

West Silver Valley Public / Community Outreach Plan

Draft Report, Revision 1

November 9, 2018

by

Tony J. Ward, Ph.D.

**University of Montana
School of Public and Community Health Sciences**

**Skaggs Building 176
Missoula, MT 59812
Office: (406) 243-4092**



Detailed Strategic Communication Planning

1. Purpose

This document describes the formal outreach program (Outreach Plan) for the West Silver Valley PM_{2.5} Nonattainment Area (WSV NAA), including proposed strategies to engage and support the residents of the WSV in an effort to reduce ambient PM_{2.5} concentrations from open, prescribed and residential wood burning.

2. Existing Resources

Several resources exist that will support the proposed communication, outreach, and education strategies identified in this Outreach Plan. Existing resources for best-burn practices focused on residential wood stoves are numerous, and include materials developed by the Environmental Protection Agency (EPA) summarized on their EPA Burn Wise website (<https://www.epa.gov/burnwise>). Examples of best-burn messaging includes not burning wet wood, burning at the correct temperatures, etc. At the state level, forecasting air quality and notifying the public through web sites and email alerts can occur during stage 1 air quality alerts. Idaho Department of Environmental Quality's (IDEQ's) daily AQI forecast is available to people who visit either IDEQ's (<http://airquality.deq.idaho.gov/>) or AirNow's website (<https://www.airnow.gov/state/idaho>) or subscribe to the EPA's EnviroFlash notification system. When IDEQ's Air Pollution Emergency Rule applies, IDEQ communicates their forecast and caution to the National Weather Service as well as local fire departments, health districts, schools administration, media contacts, and works with the Outreach and Social Media group to include all appropriate social media platforms. IDEQ also maintains a website specific to the WSV that provides Daily Air Quality and Burn Advisories for the area: <http://www.deq.idaho.gov/regional-offices-issues/coeur-dalene/air-quality-west-silver-valley/>.

3. Stakeholders and Partners

IDEQ and the University of Montana (UM) have identified the following stakeholders, partners, and audiences whose support and involvement are instrumental to the success of any programs that seek to reduce PM_{2.5} emissions from open, prescribed and residential wood burning in the WSV. The following table identifies the stakeholder/partner and their respective interests.

Stakeholder/Partner	Interests
WSV residents, including rural wood burners	Community members living within Pinehurst, Smeltonville, Kellogg, Wardner, and Kingston are key partners. Their engagement and acceptance will be critical for successful implementation of proposed activities targeting wood burning. Many community members are supportive of wood burning initiatives, while others have a general distrust and skepticism towards EPA, IDEQ, and associated regulations.
Local city government, including mayors, City Councils, and County Commissioners	Local elected officials have an interest in improving air quality. The elected officials are the main leadership, and any proposed projects will need their support so the WSV residents understand that the desire for improved air quality exists locally, and not just mandated by IDEQ.
WSV, Citizens Advisory Committee (WSV CAC)	The WSV CAC was formed in spring 2014, with the goal of helping to identify ways to reduce air pollution in the WSV and to advise IDEQ on actions that address smoke emissions. This group currently lacks engaged membership and focused mission, but remains an important partner in engaging other community members.
EPA and IDEQ	Regulators are mandated with reducing ambient PM _{2.5} concentrations in the WSV. As a result of the long history of EPA/IDEQ working in the WSV on mining-related issues, some community members have developed a general distrust towards EPA/IDEQ and their mission.
Local health care professionals and health districts (including Panhandle Health)	Studies have shown that exposure to PM _{2.5} can result in adverse health effects. Local public health and health care professionals and physicians are a trusted source of community health data (risks and impact of PM _{2.5} exposure) and a credible voice for the clean air message. IDEQ could work closer with health professionals to strengthen the messaging regarding how poor air quality adversely impacts health, and how reduced PM _{2.5} in the WSV will improve health.
Wood stove vendors, chimney sweepers, and local fire departments	Retailers of wood-burning devices are critical stakeholders in communicating best-burn messaging. Chimney sweepers and local fire departments can also play a role in communicating wood stove maintenance messaging and the prevention of house fires.
Silver Valley Chamber of Commerce and local business owners (including tourism representatives)	A PM _{2.5} nonattainment designation has important ramifications for economic development and tourism. Local businesses are stakeholders in protecting air quality to minimize regulatory burden to their operations. NAA also may carry a stigma, so achieving attainment is of interest to area businesses and the WSV tourism industry.
School administrators, teachers, and students in the WSV	Educators interact daily with children of the WSV. Proposed outreach activities can leverage UM's Clean Air and Healthy Homes Program (IDEQ-funded Environmental Education Project) that is currently working with each of the schools within the Kellogg School District.
United States Forest Service (USFS), local	These groups are critical partners on any proposed project focused on slash burning and/or fuels reduction in the surrounding forests.

Stakeholder/Partner	Interests
logging companies, and firewood vendors	Firewood vendors are especially important in reducing the amount of high moisture (green) wood burned in the Silver Valley.
Shoshone News Press	The local newspaper can help shape public opinion and spread information on air quality and best-burn strategies to the community. The Shoshone News Press has been supportive of IDEQ activities related to the EPA Targeted Airshed Grant.
University of Montana (UM) – Tony Ward and Brett Taylor	As part of the IDEQ-funded Environmental Education Project, UM works with local schools and IDEQ to educate students and community members regarding the relationship between air pollution and health. UM also conducted the PM _{2.5} Chemical Mass Balance source apportionment study for the WSV, and can provide technical expertise in support of wood burning reduction strategies.
External Advisory Committee (EAC)	An EAC can provide external input and guidance to the DEQ and UM based on lessons learned from similarly wood smoke-impacted communities. In developing this Outreach Plan, the EAC provided feedback on best-burn / community engagement strategies that worked in western Montana (Libby and Missoula) and Fairbanks, Alaska.

4. Desired Outcomes

The desired outcome of this Outreach Plan is to engage the WSV community members through outreach and education strategies to reduce PM_{2.5} wood smoke emissions from open, prescribed, and residential wood burning. Educating the public is key to changing habits and addressing misconceptions, therefore improved public understanding and enhanced stakeholder relationships/support is critical to the success of proposed activities.

5. Situation Analysis

a. Background:

The WSV encompasses the communities of Pinehurst, Smeltonville, Kellogg, Wardner, and Kingston, and was designated as nonattainment for the 2012 annual PM_{2.5} National Ambient Air Quality Standard (NAAQS) on December 4, 2014. The primary sources that contribute to elevated ambient PM_{2.5} concentrations are residential wood combustion (wood stoves) and open burning (prescribed fire, slash burning of wood waste following tree thinning and logging operations and open burning of residential yard waste). The air pollution problem in the WSV is exacerbated by the mountainous topography and the temperature inversions that frequently occur during the winter months.

IDEQ received an EPA Targeted Airshed grant in 2015. The goal of this funding is to address the major emission categories contributing to poor air quality in the WSV through three components: 1) reducing residential wood combustion emissions; 2) reducing open burning emissions, and 3) developing workshops and messaging tools. With funding provided by the

EPA Targeted Airshed grant, guidance provided by the WSV CAC, and engagement with WSV citizens, there exists opportunities to reduce wood burning emissions in the Silver Valley through a variety of coordinated strategies.

b. Strengths:

- Studies conducted by IDEQ and UM have provided scientific data supporting that wood burning occurring during the late fall, winter, and early spring are the primary sources of ambient PM_{2.5}. This includes residential wood combustion (wood stoves) during the colder winter months, and open burning and slash burning during the fall and spring seasons.
- The WSV community members have an opportunity to work collaboratively and proactively with IDEQ to inform solutions to the air quality issues before they are federally mandated to do so.
- For implementation of proposed activities targeting wood burning in the WSV, funding may be available from the existing WSV EPA Targeted Airshed Grant, but is limited in amount, scope and time.
- An experienced team of partners have been assembled to develop and implement wood burning strategies, including stakeholders with local knowledge and collaborators with expertise in working with communities on wood burning issues.
- During summer 2018, a survey was disseminated to WSV community members. Survey results suggested that residents perceive that wood stoves, uncontrolled open burning, and prescribed burning are sources of outdoor air pollution during the winter months.
- The survey findings also provided information on community-suggested interventions and barriers, and helped inform communication strategies as outlined in this Outreach Plan.
- Area schools are engaged. UM has successfully implemented the Clean Air and Healthy Homes Program within Silver Valley schools, educating teachers and students about air pollution/health, and facilitating the understanding of emission reduction strategies through student-engaged research projects.

c. Weaknesses:

- Many community members rely on wood burning for their residential heating needs, with many using high-emission, uncertified wood stoves.
- There exists a strong cultural preference to wood burning in the Silver Valley.
- Many community members are knowledgeable about WSV air quality issues, and understand the use of best-burn practices when using wood stoves or conducting open burning. However, there are likely community members that may be unaware (or are unconcerned) about the air quality issues (and impact to health) within the WSV.
- There are currently limited regulatory requirements and/or enforcement for residential wood burning or open burning in the WSV outside of fire safety issues.
- There is an overall lack of resources (and/or feasible alternatives) to support programs focused on outdoor burning, such as logging debris reduction programs and woody yard wastes/leaves reduction program.
- There may be a lack of community support for logging debris reduction programs, woody yard wastes/leaves reduction programs, and the wood stove changeout program.

