Mitigation Measures in Missoula County

A look at smoke-readiness in Missoula County, Montana

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Clean Air Spaces: A Web Summit
Hosted by the U.S. EPA

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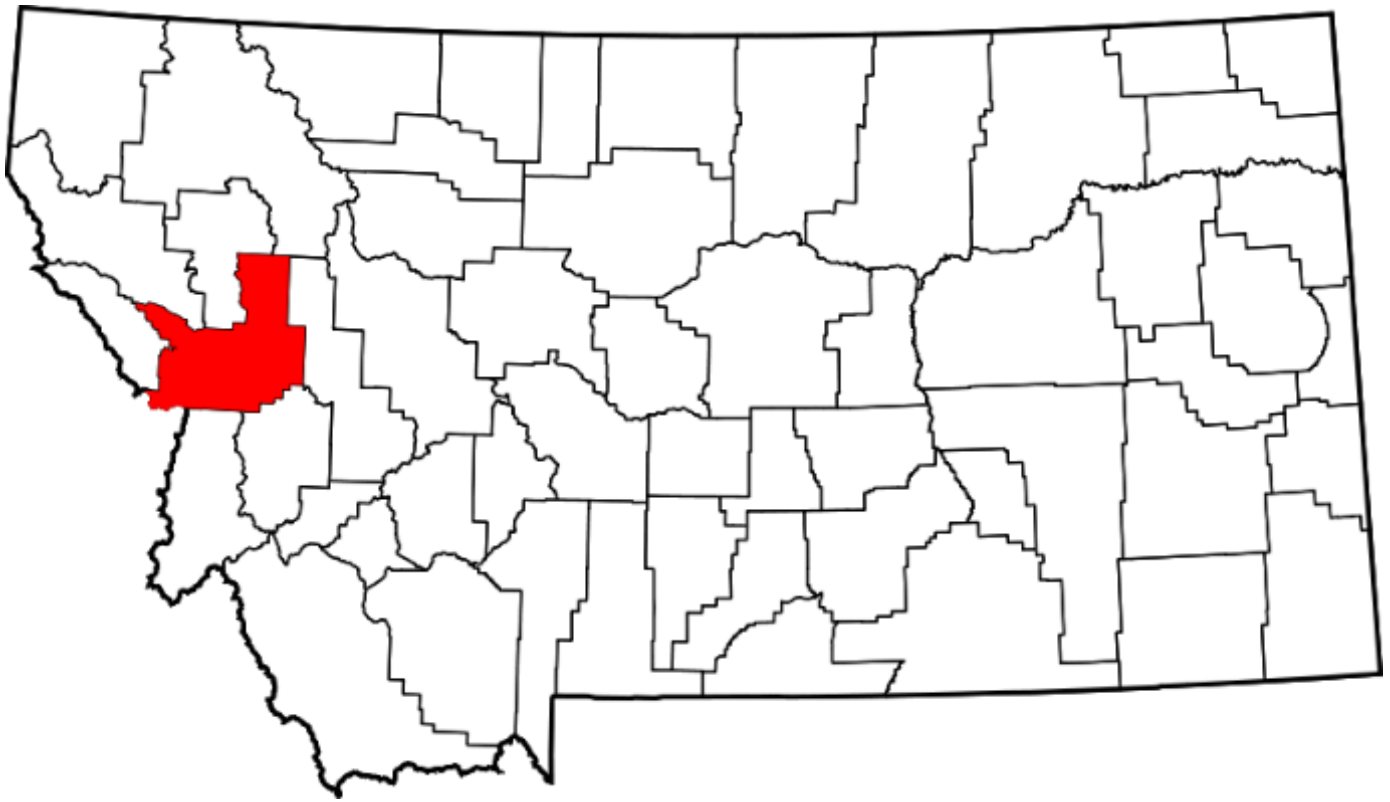
Missoula County

~**117,000** Residents | **2,618** mi^2 | **2** Air Quality Specialists



What is a smoke-ready community?

