PM2.5 Monitoring and Network Optimization Options

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For:
State Air Monitoring Working Group
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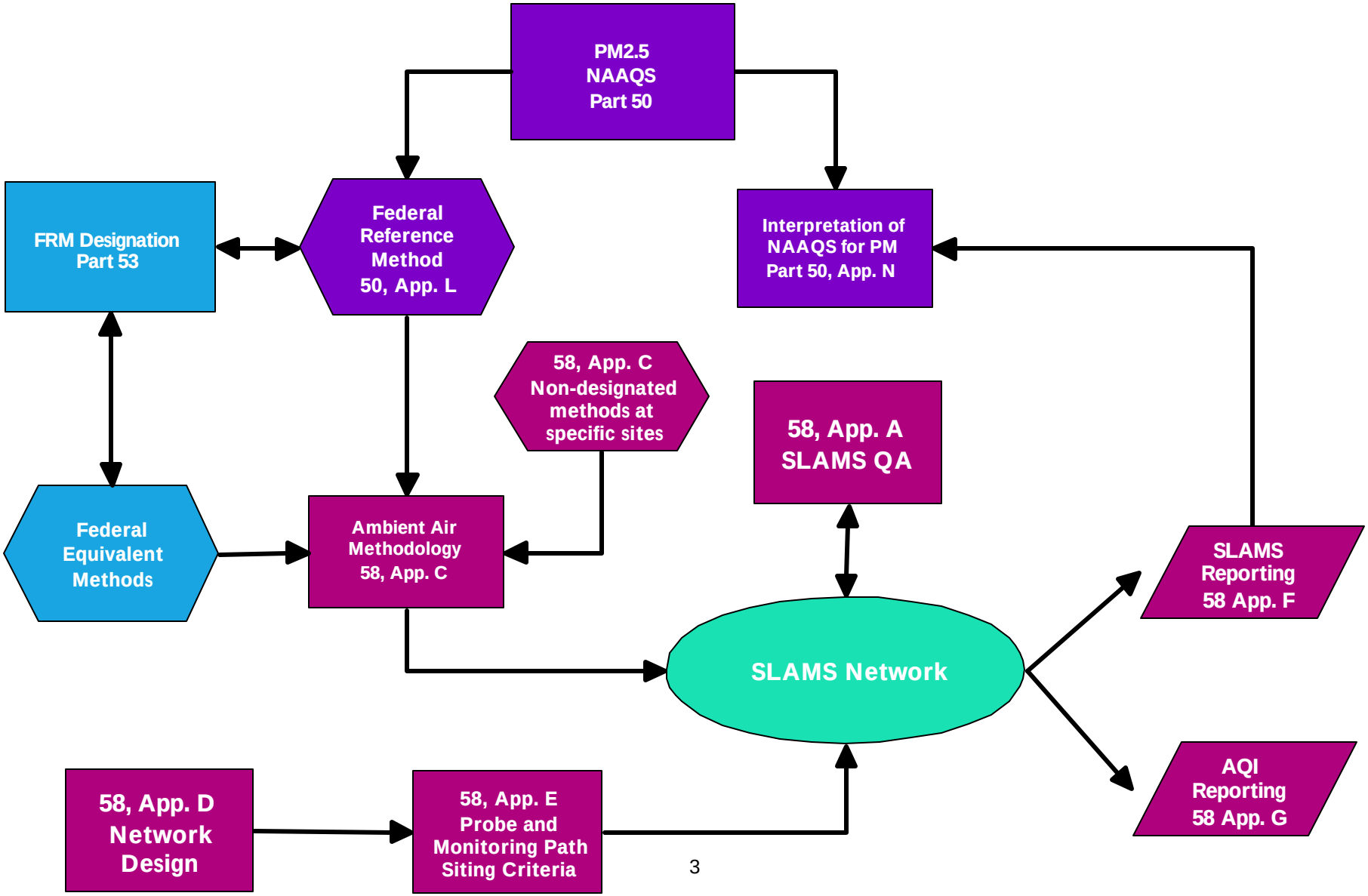
Why do we need PM2.5 Monitoring and Network Optimization?

