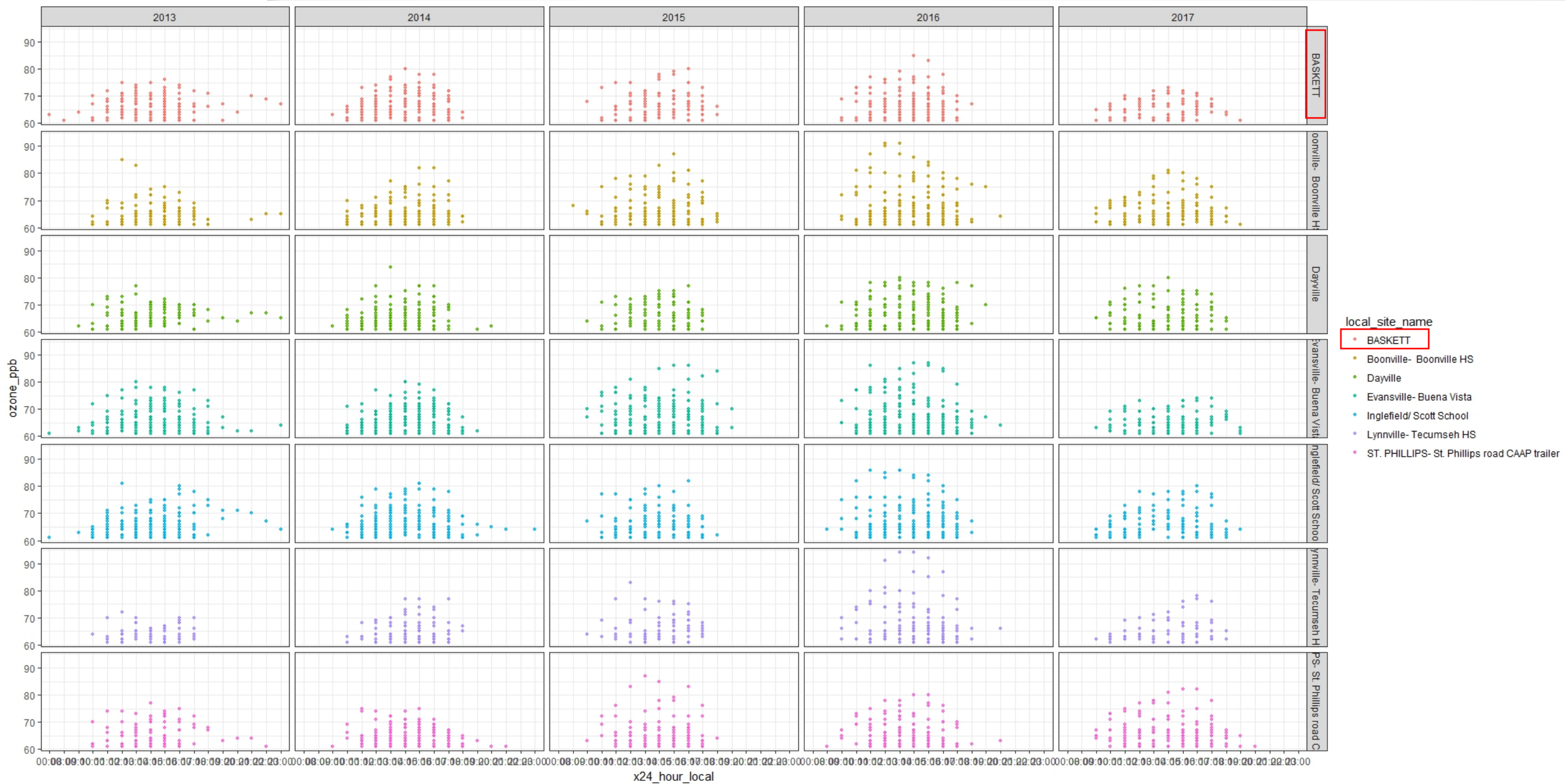
Hourly Ozone Time Variation by Site (2013-2017)