- Perhaps most importantly, the community has a historical mistrust of IDEQ, EPA, and government-sponsored programs. A particular concern relates to skepticism towards the scientific quality of ambient PM_{2.5} monitoring data that IDEQ used in determining nonattainment status.

d. Opportunities:

- Results of the community surveys suggest that many residents generally support the implementation of strategies that reduce PM_{2.5} emissions in the WSV, and are interested in learning more about best-burn practices.
- By working on proposed interventions with the community, IDEQ has the opportunity to forge new relationships with the stakeholder groups to bring a community-driven clean air message to businesses, wood stove users, firewood sellers, and land managers.
- Working with the schools has a great deal of potential in educating students and families about wood burning issues in the Silver Valley, and things they can do address these emissions.

e. Threats:

- Misinformation is a threat in the WSV, in that the public may attribute the PM_{2.5} problems to insignificant sources (compared to wood burning sources) and won't be able to make informed decisions. False narratives about IDEQ's role and intent will continue to spread and make it harder to establish trust.
- Without a coordinated strategy to reduce PM_{2.5} wood smoke emissions, air quality will continue to worsen and the public will continue to lack the tools and support needed to reduce emissions. The NAAQS exist primarily to protect public health, and the Clean Air Act is clear that areas not meeting them will be mandated to submit a plan to bring them back into attainment. It becomes harder to cooperate and build trust when a regulatory framework dictates the requirements.
- An additional threat is the continuing, underlying mistrust of IDEQ. If programs are developed and then fail, this has the potential to further the mistrust and lack of confidence towards IDEQ.

f. Desired mindset change and communication planning based on SWOT:

- Generally, the current attitude towards regulations and government entities (IDEQ, EPA, etc.) in the Silver Valley is not positive. This is a significant barrier, but perceptions can change with effective communication messaging.
- Opportunities exist for IDEQ to work with stakeholders/audiences collaboratively towards developing and implementing the proposed communication strategies, and subsequent emission reduction programs. Working with stakeholders with an open mindset will facilitate productive working relationships.
- Having stronger partnerships with health officials (clinics, physicians, and local health departments) would also strengthen messaging.
- The results of the SWOT analysis (and community survey presented in the Appendix) have been used to establish the communication goals and objectives, as well as shape the Outreach Plan's messages, tactics, products, and activities.
- This SWOT analysis underscores the need for continued communication focusing on the messages of using dry wood for home heating, including outreach to wood stove vendors,

firewood vendors, and homeowners. Future products and activities related to this Outreach Plan could focus on developing a firewood vendor incentive and registration program, development of a community wood bank, development of a residential yard waste program, conducting a feasibility study for a logging debris reduction program, and conducting a feasibility study for switching to natural gas as the primary fuel source.

6. Themes, Key Messages, and Talking Points

Key messages and talking points:

Below is a listing of key messages that the Outreach Plan should focus on when communicating with WSV residents, business stakeholders, schools, and other regulatory groups (like USFS and Panhandle Health):

- 1) Incomplete combustion of wood emits PM_{2.5} air pollution that can contribute to short-term and long-term health effects, especially in sensitive populations (children, elderly, and those that already are in poor health).
 - a. PM_{2.5} monitoring data and other studies conducted by IDEQ support that wood burning (open, prescribed and residential wood burning) is the major contributor to elevated PM_{2.5} concentrations during the late fall, winter, and early spring seasons.
 - b. Improper burning practices related to residential wood combustion and open burning increase outdoor PM_{2.5} emissions that become trapped in the Silver Valley during temperature inversions resulting in poor air quality.
 - c. Exposures to wood smoke-related PM_{2.5} occur outdoors, but also indoors where people spend over 90% of their time – especially within homes that have poorly functioning residential wood stoves.
- 2) Per the Clean Air Act, the West Silver Valley airshed (by law) is mandated to come into compliance with the EPA NAAQS.
 - a. Whenever possible, residents with older model wood stoves should consider switching from wood stoves to an alternate source of heat to keep warm on days with poor air quality.
 - b. The WSV community members have an opportunity to work collaboratively and proactively with IDEQ to inform solutions to the air quality issues before they are federally mandated to do so.
 - c. With funding provided by the EPA Targeted Airshed grant, guidance provided by the WSV CAC, and engagement with WSV citizens, there exists opportunities to reduce wood burning emissions in the Silver Valley through a variety of coordinated strategies.
- 3) Problems with outdoor wood smoke is not specific to the WSV, and community-engaged wood burning emission strategies have successfully been used in other communities outside the WSV to reduce PM_{2.5} emissions.
 - a. Education / outreach includes a holistic approach of three main points: burn wood using the right stove, the right wood, and the right methodology.

- b. Residential best-burn messaging should focus on burning dry wood (<20% moisture) and at the proper temperatures as the primary messages.
- c. For residential wood stoves, using best-burn practices can save money, save time, and improve health.
- d. Community surveys have already identified multiple strategies for reducing ambient PM_{2.5} concentrations from open, prescribed and residential wood burning, including identifying barriers to success for each of the strategies.

7. Action Plan

a. Communication Tactics:

Direct contact with those directly affected

- When asked what the ideal way (existing strategies) the community would like to receive messages regarding air pollution / wood burning information, the following methods were listed: Facebook (30.8% (n=8)), Email (23.1% (n=6)), mobile apps (15.4% (n=4)), and Twitter / online news / text alerts, respectively (11.5% (n=3)).
- For communicating with WSV residents about air pollution and / or wood burning information using new products, 71.4% (n=20) of survey responders indicated that text messaging would be effective. 77.8% (n=21) responded that a mobile app would be effective, 66.7% (n=18) responded that an electronic sign would be effective, and 74.1% (n=20) responded that social media would be effective.
- The majority of survey respondents suggested they would like to receive information about best-burn practices related to wood stove use by snail mail.
- UM's Clean Air and Healthy Homes Program can be leveraged to engage with students, families, and educators in the Kellogg School District about air quality alerts and best-burn messaging.

Inform wider city or regional audience

- A media strategy and control measures can be developed to reach residents outside of the Silver Valley, but who are still part of the airshed.

b. Communication Products:

- **Fact sheet:** A WSV - specific fact sheet about wood stoves and wintertime air quality could be developed that includes the following information:
 - How to interpret regulatory PM_{2.5} monitoring data.
 - Specific messaging on burning low moisture (<20%) seasoned wood, burning at the proper temperatures, not burning trash, burning the right size fuel, ash removal, and other key points.
 - Benefits of wood sheds.
 - Overview of simple tools related to best-burn practices (moisture meters, temperature gauges, and fire starter).
 - Benefits of using natural gas for home heating versus wood burning.

- Information and examples of incentive-based programs for WSV firewood vendors.
- Information and examples of community wood banks.
- Information on air quality issues related to open burning.
- Information and examples of yard waste pickup and drop-off programs.
- Information on air quality issues related to slash burning.
- Frequently Asked Questions.
- **Brochures, mini-videos, door hangers, and pamphlets:** These products could be developed focused on the topics included in the fact sheet.
- **Op/ed, letter to the editor of the Shoshone News Press:** Request that the Mayor(s), City Council, or County Commissioners publicly support the initiatives focused on reducing wood burning emissions and improving air quality.
- **Public service announcements (PSA):** Using local radio, IDEQ can either do PSA themselves or ask Mayor(s) to read one.
- **Social media:**
 - Dedicated Facebook site for WSV wood burning. Based on community feedback, a Facebook site could be developed that maintains frequently updated information on a variety of issues related to wood burning (including residential, open, and prescribed burning). Content would include current PM_{2.5} concentrations in the valley, meteorological forecast information (focused on inversions), best-burn videos, pictures, trainings, and other related information. This Facebook page could also be the virtual home for a firewood vendor program and/or a wood bank in the future. This Facebook page would advertise everything IDEQ and the community are working on to address air quality issues related to wood burning.
 - Mobile app system: Based on survey results, a mobile app system could be developed in which WSV residents have the option of enrolling. This messaging service would communicate current PM_{2.5} concentrations, indicate when poor air quality was measured or forecasted (air quality alerts), contain meteorological data (including inversion information) and air quality hotline phone numbers, and could also occasionally provide tips on best-burn practices. In addition to IDEQ, it is recommended that a focus group or the CAC be used to provide input into what content the app messaging would contain. Periodic lottery drawings for those enrolled in the app would encourage enrollment, with prizes including best burn supplies such as moisture meters and stove temperature gauges.
 - Text messaging service. Based on community feedback, a text messaging alert system would be developed in which Silver Valley residents could enroll. This messaging service would indicate when poor air quality was measured or forecasted, and could also occasionally provide tips on best-burn practices. Air quality alerts and air quality hotline phone numbers could also be disseminated via texts. In addition to IDEQ, it is recommended that a focus group or the CAC be used to guide determining what content the text messaging would contain. Similar to the mobile app, periodic lottery drawings for those enrolled in the texting program would encourage enrollment, with prizes including best burn supplies such as moisture meters and stove temperature gauges.
- **LED (electronic sign) installation.** Based on community feedback, an electronic sign could be installed in the Silver Valley that presents information on current air quality and wood burning information (such as AQI and forecasted alerts). The LED could have color changes

with changing air quality. Air quality alerts and air quality hotline phone numbers could also be presented on the electronic signs. It is recommended that a focus group or the CAC be used to inform the location of the sign, as well as what content the sign would contain. In addition to an electronic sign, a manual sign (similar to fire danger signs) could be installed per the guidance of the focus group/CAC.

