Regional Haze SIPs

MARAMA Online SIP Training Workshop
May 23, 2023

Source:
https://hazecam.net/mtwash_gallery.aspx

Outline

1) Regulatory Setting

2) RHR/RH SIP Requirements

- Metrics
- Long-Term Strategy
- Reasonable Progress Goals
- Progress Report
- Monitoring Strategy
- Plan Adequacy
- FLM Coordination

Regulatory Setting

(f) ***Requirements for periodic comprehensive revisions of implementation plans for regional haze.*** Each State identified in § 51.300(b) must revise and submit its regional haze implementation plan revision to EPA by July 31, 2021, July 31, 2028, and every 10 years thereafter. The plan revision due on or before July 31, 2021, must include a commitment by the St n revision, area located v de the State that may be affected by emissions from within the State. To meet the core requirements for regional haze for these areas, the State must submit an implementation plan containing the following plan elements and supporting documentation for all required analyses:

(1) ***Calculations of baseline, current, and natural visibility conditions; progress to date; and the uniform rate of progress.*** For each mandatory Class I Federal area located within the State, the State must determine the following:

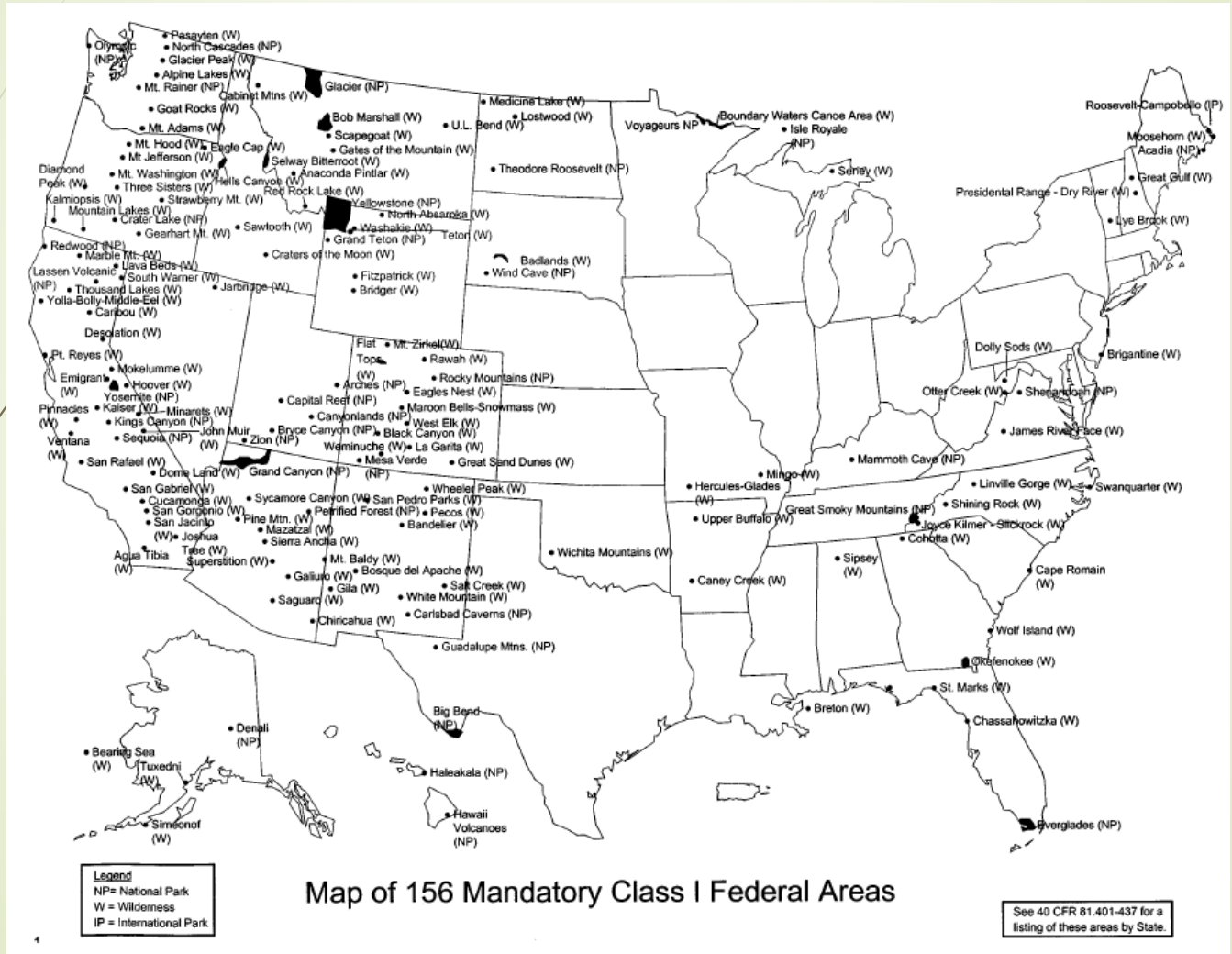
(i) ***Baseline visibility conditions for the most impaired and clearest days.*** The period for establishing baseline visibility conditions is 2000 to 2004. The State must calculate the baseline visibility conditions for the most impaired days and the clearest days

Clean Air Act

- 169A:

"Congress hereby declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution."