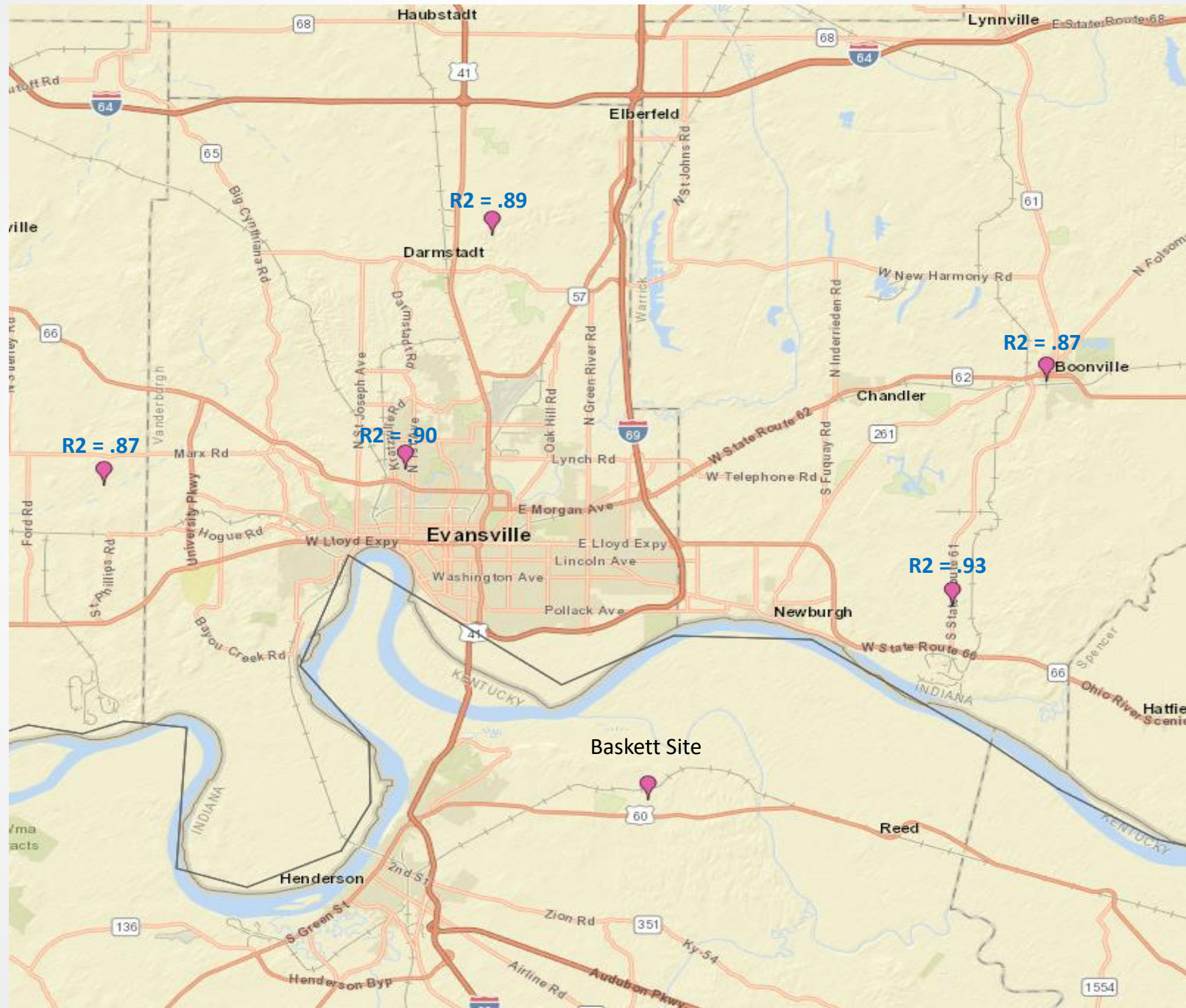
mean and 95% confidence interval in mean