A community in which public buildings have filtration for wildfire smoke

A community whose residents understand the health risks associated with wildfire smoke exposure and have access to tools to protect themselves

A community with the resources on hand to help vulnerable and underserved residents

Wildfire Public Health Strategies

Traditional

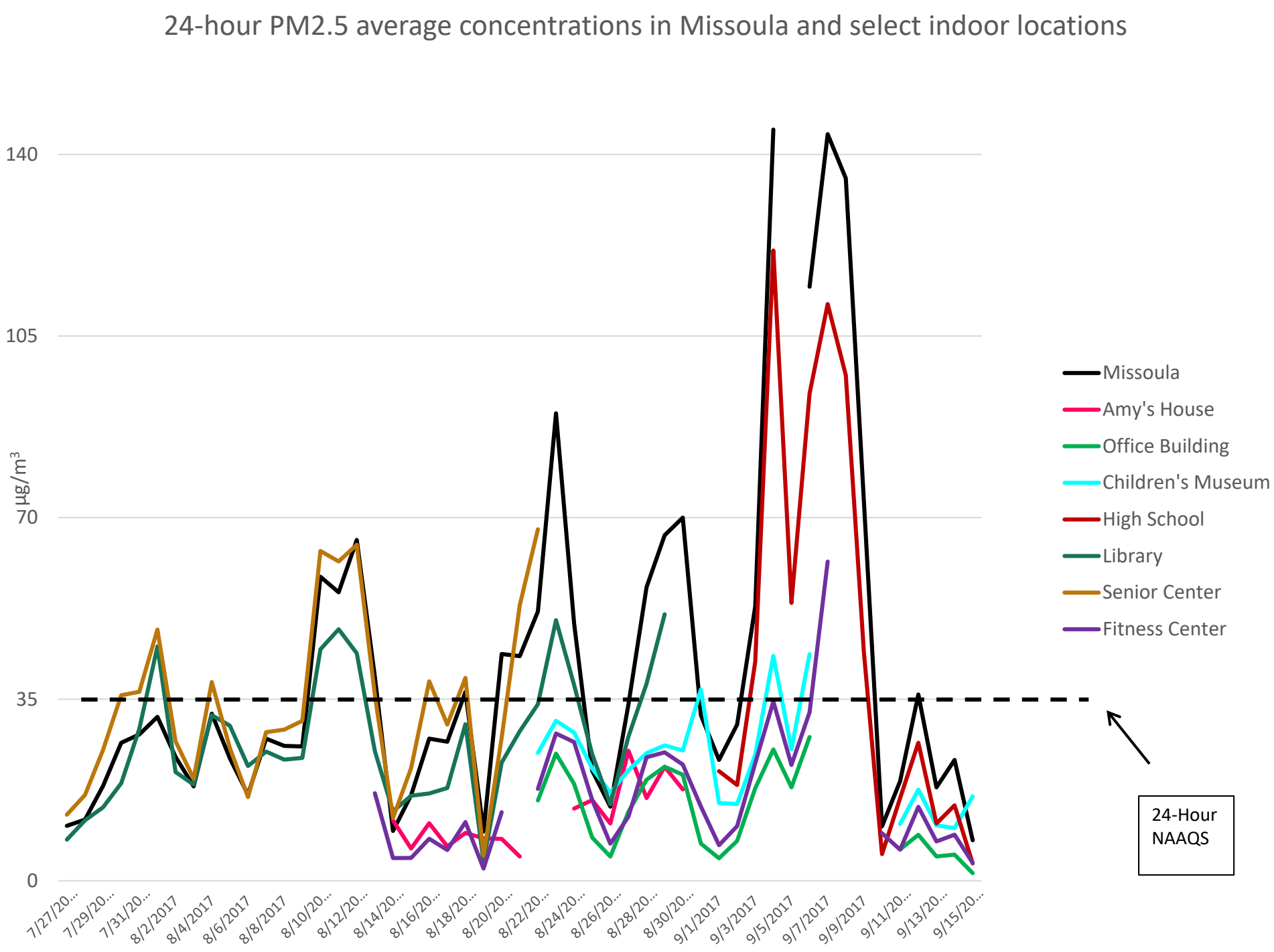
- Monitor air quality
- Issue health advisories
- Emphasize reducing activity levels and staying inside