Class I Areas



Source: Federal Register, Vol. 64, No. 126, 7/1/99

Regional Haze Rule (RHR)

- 40 CFR 51.308

https://www.law.cornell.edu/cfr/text/40/51.308

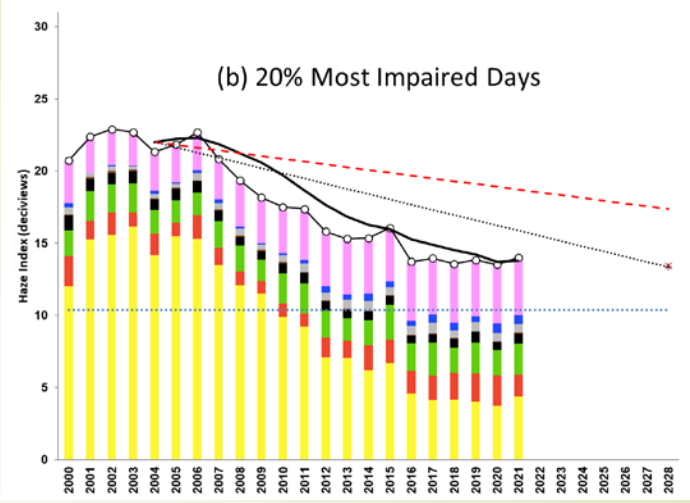
- Promulgated in 1999
- Amended in 2005 and 2017

Regional Haze Rule

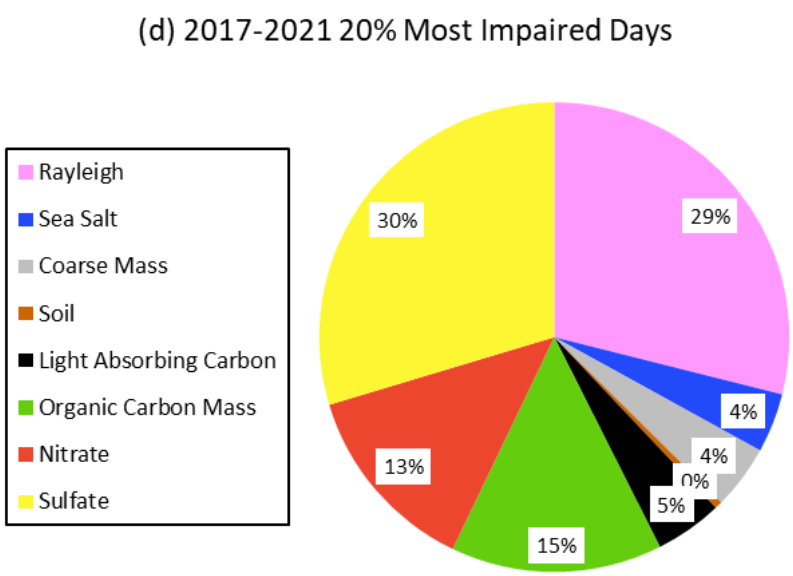
- Overarching goal is to achieve natural conditions at Class I areas by 2064

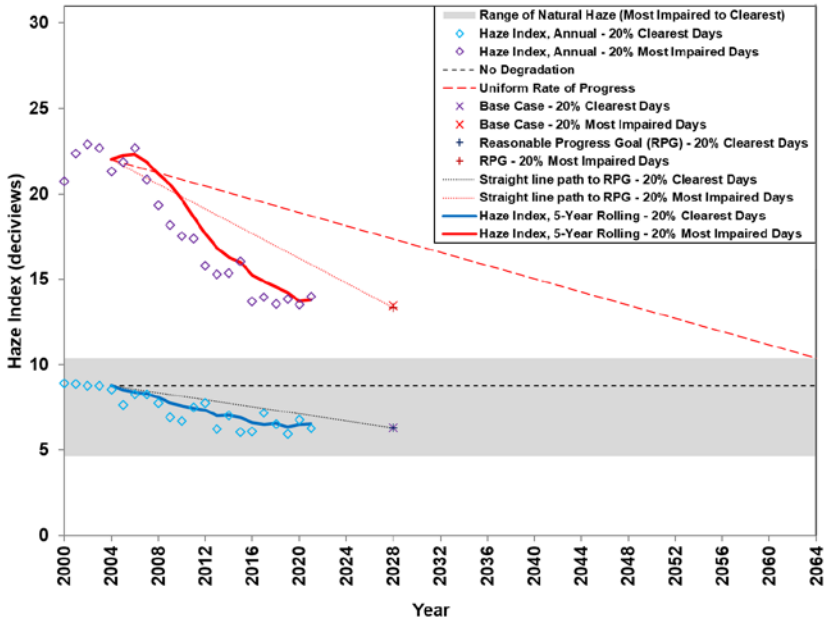
- Spells out requirements for:

✓ Regional Haze SIPs
✓ Progress Reports



RHR/RH SIP Requirements: Metrics





51.308(f)(1) Requirements

- Baseline Visibility
- Current Visibility
- Natural Visibility
- Progress to Date
- Uniform Rate of Progress

Baseline Visibility

Class I Area (MANEVU Region)	State/ Province	20% Most Impaired	20% Clearest
Acadia National Park	ME	22.01	8.78
Moosehorn Wilderness Area	ME	20.66	9.16
Roosevelt Campobello Int'l Park	NB		
Great Gulf Wilderness Area	NH	21.64	7.51
Presidential Range - Dry River	NH		
Brigantine Wilderness Area	NJ	27.43	14.33
Lye Brook Wilderness Area	VT	23.57	6.37

Notes:
1) Haze indexes in deciviews.
2) Baseline period is 2000-2004.
3) Moosehorn/Roosevelt Campobello and Great Gulf/Presidential Range share IMPROVE monitors.

Current Visibility

- 20% Most Impaired & Clearest Days

- Should reflect the most recent 5-year average available at the time the RH SIP is being drafted

- Can be obtained from IMPROVE: http://vista.cira.colostate.edu/Improve/rhr-summary-data/

Natural Visibility

Class I Area (MANEVU Region)	State/ Province	20% Most Impaired	20% Clearest
Acadia National Park	ME	10.39	4.66
Moosehorn Wilderness Area	ME	9.97	5.02
Roosevelt Campobello Int'l Park	NB		
Great Gulf Wilderness Area	NH	9.78	3.73
Presidential Range - Dry River	NH		
Brigantine Wilderness Area	NJ	10.69	5.52
Lye Brook Wilderness Area	VT	10.23	2.79

Notes:
1) Haze indexes in deciviews.
2) Moosehorn/Roosevelt Campobello and Great Gulf/Presidential Range share IMPROVE monitors.

Progr

To show progress to date, fill in the empty table cells with the most recent 5-year average data available at the time the SIP is being drafted. For example, for the 2028-2038 planning period, the most appropriate data set would be 2023-2027, if available.

Hypothetical example for the 2028-2038 Planning Period

20% Most Impaired Days

Baseline Conditions	Previous Planning Period (2018-2028)	Current Planning Period (2028-2038)	Natural Conditions
22.01	14.89		10.39

20% Clearest Days

Baseline Conditions	Previous Planning Period (2018-2028)	Current Planning Period (2028-2038)	Natural Conditions
8.78	6.52		4.66

Uniform Rate of Progress

The URP, or glidepath, is the amount of visibility reduction needed per year to go from 2000-04 Baseline to Natural Conditions by 2064 for the 20% Most Impaired days

Hypothetical Example:

20% MI Baseline = 22.01
20% MI Natural Conditions = 10.39

URP = (22.01 – 10.39)/60 years = 0.19 dv/yr

RHR/RH SIP Requirements: Long-Term Strategy

Long-Term Strategy

- 51.308(f)(2):

"The long-term strategy must include the enforceable emissions limitations, compliance schedules, and other measures that are necessary to make reasonable progress."

Long-Term Strategy

- Emissions Reduction Measures and Four Factor Analysis
- Consultation
- Technical Basis
- Additional Factors

Emissions Reduction Measures and Four Factor Analysis

- Costs of compliance
- Time necessary for compliance
- Energy and non-air quality environmental impacts of compliance
- Remaining useful life of potentially affected source(s)

Consultation

- 51.308(f)(2)(ii):

"The State must consult with those states that have emissions that are reasonably anticipated to contribute to visibility impairment in the mandatory Class I Federal area to develop coordinated emission management strategies containing the emissions reductions necessary to make reasonable progress."