- **Media advisory:** The Shoshone News Press is the WSV's local newspaper. IDEQ could pay for air quality-related advertising to run biweekly over the heating season.
- **Press release:** IDEQ could periodically submit a press release to TV stations and the local newspaper about how IDEQ hopes the WSV communities use the Outreach Plan strategies to alter reduce emissions from wood burning.

c. Communication Activities:

- **WSV CAC monthly meetings.** Stakeholder briefings through monthly WSV CAC meetings will be continued.
- **Shoshone News Press articles.** Reporters will be notified of scheduled public outreach events in advance to maximize advertising of the events, and/or provide summaries of the events.
- **Community outreach and consultations.** IDEQ could implement a formal program that conducts outreach and consultations for homeowners regarding best-burn practices. For homes that have participated in the IDEQ wood stove changeout program, a follow up consultation with a wood stove consultant could be conducted to ensure the homeowner is using their new stove properly. This service could also be extended to other interested wood burners within the Silver Valley - particularly those households that seem to be producing significant smoke from their chimneys. These interactions would focus on education regarding best burn practices. Another facet of the program would be to distribute free moisture meters, temperature gauges, fire starters, and tarps for wood piles (in lieu of expensive wood sheds). Homeowners that have already participated in the wood stove changeout program would initially be recruited for the consultations. Advertising of the consultations and monthly education sessions could also be conducted using Facebook and the local newspaper. Targeted recruitment using door hangers could be used for homes with uncovered firewood piles or "above normal" smoking chimneys.
- **Wood stove vendor monthly presentations.** Facilitated by IDEQ, short educational programs could be offered each month to educate the public on the importance of burning dry wood, and educating the community on what to look for when purchasing wood from firewood vendors. At these events, training could also be provided on the use of simple tools, including moisture meters, temperature gauges, and fire starters. Local vendors could sponsor these events, serving as an advertising mechanism for their business.
- **Wood stove fair.** An annual or semi-annual community event could be held in the Silver Valley that educates citizens about best-burn practices. This community event would consist of exhibitions that demonstrate best-burn practices, including demonstrations using wood sheds and other wood storage strategies, moisture meters, fire starters, and temperature gauges as ways of reducing smoke in the home. Panhandle Health and local health professionals (physicians) could be involved, providing information on health issues and associated costs resulting from long term exposure to wood smoke PM_{2.5}. Other

demonstrations could be conducted, such as those focused on wood moisture in green vs dry wood and use of dry ice to model a temperature inversion. The fair would be held in the Silver Valley on a Saturday (10am-2pm) in early or late fall, when the weather begins to get cooler. IDEQ would need to recruit volunteers and vendors to fill out the program agenda, with each vendor responsible for their own demonstrations / activities. Along with free food, raffles and giveaways (moisture sensors, fire starters, and temperature gauges) would be used to encourage attendance. This event would be advertised on Facebook, through the schools, and in the local newspaper.

- **School outreach:** UM is working with the majority of schools / grades within the Kellogg School District through the IDEQ-funded Environmental Education Project. IDEQ can leverage UM's Clean Air and Healthy Homes Program to provide specific messaging regarding wood smoke issues to the schools.
- **WSV student presentations.** Many of the students participating in UM's Clean Air and Healthy Homes Program will conduct research projects focused on PM_{2.5} and sources of wood burning within their homes and communities. One important component of the program is to have students present their results at the conclusion of the program. The aforementioned wood stove fair and the science symposium described below could be venues for students participating in the program to display and discuss their research posters or presentations. By using student research findings, locally generated data can become common community knowledge.
- **Wood smoke science symposia.** Exposing Silver Valley community members to wood burning case studies from other communities in Washington, Idaho, and Montana could be impactful for area residents, and help identify new strategies for reducing smoke emissions in the Silver Valley. Wood burning symposia would be held in September 2019 and September 2020, respectively, and would include presentations from local and regional environmental professionals (regulators), health professionals (physicians), local students, and researchers. The program agenda would include ways that other communities have addressed wood burning issues (including residential wood combustion and open/prescribed burning) through a variety of strategies, including regulation, voluntary activities, and incentive programs. Along with free food, raffles and giveaways (moisture sensors, fire starters, and temperature gauges) would be used to encourage attendance of WSV residents. This event would be advertised on Facebook, through the schools, and in the local newspaper. With the assistance of UM, conference proceedings could be published in a technical journal or other publication. New wood burning strategies or policies could be produced from these symposia. Depending on how well these science symposia are received by the community, they could continue on past the life of the EPA Targeted Airshed grant.
- **Regulatory stakeholder meetings.** IDEQ could have standing monthly meetings with USFS and local logging companies to discuss slash burning and prescribed burning issues. The meetings could also be focused on exploring options for disposing of slash materials, including evaluating the following:
 - Implementing ordinances to guide burning on private land, and allowing it under the proper meteorological conditions.
 - Using chipped logs at the Kellogg Middle School for their wood burning furnace.
 - Hauling and selling the unusable grade logs to a chipping plant. The chipping plant could purchase a stationary wood chipper that works year round.

- Using a portable chipping truck on site at the logging operation and hauling the chips from the source area instead of hauling the raw material to a processing site.
- Letting wood gatherers cut the remaining logs on logging sites. The logging company would notify the public that it has debris piles in an area and the public would be welcome to take some home.
- Logging companies could be encouraged to sell their debris to companies that could process them into compressed logs or chips and make them available to everyone at a minimal cost.

d. Staffing (pending approval of Outreach Plan products and activities):

- IDEQ staff would conduct the day to day outreach activities identified in this document. This includes leading and facilitating WSV CAC meetings, any interaction with the WSV city government (Mayors, City Council, and County Commissioners), media and community members, conducting the community outreach and consultations, and organizing the wood stove vendor monthly presentations.
- IDEQ would develop outreach materials, messaging, and identify distribution channels/avenues of publications appropriate for outreach.
- The wood stove fair would be hosted by regional partners (IDEQ, UM, Panhandle Health, USFS in Smeltonville, local wood stove vendors, etc.). An IDEQ Event Coordinator would be needed to organize the event. IDEQ personnel would also be responsible for arranging the wood smoke science symposia, as well as the regulatory meetings with the USFS and local loggers.
- For the proposed communication activities, IDEQ would be responsible for air quality / best-burn messaging on the LED (electronic sign), Facebook site, text messaging service, and messaging for the mobile app. Focus groups and/or the CAC could inform messaging.
- In communicating with the schools, UM will be partners to IDEQ through the 2019/2020 academic year. Following that, IDEQ personnel will be the primary points of contact, including arranging for student presentations back to the community.

e. Budget:

- **Fact sheet: Brochures, mini-videos, door hangers, and pamphlets:** Funding would be needed to support the IDEQ staff in preparing these materials, as well as support in purchasing and printing these materials.
- **Social media.** Funding would be needed to support IDEQ personnel in setting up the Facebook site, mobile app site, and text messaging service. Continued funding would be needed to support the IDEQ staff person in updating the messaging with current information. Monthly infrastructure expenses may be incurred for the text messaging service and app.
- **LED (electronic sign) installation.** Funding would be needed to support the IDEQ staff person in updating the messaging with current information. Initial costs would be associated with the installation of the sign.
- **Community outreach and consultations, wood stove vendor monthly presentations.** Salary and a travel budget would be needed for IDEQ staff. In addition, the budget should

support purchase of small supplies such as moisture meters, stove temperature gauges, tarps, fire starters, and printing expenses for pamphlets, door hangers, etc.

- **Wood stove fair.** Support would be needed for the IDEQ Event Coordinator, as well as money for food and supplies. An event venue would also be needed, possibly incurring rental fees.
- **Wood smoke science symposia.** Support would be needed for the IDEQ Event Coordinator, as well as money for food and recruitment supplies. An event space would also be needed that might include event rental fees. Some travel expenses for regional speakers would entice participation of experts from neighboring states (Washington and Montana).

f. Action Matrix:

Action	Who is Responsible	Date/Time Action is to Occur	Method of Action	Date Action Occurred
Community outreach - communicate with WSV residents (and outside WSV residents) using Facebook, Email, text messaging, snail mail, and mobile apps.	IDEQ	As needed	Communication via appropriate format	As needed
School outreach - utilize UM's Clean Air and Healthy Homes Program to engage with students, families, and educators in the Kellogg School District.	IDEQ and UM (Ward and Taylor)	As needed	Meetings with principal, presentations to classrooms (teachers and students)	As needed
Develop a fact sheet specific to the WSV	IDEQ with input from UM	Spring 2019	Gather materials, review for accuracy, dissemination	
Develop brochures, mini-videos, door hangers, and pamphlets specific to the WSV	IDEQ with input from UM	Yearly	Gather materials, review for accuracy, dissemination	Beginning of heating season
Write an op/ed or letter to the editor of the Shoshone News Press	WSV Mayors with input from IDEQ	Annually each winter	Article in local newspaper	
Provide a public service announcements (PSA)	WSV Mayors with input from IDEQ	Annually each winter	PSA commercial on local radio	
Develop a dedicated Facebook site for WSV wood burning	IDEQ with input from CAC and focus groups	Summer 2019. Update relevant platform with each new action	Gather materials, review for	

Action	Who is Responsible	Date/Time Action is to Occur	Method of Action	Date Action Occurred
		as to notify public and to amplify message	accuracy, dissemination	
Develop a mobile app system	IDEQ with input from CAC and focus groups	Summer 2019. Update relevant platform with each new action as to notify public and to amplify message	Gather materials, review for accuracy, dissemination	
Develop a text messaging service	IDEQ with input from CAC and focus groups	Summer 2019. Update relevant platform with each new action as to notify public and to amplify message	Gather materials, review for accuracy, dissemination	
Install a LED (electronic sign) installation	IDEQ and contracted sign installer	Spring 2019. Update relevant platform with each new action as to notify public and to amplify message	IDEQ staff to develop materials with input from CAC and UM	
Media advisory / press release / newspaper articles	IDEQ	2-3 times every heating season	Run air quality related ads about wood stove heating	X days prior to publication date
WSV CAC monthly meetings	IDEQ, CAC members, community members	Monthly	In-person meeting	Monthly
Community outreach and consultations	IDEQ	As needed	In-home visits, dissemination of best-burn tools	As needed
Wood stove vendor monthly presentations	IDEQ, local wood stove vendors	Monthly	Presentations at local wood stove businesses	Monthly
Wood stove fair	IDEQ, UM, community members	Early or late fall, 2X per year	Presentations and exhibits	
Wood smoke science symposia	IDEQ, UM, community members	September 2019 and September 2020	Presentations and exhibits	
Regulatory stakeholder meetings	IDEQ, USFS, and local logging companies	Monthly	In-person meetings focused on exploring	Monthly

Action	Who is Responsible	Date/Time Action is to Occur	Method of Action	Date Action Occurred
			options for disposing of slash materials	

8. Evaluation

The Evaluation Plan will be used to ensure the success of the communication tactics, communication products, and communication activities proposed in the Outreach Plan.