- Despite many obstacles overcome, operation of PM2.5 monitoring network remains a resource intensive program.
- Do not expect new resources to become available.
- With robust data-set now available for PM2.5 there is lots of opportunity to use the data to tell us how to do things better.
- As the need to implement Speciation and other pollutant measurement programs (e.g.Toxics) increases, efficiencies must be created.
- Monitoring Strategy provides opportunity to modify regulations.
- Our partners (State and local agencies) keep telling us we need to do a better job in how we run this network!

PM2.5 Monitoring Regulatory Framework

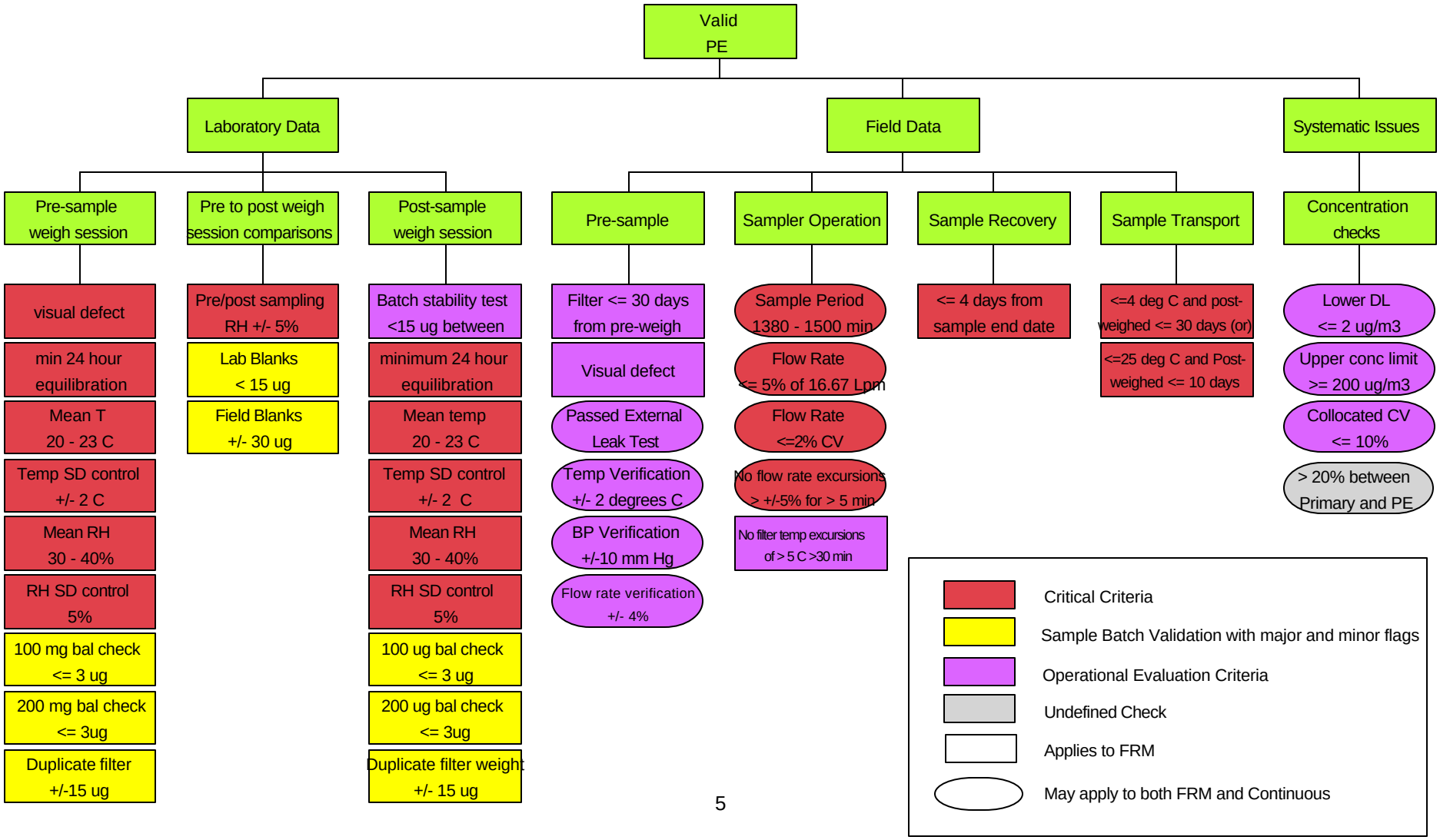


Options to consider in PM2.5 Monitoring and Network Optimization?