Consultation

- Identify contributing states
  - ✓ Using technical screening methods, such as emissions over distance (Q/d) or photochemical modeling
- Consultation
  - ✓ In-person meetings
  - ✓ Webinars
  - ✓ Conf. calls
- Documentation

Technical Basis

- 51.308(f)(2)(iii):

"The State must document the technical basis, including modeling, monitoring, cost, engineering, and emissions information, on which the State is relying to determine the emission reduction measures that are necessary to make reasonable progress in each mandatory Class I Federal area it affects."

Additional Factors

- 51.308(f)(2)(iv)

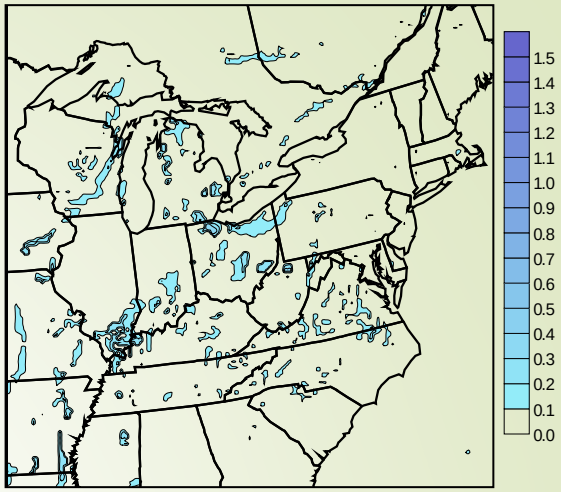
✓ Emissions reductions due to ongoing air pollution control programs

✓ Measures to mitigate the impacts of construction activities

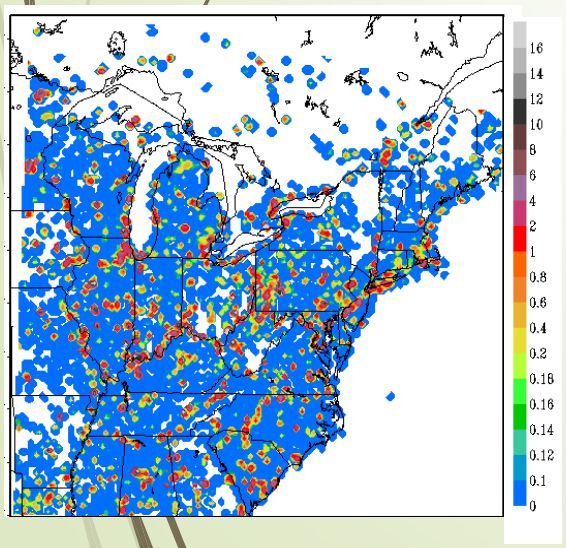
✓ Source retirement and replacement schedules

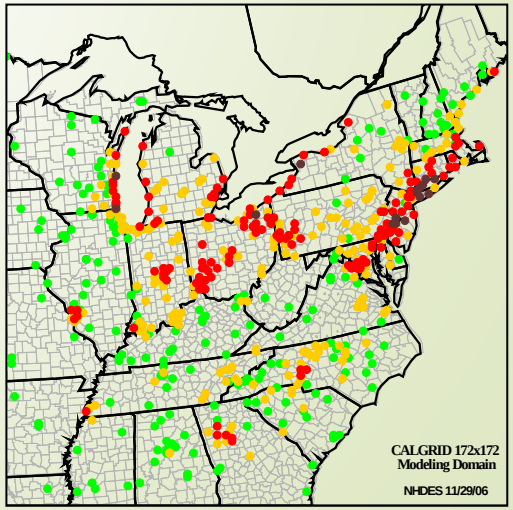
✓ Basic smoke management practices for ag and wildland prescribed fires

✓ The anticipated net affect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the long-term strategy



RHR/RH SIP Requirements: Reasonable Progress Goals





Reasonable Progress Goals

- 51.308(f)(3):

"A state in which a mandatory Class I Federal area is located must establish reasonable progress goals that are projected to be achieved by the end of the applicable implementation period..."

Reasonable Progress Goals

- 51.308(f)(3):

"...as a result of those enforce-able...measures required under paragraph (f)(2)...as well as implementation of other requirements of the CAA."