New Direction

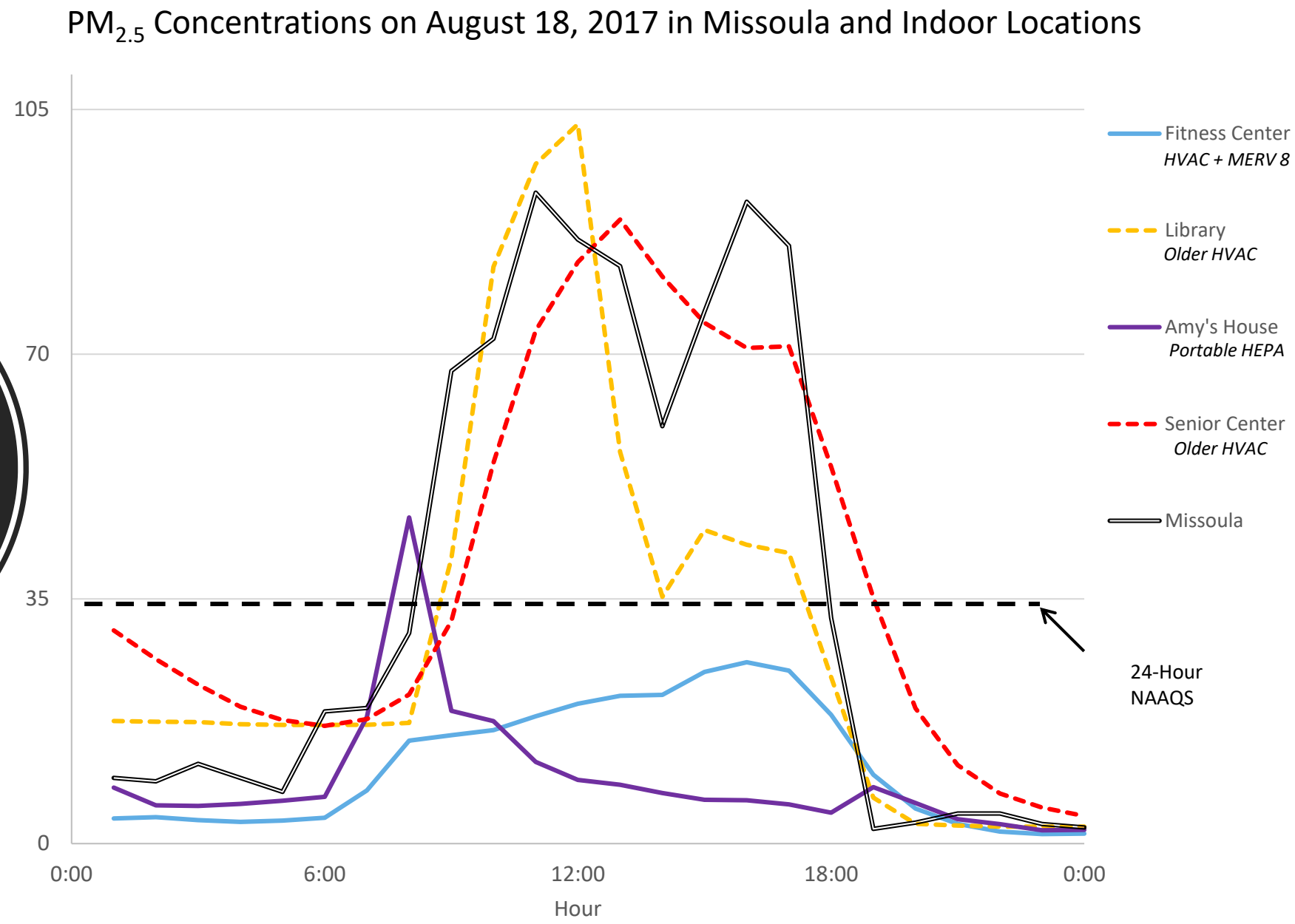
- Monitor air quality
- Issue health advisories
- Emphasize reducing activity levels and staying inside with **filtered air**
- **Create clean air spaces**
  - **Direct interventions**
  - **Policy/Institutional controls**