Evaluation Tools:

- Direct feedback from stakeholders and partners: IDEQ staff will reach out to all stakeholders identified and discuss their roles or their willingness to support the activities identified in the Outreach Plan, or directly contribute to the activities by disseminating specific messaging or participating/organizing an activity above.
- IDEQ staff will analyze news content of media (newspaper and radio) and editorials and sharing on social media platform (Facebook) to determine if messages are being used and whether IDEQ anticipated what others are saying.
- Public response will be monitored via participant surveys disseminated by IDEQ.
- Focus groups will be used to inform social media messaging, gain additional community perceptions of activities, and to monitor public response.
- Statements and sentiments expressed in local meetings and forums.
- Direct feedback from the WSV CAC, public, and group leaders.

Reevaluate Plan:

- Data received from the evaluation tools, as well as results from the WSV CAC surveys, focus groups, and direct feedback will be used to adjust the Evaluation Plan as needed.

Presenting the Plan:

- IDEQ and UM will present the final draft of the Outreach Plan to the WSV CAC and then to the WSV public by December 31, 2018. The goal will be to achieve buy-in from decision makers, and then the community members who will be critical stakeholders.

Implementing the Plan:

- This plan will be executed as written.
- Continue monthly meetings with the WSV CAC to discuss progress and re-assess approaches.
- Update plan quarterly (twice during the heating season) to correct course if necessary based on monthly meetings assessments.

Appendix A

As part of the development of the Outreach Plan, a survey was disseminated to West Silver Valley residents with the goal of gaining insight from community members on the burning behaviors and perceptions related to residential wood combustion, education on best-burn practices, prescribed / controlled / residential yard waste burning, and communication questions. This survey was developed following the initial meetings with the CAC, and with input from IDEQ staff (Shawn Sweetapple, Dan Smith, and Ralph Paul). Several interviews (in person and over the phone) were conducted by the UM Team of Taylor and Ward. In addition, the survey was transcribed into an electronic format (Qualtrics) in an effort to reach more people using the following link:

https://umt.co1.qualtrics.com/jfe/form/SV_4ZmRoWt5gs3qtN3.

To advertise the survey, the questionnaire link was emailed to a list of 35 community stakeholders on Aug 3, 2018. This list of CAC members (and associated contact information) was provided to the UM Team by Mr. Ralph Paul. The survey link was also provided to Mr. Chance Watson for publication in the Shoshone News Press, as well as hosted on the IDEQ website. Results from these surveys were then used to inform the development of the draft Outreach Plan. Below is summary of the survey findings, as well as the survey questions and associated responses.

Survey summary of findings

In total, 30 people participated in the survey. Themes and Key Messages from the survey results are as follows:

- Survey respondents identified wildfires (53% (n=16)) and woodstove / fireplaces (57% (n=17)) as primary sources of air pollution in the Silver Valley.
- 80% (n=24) of survey respondents had the perception that wood stoves are a source of outdoor air pollution during the winter months, while 66.7% (n=20) thought wood stoves are a source of indoor air pollution during the winter months.
- 66.7% (n=20) had some knowledge of best-burn practices, with 65.5% (n=19) interested in learning more about “best-burn” practices. 64% (n=14) said they would like to receive information by snail mail.
- 79% of respondents were favorable about wood sheds, while only 13% of respondents were favorable of fire logs.
- To increase the number of vendors selling dry wood (<20% moisture) in the Silver Valley, survey responses highlighted the need for better education for the buyers and the vendor, including wide spread use of moisture sensors (n=9, 32.1%), providing added incentives to vendors (n=3, 10.7%), and developing regulations to oversee vendors (n=2, 7.1%).
- To encourage more homeowners to burn dry wood, common themes included increasing community education about the importance of burning dry wood (n=15, 53.6%), ensuring there is an adequate supply of dry wood (n=4, 14.3%), and making moisture sensors readily available (n=3, 10.7%).
- 42.9% (n=12) of survey responders perceived that open burning / residential yard waste burning is an air pollution source. 42.9% (n=12) responded that prescribed burning is an air pollution source.
- Regarding communication to receive information about air pollution and / or wood burning, 71.4% (n=20) of survey responders indicated that text messaging would be effective. 77.8% (n=21) responded that a mobile app would be effective, 66.7% (n=18) responded that an electronic sign would be effective, and 74.1% (n=20) responded that social media would be effective.
- When asked what the ideal way the community would like to receive messages regarding air pollution / wood burning information, the following methods were listed: Facebook (30.8% (n=8)), Email (23.1% (n=6)), apps (15.4% (n=4)), and Twitter / online news / text alerts, respectively (11.5% (n=3)). Community support (38.1% (n=8)) and access to internet / devices (28.6% (n=6)) are the biggest barriers to these messaging programs.

- When asked what the ideal source of home heating would be in the Silver Valley, 53.8% (n=14) of survey responders identified gas furnace / stoves, while 23.1% (n=6) named wood stoves.

Survey questions and responses

1) What is your name?

In total, 30 people were interviewed and/or filled out the electronic survey.

2) What is your home community?

n=30. Participants that were interviewed and/or filled out the electronic survey were from the following communities: Pinehurst (20.7%), Kellogg (34.5%), Smelterville (3.4%), Cataldo / Kingston (6.9%), or “other” (includes Mullan, Osburn, Medimont, and Coeur d’Alene).

3) How long have you lived in the Silver Valley?

n=30. Survey participants lived in the Silver Valley anywhere between 2 months and 76 years.

4) What do you think are the primary sources of air pollution in the Silver Valley?

n=30. The following primary sources of air pollution were identified by survey respondents:

Source	% (respondents)	Source	% (respondents)
Slash burning	27% (n=8)	Cars/diesel trucks (including logging trucks)	10% (n=3)
Wildfires	53% (n=16)	Dust	7% (n=2)
Woodstoves/fireplaces	57% (n=17)	Burning trash	3% (n=1)
Inversions	10% (n=3)	Prescribed burns	7% (n=2)
"Fires", "wood burning", "smoke"	23% (n=7)	Smelters	3% (n=1)
Yard waste	13% (n=4)	Mining communities	3% (n=1)

5) Do you have a wood stove?

n=30. Yes: 45%, No: 55%.

6) If yes, what type (old stove, new (EPA certified) stove, pellet, etc.)?

n=19. For those that responded “yes” to Question 5, the following answers were submitted: “Lopi”, “old stove”, “Blaze King with combustor”, “1-2 yr. old Blaze King”, oldish stove”, “new Kuma”, “EPA certified “Blaze King”, “EPA certified stove (2)”, “Karna wood class”, and “custom stove”.

7) Are wood stoves your primary source of heat? If not, what is the primary?

n=24. For those that responded “yes” to Question 5, the following answers were submitted: 17% electric, 26% gas, 31% wood, and 26% “other”.

Wood stove change out questions

8) What are your perceptions of wood stoves being a source of outdoor air pollution during the winter months?

n=30. Of the 30 responses, 80.0 % (n=24) thought that wood stoves are a source of winter air pollution, while 3%, (n=1) thought that wood stoves are not a source of winter air pollution. 17% (n=5) did not directly answer the question. Listed below are the “no” and “other” responses, along with some of the questions with expanded answers that illustrate perceptions:

- If you use the right kind of wood dry and seasoned not much air pollution at all
- Wood stoves are a definite contributor to reduced air quality. Burning of wood that isn't fully cured, burning dimensional lumber, and garbage are also a problem.
- I don't think they are as harmful as other heat sources
- In certain areas west of Kellogg, (Pinehurst) there is an inversion, and has been that way forever.
- I perceive they are a major contributor along with the stagnant air patterns.
- There are a number of inadequate poor burning stoves throughout the valley I am sure they are a contributor to the smoke in the winter
- It seems that wood stoves would not be the main factor associated with the level of pollution in the valley. I speculate to questions the efficiency of the stoves, as well as the substances being burned for fueling the fire.
- Only during an inversion when air becomes stagnant in the valley. Most people in the valley are aware of burning clean dry wood; however, some do not have the means or knowledge of how to have a clean chimney, in order to keep creosote down. That is where you get more of a dirty burn and brown particulates leaving the chimney.
- I believe that wood stoves are a source of some of the outdoor pollution, and believe some could be alleviated if using correct fuel with proper water content.
- I love wood heat, but I feel everyone should have a more efficient wood burning stove to reduce pollution.
- I've not heard anyone complain about the pollution caused by wood stoves until this class. However, now I'm more cognizant of the fact that wood stoves do cause measurable pollution during the cold months
- It is an issue if inversions, not heating hot enough, wood too wet, general not educated on burning with wood.
- Wood stoves effect the air quality in a negative way, but can also burn in a more clean way with proper preparation of wood and an EPA wood stove.
- There are many people with old non-certified wood burning stoves that emit a huge amount of discharge.
- I perceive that wood stoves are a source of outdoor air pollution during the winter months. I also know that this pollution is the highest in the middle of the night. aka: No solar radiation. As soon as the sun comes up and the people awake, the pollution is within NAAQS. Those most in danger of the outdoor pollution are those who are out & about in the middle of the night.
- "never thought about that"
- it is a source unless you burn properly.