Reasonable Progress Goals

- Expressed in deciviews

- Provide for visibility improvement for the most impaired days and ensure no degradation for the clearest days

- Reflect the enforceable measures derived under 51.308(f)(2), LTS

Reasonable Progress Goals

- Reflect projected visibility conditions for the end of the planning period (e.g., 2028-2038)

- Established with photochemical modeling

RHR/RH SIP Requirements: Progress Report

Presidential Range/Dry River Class I area

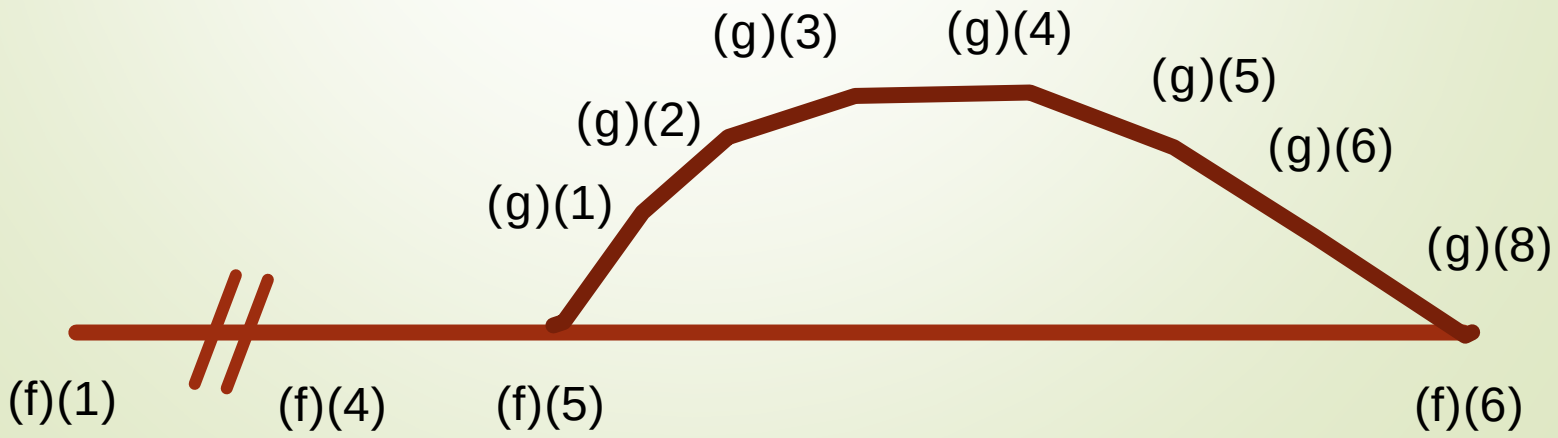
Photo credits: Felice Janelle, NHDES (retired)

Great Gulf Class I area

Progress Report

- 51.308(f)(5):

"So that the plan revision will serve also as a progress report, the State must address…the requirements of paragraphs (g)(1) through (5)…"



Progress Report Requirements

- Status of implemented measures (g)(1)
- Emissions reductions achieved (g)(2)
- Visibility conditions and changes (g)(3)
- Change in emissions (g)(4)
- Assessment of sig. changes in emissions (g)(5)
- Assessment of current plan elements and strategies (g)(6)
- Assessment of smoke management plan (g)(8)

IMPROVE sampling equip. at NHDES Londonderry site, which is an IMPROVE Protocol site

RHR/RH SIP Requirements: Monitoring Strategy

IMPROVE sampling equip. for NH's Class I areas

NHDES Peterborough site which is an IMPROVE Protocol site

Monitoring Strategy and Other Plan Requirements

- 51.308(f)(6):

"The State must submit…a monitoring strategy for measuring…regional haze visibility impairment that is representative of all mandatory Class I Federal areas within the State."

RHR/RH SIP Requirements: Plan Adequacy

Determination of Plan Adequacy

- 51.308(h):

"At the time the State is required to submit any progress report..., the State must take one of the following actions..."

Determination of Plan Adequacy

1) The plan achieves the established goals for visibility improvement and emissions reductions

"Negative declaration"

Determination of Plan Adequacy

2) The plan is or may be inadequate due to emissions from another state(s) that participated in a regional planning process

The state must collaborate with the other state(s) to address the plan's deficiencies

Determination of Plan Adequacy

3) The plan is or may be inadequate due to emissions from another country

The state must notify EPA and provide available information

Determination of Plan Adequacy

4) The plan is or may be inadequate due to emissions from within the state

The state must revise its plan within one year to address the deficiencies

RHR/RH SIP Requirements: FLM Coordination

FLM Coordination - 51.308(i)

- State must provide opportunity for FLM consultation on plan revision
- Early enough so that FLM input can meaningfully inform the LTS
- "Early enough" no later than 120 days prior to public hearing/comment
- But no less than 60 days prior

Thank You

Questions?

David Healy
New Hampshire Dept. of Env. Services
david.s.healy@des.nh.gov
603-271-0871

NHDES