2017 Was a Record-Breaking Wildfire Smoke Year in Missoula County
Liberty
Rice Ridge
Sunrise
Missoula
Lolo Peak
Chute
Sapphire
Complex
Moose

After-Event Analysis: Filtration Impact on Air Quality



After-Event Analysis: Filtration Impact on Air Quality



What's a MERV?

Minimum Efficiency Reporting Value

MERV Std 52.2	Intended Dust Spot Efficiency Std 52.1 (2)	Average Arrestance	Particle Size Ranges	Typical Applications	Typical Filter Type
1 - 4	<20%	60 to 80%	> 10.0 µm	Residential/Minimum Light Commercial/ Minimum Minimum Equipment Protection	Permanent / Self Charging (passive) Washable / Metal, Foam / Synthetics Disposable Panels Fiberglass / Synthetics
5 - 8	<20 to 60%	80 to 95%	3.0-10.0 µm	Industrial Workplaces Commercial Better / Residential Paint Booth / Finishing	Pleated Filters Extended Surface Filters Media Panel Filters
9 - 12	40 to 85%	>90 to 98%	1.0-3.0 µm	Superior/Residential Better/Industrial Workplaces Better/Commercial Buildings	Non-Supported / Pocket Filter / Rigid Box Rigid Cell / Cartridge V-Cells
13 - 16	70 - 98%	>95 to 99%	0.30-1.0 µm	Smoke Removal General Surgery Hospitals & Health Care Superior/ Commercial Buildings	Rigid Cell / Cartridge Rigid Box / Non-Supported / Pocket Filter V-Cells
MERV Std 52.2	**Efficiency**			**Typical Applications**	**Typical Filter Type**
17 - 20[1] *Deleted from ASHRAE*	99.97%-99.9999%			Hospital Surgery Suites Cleanrooms Hazardous Biological Contaminants Nuclear Material	HEPA ULPA

Current commercial standard

Some Smoke-Ready Goals

- Heating, ventilation and air conditioning (HVAC) systems **recirculating air through MERV 13+ filters** during smoke events
- Appropriately sized portable air cleaners with **true high-efficiency particulate air (HEPA) filtration** in buildings without HVAC systems
- Good door and window control to **limit smoke infiltration**
- Public understanding about the **importance of creating clean indoor air** during smoke events

Mitigation Measures in Missoula

A community in which public buildings have filtration for wildfire smoke

Public spaces

Schools

- MERV 13+ filters in all new and remodeled public schools in Missoula County
- MERV 13+ requirements in new MT School Rules draft (in legal review)
- HEPA portable air cleaner (PAC) dissemination during 2017 wildfires, cache on-hand in 2018
- Community Needs Assessment completed in 2018 by Climate Smart Missoula (CSM)

Libraries

- Missoula's current library (c. 1974) HVAC can't filter out PM2.5
- New library (opening in 2020) will have MERV 13 filters installed during wildfire season