- Eliminate/reduce requirements in Federal Reference Method
- Revisit criteria for Federal Equivalent Methods (FEMs)
- Reduce sample frequency requirements where possible
- Retire sampling sites that are redundant or are not needed to protect public health (substantially below the NAAQS)
- Reinvent Correlated Acceptable Continuous (CAC) or site specific equivalent monitors so that PM continuous monitors can be used in place of some but not all FRM's

PM2.5 FRM
Performance Evaluation Program
Validation Matrix

(Incorporating Generic Continuous Monitoring Validation)



Eliminate/reduce requirements in Federal Reference Method

- Already Competed:
  - Eliminated requirement for use of metal containers during transport of filter cassettes
  - Increased tolerance of flow rate verifications form 2% to 4%
  - Memo directing to operate samplers on Standard time year round
  - Memo on filter transport temperature requirement - providing validation flexibility by use of a sliding scale
- Ongoing Field Study - Filter Recovery Extension Study:
  - Designed to determine if sample recovery of exposed filters after 7 days does not result in a violation of the PM2.5 data quality objectives.
  - Field Study Progress
    - RTP, NC site. Field Study complete.
    - Athens, GA.
    - Maine
    - Texas
    - Seattle
    - California
- Future:
  - AIRS reporting requirements from Table L-1.
    - Can one or more of these reporting requirements be eliminated.?
  - Other(s)