9) What are your perceptions of wood stoves being a source of indoor air pollution during the winter months?

n=30. Of the 30 responses, 66.7 % (n=20) thought that wood stoves are a source of indoor air pollution, while 3%, (n=1) thought that wood stoves are not a source of indoor air pollution. Other respondents were unsure (n=3, 10.0%) or did not directly answer the question (n=6, 20.0%). Listed below are the “no” and “other” responses, along with some of the questions with expanded answers to show perceptions:

- not much
- Burning wood reduces indoor air quality. Especially, if they are not properly installed and maintained.
- Same, I don't think it's as harmful as other heat sources.
- Homes exchange air with the outdoors every 1 - 1.5 hours. Inside air has approximately 85% of the pollution of the outside air so wood smoke would be a primary source of indoor air pollution.
- If they are installed correctly, it should be minimal, however, I have never owned a wood stove, so I am uncertain.
- I perceive they pose a problem to occupants of these homes.
- Wood stoves are more than likely a source of indoor air pollution during winter months particularly when the stove is opened to load wood.
- Outdoor air circulates inside as well
- I would question the setup of the stove and the guidelines of how a person is operating the stove. I grew up with a wood stove in a single wide trailer, and maybe due to being naïve, I never thought of the stove as polluting the indoor air. Proper ventilation, timing of loading, and stoking should prevent indoor pollution - I would be surprised if the pollution was unavoidable.
- Wood stoves are more messy and dirty than natural gas. But they produce radiant heat which is a better and warmer heat during our cold winters. Wood is cheaper than natural gas, and we live in an area where there are a lot of people living in the poverty level. When a cord of wood is \$5 from the Forest Service, and cleaning up the dry fuels in the forest is important, that seems like a reasonable choice for our community. As stated above, I feel most of our air pollution comes from other areas when there is stagnation. Our valley is unique with mountains on all sides, and it takes a bit to get the air pushed out of the area.
- I haven't had a wood stove in many years, but I do feel that we used to have to dust more often than when we didn't use the wood stove. It is the only source of heat for many Shoshone Co. citizens
- Have never given it much thought until now :-)
- Until this class, I would've believed indoor air pollution from wood stoves would be negligible. Now that I've seen air monitors show that indoor and outdoor pollution is the same, I believe wood stoves affect indoor air as well
- When we lived in Western Washington, we had an old wood stove that we used at times. (Not as primary heat source) When the stove was opened, the smell could be strong, but I had never considered the possibility of it being a health risk until this workshop.
- I would think that those who use stoves are breathing air that has high particle levels. I can't believe that it is healthy to always breathe it in.

- It makes sense that they are because I have witnessed a lack of ventilation in home dB of my friends who use them and also can sense the air quality differences btw my home and their homes itchy eyes and skin irritation
- I think it depends upon the quality of the chimney and the seal on the wood stove.
- Newer, more efficient stoves cut back on indoor pollution.
- I perceive that wood stoves are a source of indoor air pollution when the fuels are improperly burned and the door is opened too often to re-stoke the fire.
- not thought about much, but get "snort of smoke"

10) Are you aware of the wood stove change out program in the Silver Valley?

n=29. 93% of respondents said they were aware of the changeout program, while 7% were not aware.

11) If so, what are your perceptions about the wood stove changeout program?

n=30. 97% of respondents said they were favorable, while 3% were not.

12) Are there ways of improving the wood stove changeout program?

n=30. Multiple suggestions were provided on ways the changeout program could be improved:

- Possibly visit the high schools
- Yes I believe they are paying way too much of the money per stove. When this program first started years ago they were offering so much a stove the cheapest epa approved and if you wanted a fancier one you paid the difference. Offering to build a one cord woodshed out of pallets is a joke.
- Reducing the paperwork and streamlining the process, so we can get them installed at a faster pace.
- Possibly switch to the newest technology that does not use catalytic converters. The newer design increases temperature which supports more efficient burning. Catalytic converters produce more respirable particulates than standard fireplaces.
- Focus on the Pinehurst. Use more external monitors to identify specific geographical areas for improvement.
- I would say parental involvement is a critical factor with this. If students are finding meaning in the methods and research they are conducting, parents could have more willingness to approach the program for a stove.
- Identify locales that are producing the highest particulate levels during the winter month and specifically target those areas for the change outs.
- Many people do not like the intrusion of having their homes policed by the air quality patrol. Giving a voucher for a stove, and contracting local businesses to install without the intrusion of the government agencies might go a long way.
- Get the word out to the folks that could benefit.
- I only found out about it because my principle wanted me to go to a town meeting, and it was on the agenda. Could it be advertised better, or did I just not know about it because I didn't live here full time until December.
- It was kind of interesting to hear how arbitrarily the geographic boundaries were drawn. Obviously, air pollutants don't respect those boundaries.
- More community outreach. Posters or days at schools.

- I'm not sure. I know I had not heard about it before and since it is usually lower income families maybe advertise or hook up with services like case managers and social workers, department of health and Welfare or panhandle health to get the word out
- Extending it beyond the Silver Valley and getting the word out! Also, adding some education that shares the health effects of wood stove use.
- Expand the affect area.
- I believe the program is being run very well and is an asset to the goal of reduced air pollution. It might be easier to sell with a "before and after" photo showing the smoke emitted from a chimney with an old stove and smoke emitted after a new stove has been installed.
- I'm not sure. The main focus should start at the Pinehurst monitor and work its way out, mostly to the southwest, due to air flow patterns. If woodstove emissions are a problem, the wind roses must be considered. Those who are upwind of Pinehurst should not be considered for the program.
- people hate EPA, funding
- "no thoughts on this". how many are aware of it? not sure of guidelines. Need better advertisement. "unsure of who qualifies vs doesn't qualify"
- resistance of community to accept government aid
- perhaps better advertising

13) What are barriers to its success?

n=28. Multiple barriers were identified regarding the changeout program:

- Ignorance
- To get the most bang out of the grant money they gave the program.
- Getting enough qualifying applicants. Some people still have fireplaces and these don't qualify for upgrade to an insert.
- The challenge is to find better avenues to attract public interest
- Good representation.
- Tradition and lack of information.
- The size of the area. The cost share is significant for most homeowners.
- Certain cultures/values/beliefs of individuals that could diminish or minimize the current problem we are facing.
- Mistrust of government programs.
- Many people feel the same way as I do, that this is a fraudulent program, and is not needed in the valley. People from "outside" are making suggestion for something frivolous. Air moves, our air is not our own, such as the case of the radiation from Japan after the tsunami there, or Mt. St. Helen's ash after the volcanic explosion. Air is not stagnant most of the time. We get a lot of smoke from fires even in California, the Reservations in Idaho during grass burning, Washington, and Montana prescribed burns and wildfires. Many are leery of a government program intruding on our decisions on how to heat our homes. The forceful way that the DEQ comes across in our area, gestapo-like, is not helping matters.
- People do not recognizing it as a problem. Perhaps some might too proud to ask for a new wood stove.

- Probably people that believe the "government" should stay out of their lives and are not willing to even think logically about a program like this
- Maybe perception that "government" monitoring population and them being told what to do.
- Possibly attitudes that would blame other factors for the problem, or feel like it is not appropriately within the sphere of government intervention.
- Getting the information to all homes and having residents interested.
- Community involvement. Our area is difficult to get participation.
- Sometimes people resist change regardless of the benefits sometimes people resist change regardless of benefit.
- A perception that the currently used wood stoves are fine.
- Limited boundary lines.
- There may be some push back by residents thinking a new stove won't make that much of an impact. I believe hiring a Silver Valley local person to administer the program would have been a wise decision. In my opinion, local residents would be much more receptive and less suspicious dealing with a local person.
- Politics. Advertising. Distrust of the government. And it's for a good/valid reason. The monitor used during the NAAQS assessment period (2011-2013) was changed in Pinehurst from the EPA-recommended accurate method to a type that the EPA noted had readings that exceeded the CFRs for comparability. Had they left the "accurate" monitor onsite, there would have been no Nonattainment at all. IDEQ stated a lack of personnel & funding was the reason for changing ONLY Pinehurst & Salmon monitors to the less expensive, less accurate monitoring method.
- education, education, education.
- need better advertising
- designed good, but off to slow start. Need more \$\$ to promote gas stoves.
- relationships of people with government

Education questions

14) What do you know about "best-burn practices"?

n=30. 66.7% (n=20) had some knowledge of best-burn practices, while 33.3% (n=10) did not.

15) Would you be interested in learning more about "best-burn practices"?

n=29. 65.5% (n=19) of respondents said yes, 24.1% (n=7) said no, with 14% (n=3) "not applicable, N/A".

16) If so, in what forum? (in-home delivery, wood stove fair, by video/mail, etc)

n=22. The following forums to receive information on best-burn practices were identified:

Forum	% (respondents)	Forum	% (respondents)
Video/online tutorial	32% (n=7)	Teacher – led course (face to face)	5% (n=1)
Mail	64% (n=14)	“Demonstration”	5% (n=1)
Email	14% (n=3)	Facebook	5% (n=1)
Through schools	9% (n=2)	“in-home”	5% (n=1)
Public service announcements	5% (n=1)		

17) Do you store your wood in a wood shed, garage, or other out building?

n=29. 36% of respondents said yes, 25% said no, 32% N/A, and 7% other.

18) What are your perceptions of the effectiveness of wood sheds?

n=29. 79% of respondents were favorable, 4% were unfavorable, and 17% responded “other” (including N/A). For the unfavorable response, the following comment was listed:

- These are largely a waste of money unless they are incorporated into the existing infrastructure of the home.

19) What are your perceptions of using fire logs?

n=30. 13% of respondents were favorable, 33% were unfavorable, and 54% responded “other” (including N/A). For the ones that responded as unfavorable, here are some common themes:

- They are dangerous because of building up creosote in chimney
- They have chemicals
- Expensive
- The availability and abundance of inexpensive firewood makes fire logs not cost effective.
- Only use when it is a must; needing to start a fire quickly
- I am not against them. But just think about how inefficient it is to make them, transport them, and the price involved in buying them. Many older people enjoy wood being brought to them from local gatherers, split and stacked for them. Also it helps for locals to gather dead wood in the forest that would be fuel for wild fires if not managed. This needs to be a choice not a mandate.
- Don't like them. They smolder and take forever to burn.
- It seems like they would have pollutants in them.
- Fire logs would be OK as a supplement. Like many residents in the Silver Valley, I have access to windfall and dead tress so utilize traditional firewood.
- They are good for someone else for the most part. I might consider use on an evening that an unusually bad thermal inversion is predicted.