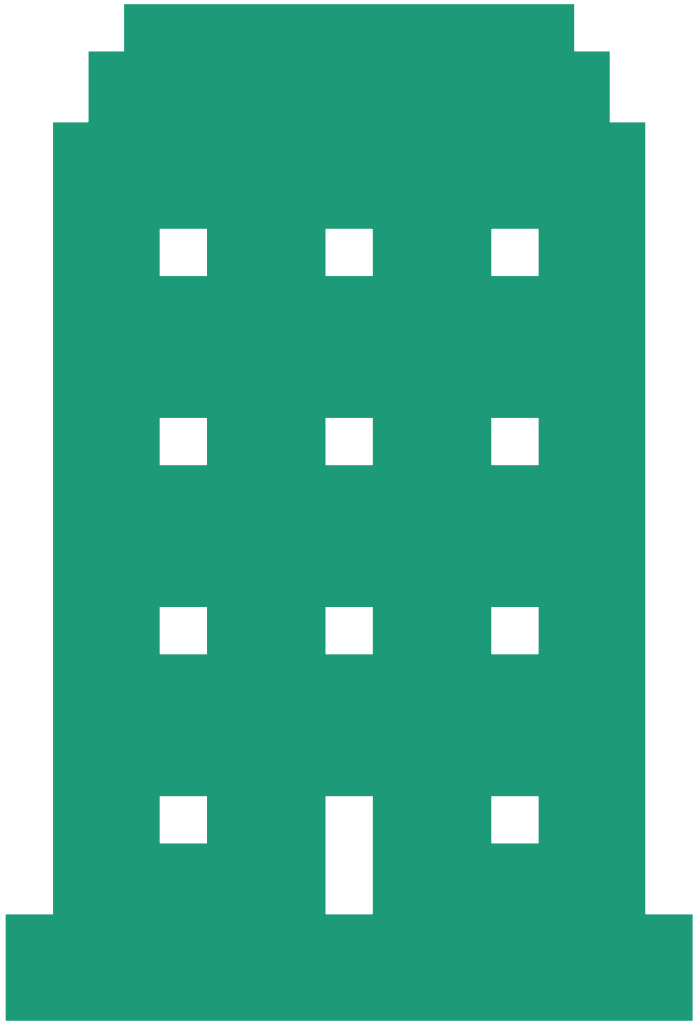
Privately owned public spaces

MERV 13 commitment in new buildings:

- Residence Inn Missoula
- Staybridge Suites
- Community Hospital Cancer Patient Family Center

Some facilities are ahead of the game

- DirectTV/AT&T – filtration for fine particulate and VOCs for their Missoula employees



A community whose residents understand the health risks associated with wildfire smoke exposure and have access to tools to protect themselves

Individuals

Smoke-ready outreach

- Columns in the Missoulian before 2018 smoke season
- News releases about preparing for wildfire smoke generated multiple stories in local media
- Excellent relationship with local media = more people to carry the message

COLUMNISTS

Keeping wildfire smoke out of large i

SARAH COEFIELD Jul 27, 2018

Today we're focusing on creating clean indoor air
works in or goes to a school, office, indoor recrea

COLUMNISTS

Keeping cool during smoke season

SARAH COEFIELD Jul 20, 2018

According to the Centers for Disease Control, ev
United States are killed by extreme heat. Howeve

COLUMNISTS

Practical tips for filtering indoor air

SARAH COEFIELD Jul 12, 2018

In last week's column (July 2) we learned why it's
space during wildfire smoke season. This week, w