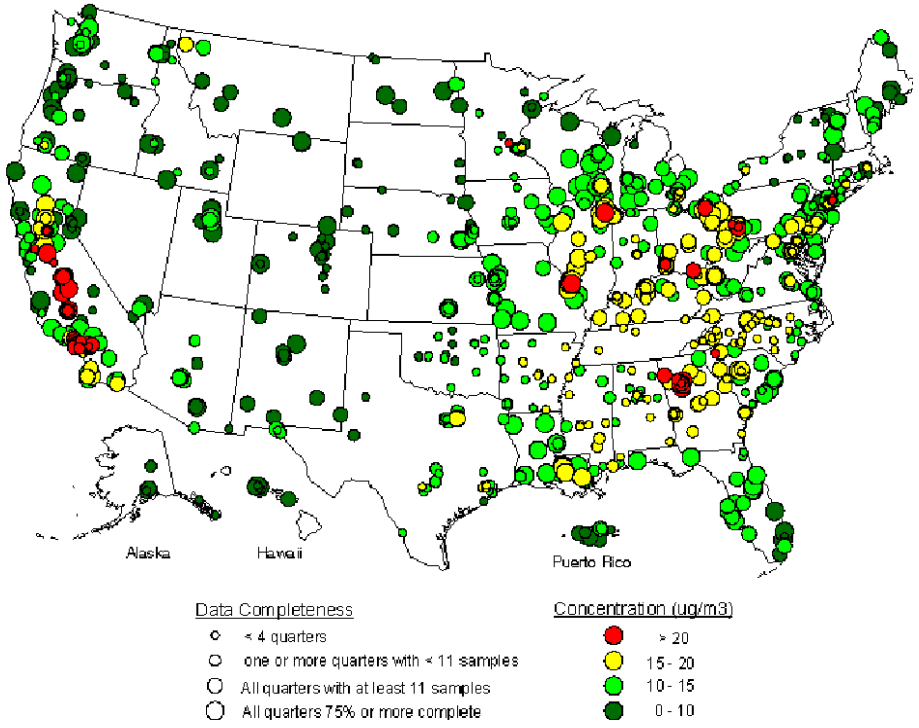
Summary of PM equivalency requirements

Specification	PM10	PM2.5 Class I	PM2.5 Class II	PM2.5 Class III
Acceptable concentration range (ug/m^3)	30-300	10-200	10-200	5-200
Minimum number of test sites	2	1	2	4
Number of candidate method samplers	3	3	3	2
Number of reference method samplers	3	3	3	2
Minimum number of sample sets, each site	10	10	10	30 per quarter (120 total)
Precision	5 ug/M^3 or 7%	2 ug/M^3 or 5%	2 ug/M^3 or 5%	1 ug/M^3 or 5%
Slope of regression	1 +/- 0.1	1 +/- 0.05	1 +/- 0.05	1 +/- 0.05
Intercept of regression	0 +/- 5	0 +/- 1	0 +/- 1	0 +/- 1
Correlation of FRM and candidate method	>= 0.97	>= 0.97	>= 0.97	>= 0.97

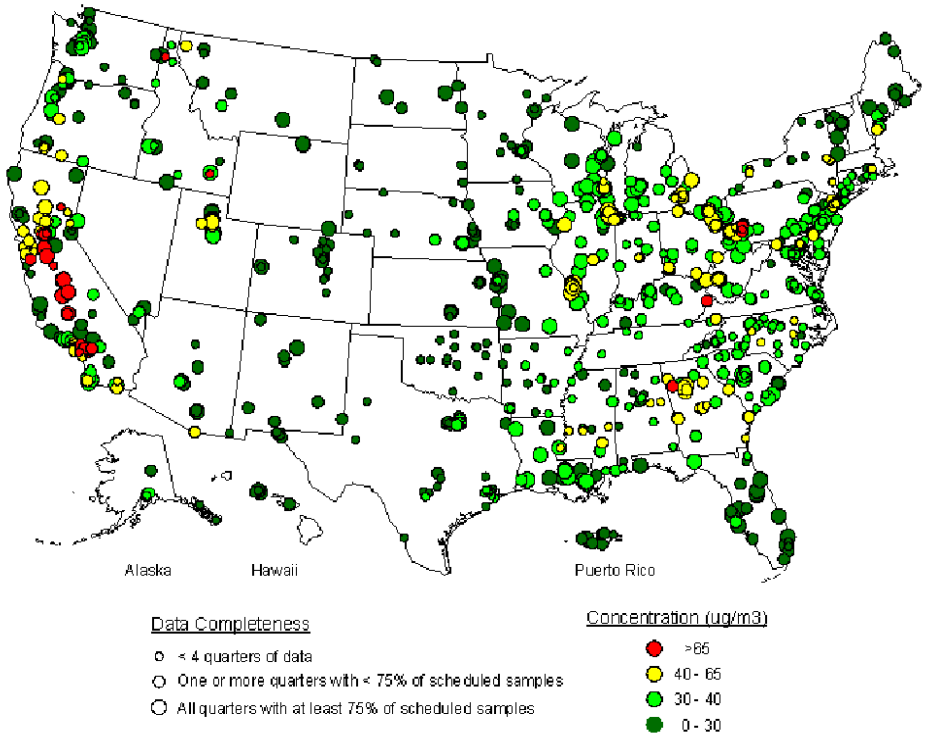
Revisit Equivalency Criteria for FEM's

- Suggested as option at January 2000 CASAC meeting:
  - Some support for relaxation of these criteria
  - Others expressed concern about whether any continuous monitor could meet FEM requirements in all seasons everywhere in the country
- May not want to give perception that we are compromising data quality.

Initial Summary of
1999 Fine Particulate Matter
(PM2.5) Monitoring Data



1999 Annual mean PM2.5 concentrations
(calculated as the mean of each quarterly mean)



1999 98th Percentile 24-hour average PM2.5 Concentrations

Reduce Sample Frequency where applicable

- OAQPS has drafted a memo outlining current available relief for sample frequency
- Sample frequency relief centers on two major areas of relief:
  - Reducing sample frequency in Priority 1 monitoring areas that areas (>80% of the NAAQS) from daily to 1 in 3 if a CAC monitor is approved.
  - Reducing sample frequency in Priority 2 monitoring areas (<80% of the NAAQS) from daily and 1 in 3 to 1 in 6.