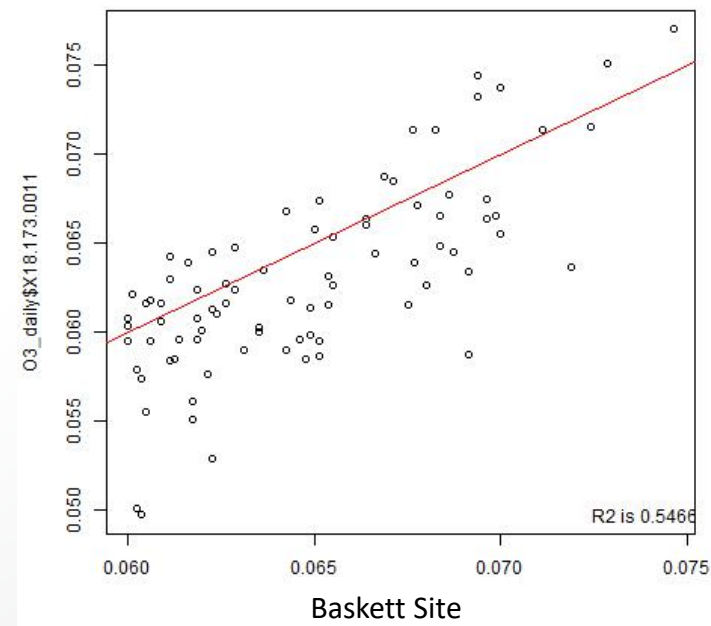
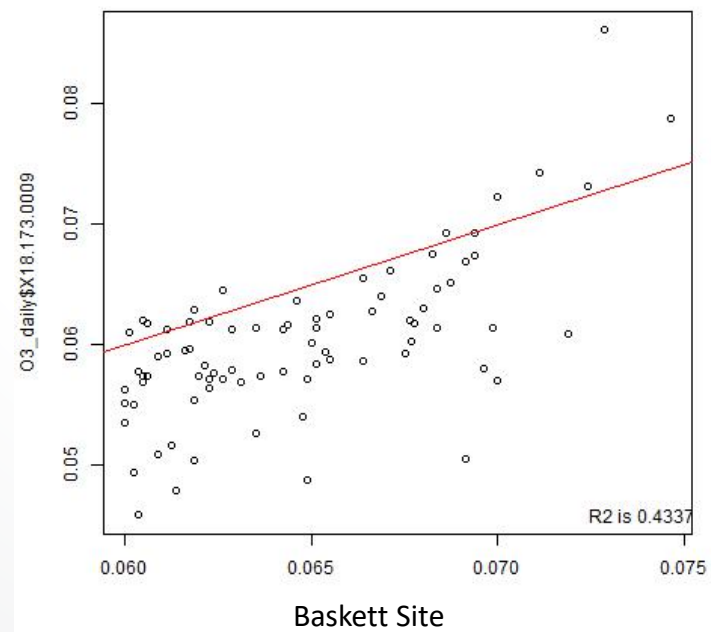
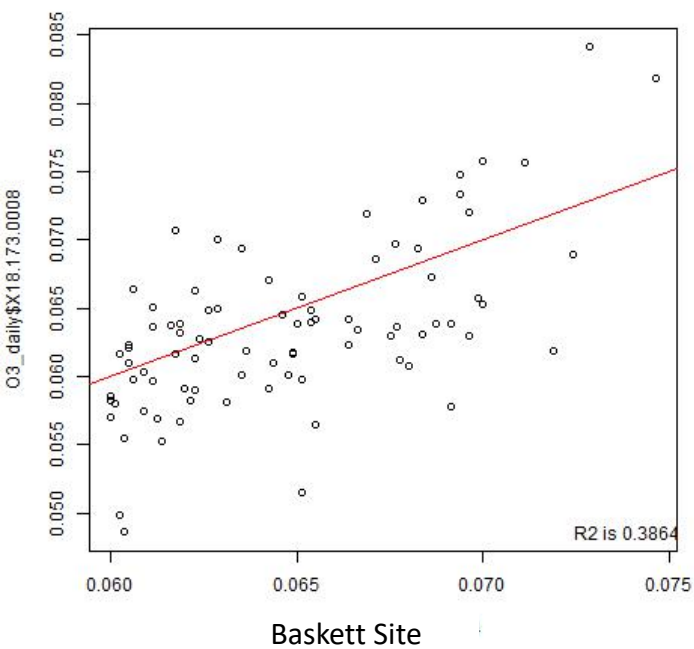
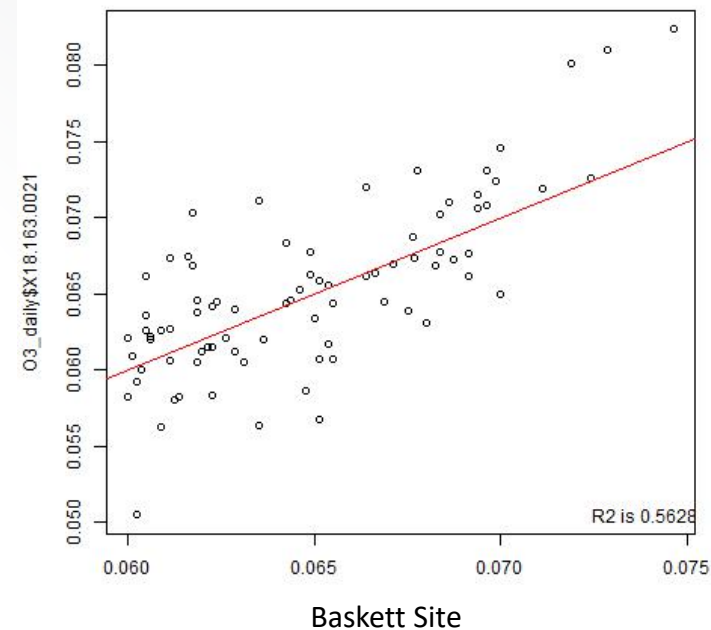
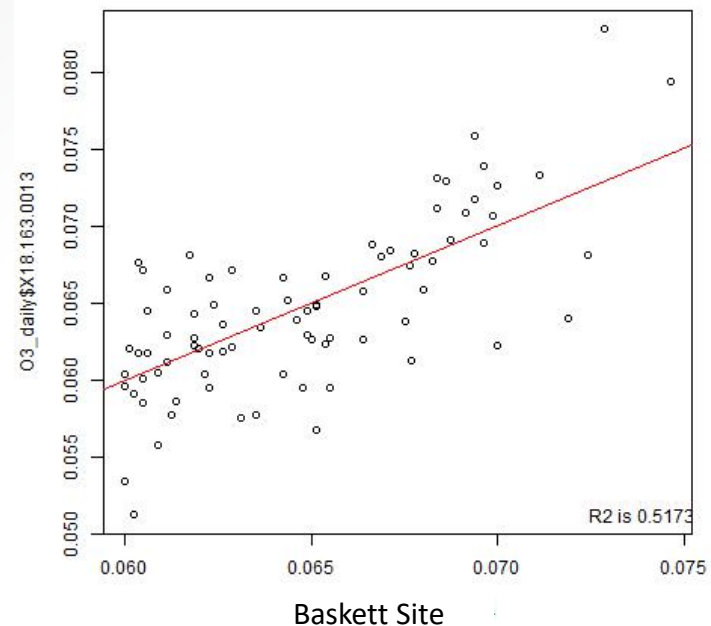
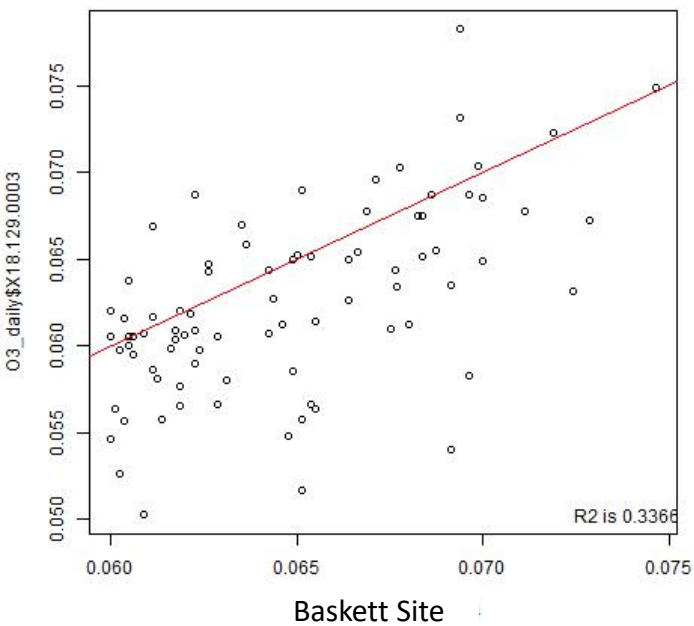
Hourly Ozone Time Variation by Site >60 ppb (2013-2017)



Ozone Daily Max 8 Hour Correlations (2013-2017)



Ozone Daily Max 8 Hour Correlation Plots (>60ppb at Target) (2013-2017)





Site Relocation Proposals

What Should You Include?



What should you include in a site Relocation request

- Previously listed information for the new proposed site, and the discontinued site
- If out of necessity, all discontinuation criteria may not apply
- In most cases, a new AQS ID to preserve site metadata
- Request to approve combined design value calculation using both sites (if applicable)
- Less information may be required for relocations very nearby (e.g. on the same property)



Other Considerations

- Site changes should be submitted in the **annual network plan**
 - Or in an addendum to the plan, which follows the same public comment process
- Please include all relevant information in one document
 - Creates a public record of your decision, and is useful later on.
- Agencies are encouraged to talk to your EPA state contact as soon as you are considering network modifications.
- We encourage submittal of draft proposals for EPA review before public comment period
- Please ensure that network changes are approved before they are implemented

Questions?

Percentage of chart which looks like Pac-man



Looks like Pac-man



Does not look like Pac-man