20) How do we increase the number of vendors selling dry wood (<20% moisture) in the Silver Valley?

n=28. Common themes included better education for the buyers and the vendor, including wide spread use of moisture sensors (n=9, 32.1%), providing added incentives to vendors (n=3, 10.7%), and developing regulations to oversee vendors (n=2, 7.1%). 17.9% (n=5) responded that there is no need to increase the number of vendors selling dry wood, and that it is the responsibility of the consumer to season the wood. Specific suggestions were made by respondents:

- offer a place for them to park out of the rain, a pole building without walls near the main road?
- You can't. Getting firewood is very hard work and dangerous work. Not everyone can do it and also you need lots of equipment to embark on that sort of job
- Going to be difficult. Many people that burn wood do it because of cost and they go out and gather wood for less than it is sold.
- I don't think we need to.
- Firewood for sale is not dry wood.
- Incentives to those who harvest the wood.
- This would require large, climate controlled warehouses which would be cost prohibitive unless made available through some type of public assistance. We do not need anymore social welfare programs.
- Good question - I am unsure. I would hypothesize to create a location of storage for those selling wood, like a minstorage but for wood. How to regulate the industry - offer incentives for those doing the work to make more money i.e. an incentive program. Also paying an individual, or offering free storage for their wood they are selling.
- Possibly through the widespread use of moisture sensors so consumers are sure they are purchasing dry wood.
- It is not possible for vendors to store that much wood in order for it to dry correctly. Most locals do a cord at a time and sell as they cut it. They don't have the storage, and it would seem foolish to unload their truckload, only to reload before selling and delivering. It should be up to the customer to buy in advance and season the wood accordingly.
- Educate buyers on what to look for when purchasing wood from an outside party. If buyers won't buy wet wood perhaps it will be sold less.
- Educate public on wood use so they can monitor their own purchases.
- Get the vendors that are already selling correct information.
- I think the first step is helping them understand the benefits and helping the public understand the benefits of having 20% or lower
- Regulations???
- Perhaps vendors could get their wood "certified" by the EPA office (maybe pay vendors \$15 to bring in their load of wood before selling it).
- Education/Buy in
- Advertise on Silver Valley Classified sites on Facebook. There are two primary sites. Get the word out that there is a need for them.
- Educate them that selling freshly cut wood (green), especially later in the summer, is NOT good for their customers or the environment. They need to start selling wood as soon as the trees are accessible. I do not support ANY government subsidies.

- Allow slash piles to be cut for firewood rather than just burned up.
- need a good vendor, have a perpetual vendor
- doing moisture meters - if sell then provide a moisture meter to them
- vendors that sell dry wood - encourage vendors to dry it. Implement a recognition program to sell wood.
- need to provide education to recipients

21) How do we encourage more homeowners to use wood sheds (or other methods) to keep fire wood dry?

n=28. Common themes included providing financial incentives or building assistance (n=9, 32.1%), increasing community education / advertising (n=7, 25.0%), and education through school outreach programs (n=2, 7.1%). 7.1% (n=2) responded that they are uncertain if encouraging more homeowners to use wood sheds is needed and / or not needed, respectively. Specific suggestions were made by respondents:

- Offer an incentive for a kit from a local hardware store. Possibly offer assistance from DEQ.
- Those that burn wood who do not have a wood shed probably would love to have one. the main reason that they probably don't is finances or space
- Education. Providing wood shed kits, perhaps go through schools.
- Most everyone does. Possibly help fund them?
- Encourage homeowners to experiment by burning a cord of dry wood followed by a cord of wetter wood.
- No experience, but possibly by public outreach and funding.
- Help with cost and design.
- Anecdotally, there are generally only a small number of houses that cause most of the air quality problems in the Pinehurst area during the winter. Wood sheds seem to be overkill, a big effort for a small problem.
- High school students may be able to offer help in assisting or building the sheds needed for the valley. If homeowners have the land, then cost may be the issue. If land is the issue, a fabricated design may be suitable. In either case, offering assistance from people could alleviate the lack of sheds.
- Woodsheds are a rather pricey commodity. Possibly some type of high quality, large tarp give away.
- Most people do. How many have you seen store their wood outside. It is only stored outside usually as whole logs before they are able to cut and stack it. I have not seen anyone in the valley store their prepared wood outside.
- Keep providing supplement funds as you are.
- I'm not sure, maybe show them wood with moisture vs wood with little moisture, such as with our sticks we used in our experiment
- Matching grant to build.
- Hoping that as kids learn more they can influence their parents. I also heard something about offering simple wood shelters that homeowners can set up.
- The wood shed program being more available to all families, not just low income.
- Show how to build. Offer discounts on supplies for shed.

- Again hoping to communicate the benefits and the importance
- Send out information on the importance of wood sheds.
- Advertise as mentioned in question above. This may need to be a real "boots on the ground" job by driving around Pinehurst residential areas and approaching people one-on-one who have their firewood exposed to the elements. (I have seen many) This would be an excellent time to start. People will soon be thinking about fall/winter and starting to get their firewood whether by purchasing or cutting/hauling it themselves.
- Education. Perhaps a short series of editorials or a pamphlet.
- Need folks to understand it is not that hard

22) How do we encourage more homeowners to burn dry wood?

n=28. Common themes included increasing community education about the importance of burning dry wood (n=15, 53.6%), ensuring there is an adequate supply of dry wood (n=4, 14.3%), and making moisture sensors readily available (n=3, 10.7%). 3.6% (n=1) suggested providing incentives, that encouraging homeowners was unnecessary, or they were uncertain, respectively. Specific suggestions were made by respondents:

- Make sure it's available and sheds are available.
- Education. Continue distributing moisture meters.
- Most people do, again maybe help fund a wood shed or educate about the dry/wet?
- Possibly use inroads provided through health professionals.
- Public outreach, and maybe have the resource available for residents to purchase dry wood.
- Demonstrate the differences.
- Education - creating the public awareness needed for those to see a need for change. Efficiency, health concerns, generational
- Make moisture sensors readily available. Education about the inefficiency and added costs of burning wet wood.
- As I stated, I do not feel that is a problem in our valley. Most people know to do this. Some wood smokes more than others. Take the case of the burned wood that was gathered after the Grizzly Bear fire up the North Fork. That wood had creosote from the fire and when burned put out more smoke than normal. Different types of wood burn less clean and at different temps than others.
- I will contact XX with the KMS afterschool program and hope that we can have a parent interaction day/night to assist with opening up the registration period.
- I don't think a lot of wood burners know why burning wet wood is bad for their stove and air quality. Somehow get more information on this to the community.
- I don't know. It has to be available, easy to get.
- Hoping that locally generated data can become common community knowledge-- education.
- I think that they would prefer to burn dryer wood anyways but it is what it is, you burn what you have available.
- I think you're doing a good job with the exchange program But continuing to educate the citizens about how important dry wood is would be great
- Send out information that shares how to season wood properly.

- Educating those who cut their own firewood and making sure the firewood sellers are selling dry wood. Partnering with the USFS office in Smeltonville to distribute information to people buying firewood permits.
- they will if it is available

23) Do you clean your chimney? If so, how often? Who cleans your chimney?

n=29. 37.9% (n=11) of respondents said they clean their chimneys - 2 more than once/year, 4 once/year, 2 less than once/year. 3 clean chimney themselves, 2 have a friend clean chimney, 2 hire a professional. 10.3% (n=3) do not clean their chimney, and 44.8% (n=13) do not have a chimney.

Open burning questions

24) What are your perceptions about open burning / residential yard waste burning being a source of air pollution during the fall and spring?

n=28. 42.9% (n=12) responded that open burning / residential yard waste burning is an air pollution source, 21.4% (n=6) responded that this is not a significant source, 10.7% (n=3) were uncertain, while 10.7% (n=7) had “other” comments. Below are some of the comments:

- HUGE impact on air quality. I wish it was outlawed.
- Not a big deal Kootenai county burns their fields and the smoke doesn't stop at the county line and the loggers burn their slash piles.
- People in the Silver Valley love to burn waste. With new fees at the transfer station it is going to get worse. More education needs to be done directly with local governments because most of them burn illegally.
- I don't see an issue with it
- There should not be any burning of yard waste. This releases a large amount of particulates.
- Should be allowed as a homeowner to burn, with weather permitting.
- I perceive this to be an issue when many individuals are doing this at the same time.
- Small private land owners are not held accountable like government agencies and prescribed burns. These small, private land owners are a significant source of air pollution in the fall and spring.
- I believe that people should be allowed to burn vegetation, not trash
- In this area, very prevalent. The prairie over in Post Falls also contributes to the massive burning and pollution in the Pacific Northwest.
- Open burning is a significant source of particulate pollution in the spring and fall.
- Fall burning is a necessity, and burning puts nitrogen and other beneficial things into the air. It prepares ground for gardening and planting the following year. That pollution can be beneficial. What do you think of handing out respirator masks to the few people that are affected during this time?
- I think they are big contributors
- I agree with it. However, if air quality is that bad during these times, maybe only give out so many permits each year and if you are caught burning without a permit there are harsh consequences.

- I know that it pollutes because it can be seen and smelled when it's happening. I guess I always assumed the atmosphere will take care of that pollution naturally before it gets to levels that can actually harm people
- I think burning slash serves important purposes, safety.
- It doesn't bother me. I love setting fire to my yard!
- I don't like people burning garbage because it stinks and pollutes the air with chemicals.
- That this kind of burning can cause smoke and other problems for people especially those suffering from asthma
- We burn some yard waste, but try to compost most of it. Maybe send information about both!
- It seems like a smaller contributor than the winter wood smoke burning.
- I hate it. I want to open my windows!!!
- I believe open burning/residential yard waste burning are both major sources of air pollution. Slash burning after logging operations contributes a tremendous amount of air pollutants in the Silver Valley.
- I do not perceive open burning to be a major source of air pollution. This has been substantiated by IDEQ's Emission Source Analysis to the EPA. It is a minimal source and should only be addressed to the public through education.
- I know this happens, what bothers me is when I smell plastic or other nasty smelling stuff in the air.
- Open burning a huge deal. prescribed is pretty bad every once in a while. yard waste burning, every once in a while.
- yes - definitely more in spring than fall
- yes, many people burn in backyard and let it smolder
- is common

25) What are your perceptions about prescribed burning being a source of air pollution during the fall and spring?

n=28. 42.9% (n=12) responded that prescribed burning is an air pollution source, 21.4% (n=6) responded that this is not a significant source, 10.7% (n=3) were uncertain, while 25.0% (n=7) had "other" comments. Below are some of the comments:

- I don't like it. I know it may be necessary in some areas but if we would allow more old growth and required more selective logging/wood chipping even on private property would that be an alternative?
- Most of the prescribed burning that becomes an issue is done on private land. We need ordinances to guide burning on private land that only allow it under the proper conditions.
- Kellogg middle school should burn this bio mass in their generator.
- Wild fires have just recently started due to controlled burning in our area.
- This is not as significant a source of air pollution as the small, private landowners.
- Essential to forest health
- It can create a huge problem, depending on the weather.
- Again, this is a significant source.
- It is a necessity. Usually the huge fires set on the reservations at grass farms cause extra smoke to enter our area. People who have problems need to stay indoors during

this short time, or they need to wear a mask that would help keep particulates from entering their lungs.