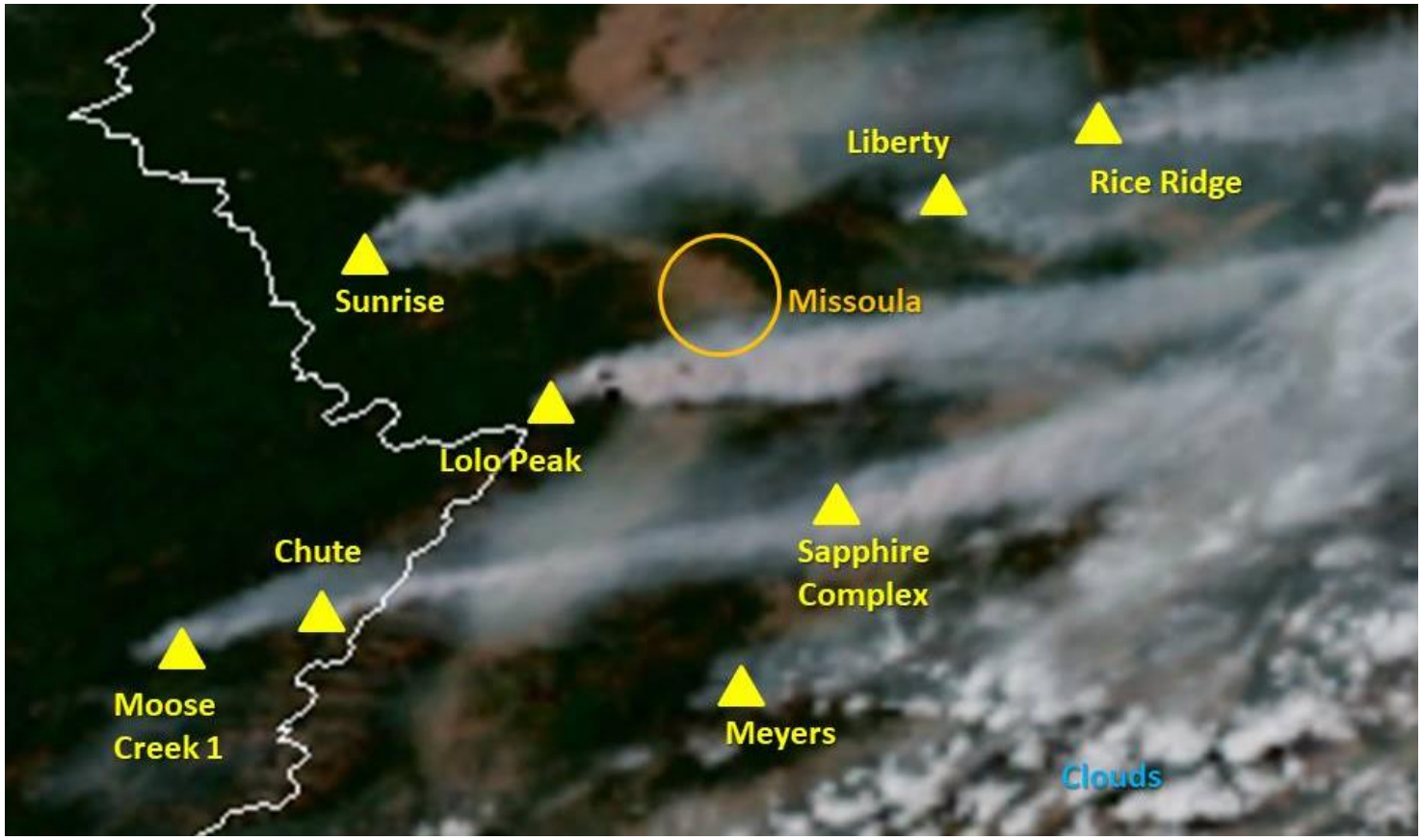
HOME TODAY'S AIR HEALTH RISKS CLEAN INDOOR AIR OUTDOOR SAFETY THE SCIENCE ABOUT

http://www.montanawildfiresmoke.org

As forest fires in the western United States grow in size, severity, and frequency, and as the wildfire season lengthens, the amount of wildfire smoke we breathe increases too. Smoke can settle in Montana communities from fires in local forests, from nearby states like Idaho, and even as far as Washington, California, and Canada. Visit the different pages of this site to find out more about the health risks of smoke, current smoke levels in your area, and what you can do to stay healthy.

Scroll down for 2 short videos:

- ***Prepare for Smoke***
- ***Be smart about health risks***



Public health messaging during a smoke event

- Current air quality conditions
- Where the smoke is coming from
- Fire activity
- Smoke behavior
- How conditions will (or won't) change during the day
- Where to find cleaner air
- How to stay protected from the smoke

A community with the resources on hand to help vulnerable and underserved residents

Vulnerable and underserved residents

A public/private partnership born out of a shared desire to protect the public from wildfire smoke led to a smoke-ready pilot project in 2017. The project provided HEPA PACs to home-bound seniors with respiratory challenges and families with new babies. The project ballooned in response heavy wildfire smoke to include clinic patients and small elementary schools.

Intern Terri with volunteers from Lion's Den Ministries - getting ready to deliver filters.

A happy air cleaner recipient!

CLIMATE SMART MISSOULA

Missoula Public Health
City-County Health Department

Photo and quote: "Summer of Smoke Exposes Need For Clean Indoor Air In Montana," Nora Saks, Montana Public Radio, 1/3/18

Helping Individuals

Climate Smart Missoula donated 25 portable air cleaners to Seeley Lake health clinic patients and 5 portable air cleaners to the clinic itself in 2017.

"I believe that machine saved my life, I really do."

-Don Dunagan, Seeley Lake resident

Preschools and Daycares

- PACs disseminated by Missoula City-County Health Department (MCCHD) and CSM to local daycares and preschools in 2018 – more than 500 young children had filtered air
- MCCHD and CSM plan to continue the program in 2019

Special Needs Students

- Climate Smart Missoula has donated PACs to schools with students who have special health needs – the PACs will be in all their classrooms.

Climate Smart Missoula gave Potomac school three portable HEPA air cleaners for use in the classroom of one particularly sensitive young student.

Next steps, concluding thoughts

Next Steps:

- Smoke-ready messaging will be included in wildfire preparedness outreach materials to residents in the wildland-urban interface (WUI)

Next Steps:

- Community Needs Assessment that looks at indoor fitness facilities and activity spaces

Next Steps:

- Host a workshop or series of workshops for local businesses to promote cleaner indoor air spaces during wildfire smoke events.
- Goal: protect employee health and provide opportunities for customers to get out of the smoke and into local businesses.
- Modeled after SmokeWise Ashland workshop

Next Steps:

- Upcoming study to assess effectiveness of our wildfire smoke communication, outreach and intervention programs
  - Study plan and partners identified
  - Working out funding

The Washington Post

Montana residents are desperate for clean air, and they're calling me

Great Falls Tribune

Air quality in Seeley Lake "crazy bad"

Montana Public Radio

npr

Seeley Lake Schools Installing HEPA Filters Due To Wildfire Smoke

Montanans Pitch In To Bring Clean Air To Smoky Classrooms

Health Department: Leave Seeley Lake Until The Smoke Clears

Wildfire Smoke Takes Physical, Mental Toll on Western Montana

Summer of Smoke Exposes Need for Clean Indoor Air In Montana

Sample of media coverage that helped spread wildfire smoke messaging in 2017

Next Steps:

FEMA Post Fire Hazard Mitigation Grant

- Wildfire smoke adaptation/mitigation plan for the county to be incorporated into disaster management planning.
- Additional monitors for MCCHD
- PACs for CSM’s cache

Next Steps:

Wildfire smoke public health study in partnership with EPA

- Launching summer 2019
- Research in Missoula County and Research Triangle Park (NC)

- Evaluate the effectiveness of different filtration and HVAC setups during wildfire smoke events
- Test useful lifespan of consumer-grade HEPA filters under wildfire smoke conditions

As community size grows (or as resources shrink):

The need for institutional/policy/engineering controls also grows

The need for individuals' self-sufficiency grows

Lingering questions

Social and health equity

Balance indoor air pollutant concerns with outdoor air pollutant concerns

Heat vs. Smoke

Can we do a better job removing VOCs?

Questions?

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