- I would want data on how much it affects air quality to make an opinion. Maybe on permits you are given a day to burn to disperse burning out.
- It definitely contributes, but there are probably lots of variables that are involved that I don't know enough about
- There are agricultural and forestry needs.
- Unfortunate that fuel can't be distributed and used for heat.
- I feel it is necessary to avoid fires.
- That this can happen in cause people medical issues
- I wish they would burn based on meteorologist suggestions within a time frame.
- I am more tolerant but wish it didn't occur so often.
- I am copy and pasting from above... Slash burning after logging operations contributes a tremendous amount of air pollutants in the Silver Valley.
- According to IDEQ's Emission Source Analysis to the EPA, prescribed burning is by far the highest contributor to the area's air quality issues. It is NOT limited to fall & spring. Bad question.
- Prescribed burns don't seem as annoying as outright wildfires.
- definitely in spring
- people do prescribed burns "when they want to". They do it because thats the way it has always been done.

26) What would the ideal logging debris reduction program look like in your opinion?

n=27. The following logging debris reduction programs were identified by survey respondents:

Program	% (respondents)	Program	% (respondents)
Use of wood chipper / composting	22% (n=6)	Open to public	7.4% (n=2)
Convert slash to biomass fuel	7.4% (n=2)	Burn the logging debris as they do now	7.4% (n=2)
Other – produce some type of product, follow Idaho Forest Practices Act, outsource the removal	25.9% (n=7)	Uncertain	25.9% (n=7)

Below are specific suggestions:

- A traveling wood chipper or debris pick up as well as a stationary wood chipper that works year round.
- It would be a joke. It is too expensive for them not to burn their slash piles and would not be profitable to have someone to come get it and clean it up.
- Everyone following the Idaho forest practices act
- The slash should be chipped and spread on the ground.
- Start a program.

- Idaho state lands priority in this regard is fire suppression. As part of a logging compliance permit, there has to be a plan for slash, 3" diameter or less, reduction. Slash cannot exceed 3 tons/acre. Piling and burning slash is the only method that is not cost prohibitive.
- Assessing the forest and determining what debris need to be removed, then removing it. It would involve or have a community component to survey the public in what they deem necessary. Conferences or meetings can be held to either agree with the public and hire the work out, or outsource the work to the forest service? If the public is unaware of the problem, we need to make the problem apparent first
- Slash would be converted to biomass which could then be used for fuel.
- If the county wants to chip the logs and use them at the school for their wood burning furnace, that would be great. Letting wood gatherers cut the remaining logs would be good. Maybe hauling and selling the unusable grade logs to a chipping plant would be good. There will always be excess branches and stumps after logging. Plus the burning of wood is actually good for putting nitrogen and nutrients back in the soil. Most people are knowledgeable of fall slash burning and prepare for that.
- Let people know the slash pile is there and allow them to get firewood out of it. So much good wood is burnt as slash.
- I don't know, probably just less wood debris around
- Would love to see the material chipped/composted.
- Compost and chip...Then allow access to the public.
- Upcycle into usable energy. I am not sure the answer to the question of affordability in transporting the material from the logging sites to a facility. Maybe a portable chipping truck on site at the logging operation and haul the chips from the source area instead of hauling the raw material to a processing site?
- An ideal logging debris reduction program might include asking the logging company to notify the public that it has debris piles in an area and the public is welcome to take some home. It would also include encouraging them to sell their debris to companies that could process them into compressed logs or chips and make them available to everyone at a minimal cost. No subsidies.
- zero debris, is that possible?
- chipping and send wood somewhere. figure out \$\$\$. what do to with - pressed logs - some is good firewood. then to market. chip and sell to someone.
- encourage bring staff option to haul out to make a viable products. Put in contracts with loggers
- take some out and put slash to other uses - find a market

27) What are barriers to such a program?

n=26. The following are barriers identified by survey respondents:

Barriers	% (respondents)	Barriers	% (respondents)
Finances/costs/labor	53.8% (n=14)	IFPA doesn't pertain to private property	3.8% (n=1)
Community support	30.8% (n=8)	Unsure	19.2% (n=5)

Below are specific comments of interest:

- Cost for programs other than pile and burn is prohibitive.
- Resources, the people available to make a change and the cost associated with the change as well.
- The cost of chipping, hauling unusable logs, and putting a burden on someone else to take care of it.
- People who are set in their ways and are not open to change.
- Same as before, antigovernment kooks
- Money...epa ..animal activists...community..manpower
- Resistance to change people not understanding the benefits and cost effectiveness or time
- Logging companies not getting \$\$\$ from it.
- Many people in North Idaho have an anti-regulation or anti-government involvement mindset that immediately turns people off.
- Perceptions that slash is waste and not a commodity - need to make \$\$

28) What would the ideal woody yard wastes / leaves reduction program look like in your opinion?

n=26. The following suggestions for woody yard wastes / leaves production programs were made:

Program	% (respondents)	Program	% (respondents)
Curbside pickup	32.1% (n=9)	Turn into biomass fuel/electricity	7.1% (n=2)
Composting program	21.4% (n=6)	Chip it and make available (chipper loan program)	7.1% (n=2)
Bins for disposal/central dump	25.0% (n=7)	Unsure	14.3% (n=4)
Education	10.7% (n=3)		

Below are specific comments of interest:

- A curbside pick up and large truck to pick up larger loads for an extra fee.
- Composting program that serves all communities in the area. Preferably a mobile one that travels to the communities.

- Use good mulching mowers and do not mow as often. Other yard waste should be picked up by the waste disposal company and composted. Again, use schools as avenues to educate the public at large.
- A good composting program for the city and county.
- Free pick up and disposal.
- Place bins for community yard waste disposal. Focus on targeted areas such as Pinehurst.
- It would need to have a collection mechanism to pick up debris from individuals
- Informative with information and help to those who may need help removing items instead of burning them. A local dump area that does not charge for such debris, and that may also assist in loading, hauling, or unloading the debris.
- Many communities, such as Missoula, MT pick up this type of waste as part of the refuse disposal program.
- You would have a pretty good stock pile of waste that would be difficult to get rid of. The way it is, that debris is scattered in various areas. To have one big debris pile is not a good idea. Again, the cost of hauling that material, using more gas and energy to get rid of it is not efficient. What about the county having a huge furnace to burn all that material, and provide heat to everyone's home at a sensible price? Would provide radiant heat for all, jobs, and would reduce a lot of debris.
- Compost????
- Again I'm not sure, maybe just a place to put things like that besides burning it
- Collection, composting facility.
- Community workers come get garbage and burn efficiently with tools they have our community would not.
- First there has to be an alternative option most people don't have an alternative option at this point to Bernie
- Chip it and make it available.
- Make wood chippers/mulchers available to home-owners to borrow.
- To get most people to participate, will probably need to continue the roll-off bins around Pinehurst residential areas. Otherwise, might need to just ask them to take their debris to the curbs and have someone pick up.
- An ideal program would make readily available compressed logs & chips. It would provide an economical means to dispose of their own waste. Education.
- collected by town/county and composted up at the old dump.
- take to dump/transfer station. leaf collection program - leaf sucker, composting, haul to Kootenai County
- curbside pickup program - allow to separate from regular garbage
- collection program - grinding it
- transfer station works OK. need to improve communication

29) What are barriers to such a program?

n=26. The following are barriers identified by survey respondents:

Barriers	% (respondents)	Barriers	% (respondents)
Lack of resources	48.0% (n=12)	Education / marketing of programs	12.0% (n=3)
Community support	20.0% (n=5)	Getting it chipped	4.0% (n=1)
Getting the county and local municipalities to work together	8.0% (n=2)	None	4.0% (n=1)
Location/capacity of central site	16.0% (n=4)		

Below are specific comments of interest:

- money and community support
- Funding and getting the county and local municipalities to work together.
- I see no barriers.
- Funding, location and education.
- Lack of resources of local gov. agencies.
- The resilience people may have of the topic. Their need and their rights
- Cost.
- The county would have to devise a plan, have enough material to provide heat to everyone, have an efficient program, hire people, pay a huge amount to implement a plan like that.
- Area to have so much compost going on.
- Lazy people that would rather burn than take care of it the right way
- Expense to the communities involved.
- Getting information to the community.
- Involvement...money...resources
- Public awareness and safety
- Getting it chipped.
- As in most cases - financing to sustain the program.
- Barriers are costs and a lack of concern.
- not alot of options. county has to haul to Missoula. no landfill in Shoshone County
- funding and space
- getting city and county to cooperate - make an end product is biggest challenge
- budgets - many to things, community prioritization

Communication questions**30) What do you think about using mass text messaging services to receive information about air pollution and / or wood burning?**

n=28. 71.4% (n=20) responded that text messaging would be effective, while 32.1% (n=9) responded that this would not be effective. Below are some of the comments:

- Do not think it will work in the silver valley

- Works for those who text.
- Mass text messaging would reach a lot of people.
- I am cautious on this. When people use phones for business use, it's frustrating to get occasional messages.
- Shoshone county should develop reverse 911 capabilities. Information about air quality could be dispersed in conjunction with this type of program.
- may be helpful to some, I think the people that are going to pay attention to the alert probably already receive the information in another format.
- If people sign up for the program and know what it is, it would be a good thing
- Text alerts are an effective, low cost method for the wide distribution of information.
- No. People wouldn't read it. They are too busy, and most is irrelevant, as most people already know about pollution and clean burning.
- Good and bad. It might become a source of irritation and have negative effects. Maybe format it as the cool fact of the day.
- Should be fine, people are on their phones all the time anyway
- I don't read texts that are sent out by people I don't know.
- I think there would be a fair number of people interested.
- I think that that could work for some people who are more tech-savvy however considering the elderly population in the area it might not be effective
- I would rather use an app. I usually look at the Weather Channel app.
- I'm not crazy about text messages for things like that - I would delete the text without reading. I would be more inclined to read email or snail mail regarding these topics.
- I think that texting information about air quality predictions are acceptable, if requested. I don't think that texting anything else will be readily accepted and likely deleted without reading. It could become overwhelming to a person if extreme care is not given to the number & substance of the texts are not monitored. The area has become "numb" to the environmental threats from a Superfund that many disagree with.
- half of folks get everything through phone. would surprise people
- good, as long as not constant messaging
- useful, can opt in or out if have a health concern

31) What do you think about using mobile apps to receive information about air pollution and / or wood burning?

n=27. 77.8% (n=21) responded that a mobile app would be effective. 14.8% (n=4) responded that this would not be effective, while 7.4% (n=2) were unsure. Below are some of the comments:

- I don't do mobile apps.
- Apps would not be as effective as texts.
- Yes, this approach is likely to be useful along with social media such Facebook, website, etc.
- Yes, individuals opt in to this.
- may be helpful to some, I think the people that are going to pay attention to the alert probably already receive the information in another format.
- I think many people are into the mobile apps and informational apps; I think there are still those reserved against it too. I am not sure about this pertaining to the older generations. I

could see them wanting it more on a public informational level, as far as the evening news or something?

- Many people rely on similar apps to get news and weather information. Possibly an app that incorporates weather with air quality information since the two are so closely associated.
- No, just more junk mail and messaging for most people.
- I think this would work better. You would have to know about the app. but then it is a voluntary thing.
- I wouldn't mind, though there be more resistance than just mass text messages
- I have become increasingly interested in it.
- That would work if people had the app downloaded.
- Again for younger generation this could probably be a good thing but for the elderly in the area who struggle with technology don't have access or the poor who can't afford much of this technology you would miss many of the target people who use wood burning stoves and other items
- I think mobile app availability would be good. If someone is interested, they can go to the app. This is better than having an unappreciated daily text about the topics.

32) What do you think about using LED (electronic) signs to receive information about air pollution and / or wood burning?

n=27. 66.7% (n=18) responded that an electronic sign would be effective. 14.8% (n=4) responded that this would not be effective, while 14.8% (n=4) were unsure. Below are some of the comments:

- I think that would be helpful in Pinehurst.
- Voluntary regulation will only work for those who are concerned about air quality
- These would be effective in the right locations.
- It would increase the awareness and serve as a great indicator.
- These could be effective if placed in critical locations. They are attention getters.
- Again, don't waste the money. Irrelevant to most people.
- This might help with getting the word out, it seemed like the newspaper used to provide air quality to folks, but now the older folks that don't use internet might not get that information.
- That would be more visible to me. Would have to be place in a number of locations.
- It depends on the placement of signs
- Depending upon where the sign is placed - may not be effective if driving + don't want to distract drivers from paying attention. Maybe place a sign as people are waiting in drive through bank line, 4-way stop in Pinehurst, or McDonald's. More of a captive audience that way.
- I think LED signs to receive information like this is a complete waste of money. Who's money? The USFS office in Smeltonville has a sign regarding Fire Conditions. This sign has an arrow that is manually altered per need. Such a sign at the Pinehurst City Hall would be completely adequate. It should somehow include that the air is most dangerous to human health when it is dark (no solar radiation).
- location is barrier. it would be alright. not on interstate
- waste of money

- I don't know how effective it will be, or where is best place to put it
- not a bad way. Makes people aware.

33) What do you think about using social media such as Facebook and Twitter to receive information about air pollution and / or wood burning?

n=27. 74.1% (n=20) responded that social media would be effective. 22.2% (n=6) responded that this is not a significant option, while 3.7% (n=1) were unsure. Below are some of the comments:

- It's ok but doesn't reach everyone. It should supplement other efforts.
- That would probably be your best bet
- Will work for those on social media.
- Facebook would be more effective than Twitter. Women in the community need to get more involved.
- may be helpful to some, I think the people that are going to pay attention to the alert probably already receive the information in another format.
- I tend to stay away from social media. Social media expresses what is socially accepted. If this change is not liked or is not socially accepted, people sometimes lack the integrity to be the only one doing something. If the movement was strong enough and people have buy-in, I would say social media would be great. I would hope the public would already know the need for the program before open to scrutiny.
- These platforms are widely used. How do you convince people to friend or follow West Silver Valley air quality.
- Wouldn't want to hear about it.
- Not everyone has Facebook and twitter. With that said, something well done might go viral.
- Well I don't use those, but if you put it on Facebook "rants and raves" you'd reach 95 percent of people probably
- Yes, Twitter, Facebook etc. !!!!
- I probably wouldn't check it on Facebook, and don't use Twitter.
- Social media could be a good Avenue to explore for younger Generations however Instagram should be included
- This would probably work. Facebook is widely used here and is where people get information and news. Shoshone News Press & KWAL post on Facebook.
- I hate social media. If social media can just post the data so that those who wish to follow the data, can, it's a personal choice. Do not force the data upon anyone, especially since IDEQ has deceived the public as to when the air quality is actually compromised.
- I don't care for it but I am probably in the minority. Social media seems to be the way to reach mindless masses.
- everyone on Facebook - not Twitter
- I don't use Twitter. Facebook is good.

34) What is the ideal way you would like to receive messages regarding air pollution / wood burning information?

n=26. The following were identified as ideal ways of receiving messages:

Source	% (respondents)	Source	% (respondents)
LED Sign	7.7% (n=2)	Online news	11.5% (n=3)
DEQ Website	3.8% (n=1)	Apps	15.4% (n=4)
Through schools	3.8% (n=1)	Text alerts	11.5% (n=3)
Email	23.1% (n=6)	Mail	7.7% (n=2)
Facebook	30.8% (n=8)	Local TV news	7.7% (n=2)
Newspaper	3.8% (n=1)	Not sure	7.7% (n=2)
Twitter	11.5% (n=3)		

Below are specific comments of interest:

- I don't.
- Ideally, I would like to receive this information in the same email I receive daily regarding the perceived air quality for the next 3 days. One email is all I need; put it all in there.

35) What are barriers to such a program?

n=26. The following are barriers to effectively receiving messages:

Barriers	% (respondents)	Barriers	% (respondents)
Expenses	14.3% (n=3)	Access to internet/devices	28.6% (n=6)
Community support	38.1% (n=8)	None	4.8% (n=1)
Negative attitude towards government	4.8% (n=1)	Unsure	9.5% (n=2)
Marketing the apps	9.5% (n=2)		

Below are specific comments of interest:

- The negative attitude toward government programs. Agency should avoid telling people what they should not do and focus the message on what should be done.
- People actually reading and educating themselves on the subject.
- Irrelevant, barrage of messages that become watered down and like hearing a recording over and over, people don't want to hear it.
- Not everyone in this area has access to regular internet service

Final general questions

36) What would your ideal source of home heating be?

n=26. The following are ideal sources of home heating identified by survey respondents:

Source	% (respondents)	Source	% (respondents)
Gas furnace or stove	53.8% (n=14)	Solar	7.7% (n=2)
Wood stove	23.1% (n=6)	Hydro-power heating	3.8% (n=1)
Geothermal	11.5% (n=3)	Radiant heat	3.8% (n=1)
Steam	3.8% (n=1)	Electric	7.7% (n=2)
Forced air furnace	11.5% (n=3)	Pellet	3.8% (n=1)

Below are specific comments of interest:

- Natural gas furnace or stove. If government agencies has allocated all of their resources to natural gas hookups and conversions, everyone in Pinehurst could be connected. Newer natural gas heating units are 92% effective.
- Natural gas, however not all residents can afford, and we should not make them go with once source of heat. Residents should be allowed to have wood heat.
- Natural gas is relatively inexpensive and clean burning. Hydro-power generated electricity would be the cleanest home heating source but it is more expensive.
- Radiant heat, whether by water or wood. It is efficient, warm, and useful to the environment. Forced air gas is expensive, does not work well in windy, below zero temps, and is wasteful.
- Efficient wood stove inserts with a natural gas back-up. There is so much dead wood available in our forests that contribute to wildfires that collecting and burning it properly is a win-win. Affordable & promotes good forest health.

37) Are there any other questions we should be asking during these surveys / interviews?

- Is there someone in your family who has suffered from or is suffering from lung issues?
- it may be helpful to identify all the preconceptions from individuals in the valley and see where their main concerns are with creating a change
- If people burn wood for heat, where do they get their wood?
- Where you live
- Yes. Do the survey respondents perceive there to be an air quality/pollution issue in the area and if so, why? There are countless mountainous communities in the U.S. with similar air flow patterns, why is this area the "5th worst in the nation"? Answer: the monitor did it, not the air quality! Since by far the most impactful emission source is prescribed burns, more questions could relate to this. Unknown possibly age of people participating

38) Are there other community members or stakeholder groups we should interview?

- Business owners.
- Yes, all those involved with providing support in the change and those responsible for the current condition (I do not know specific people/groups for this).

- Maybe the county should think of buying the Enyeart Cedar building and grounds across from Walmart in Smeltonville. They could cut the firewood there from slash piles, and even chip wood and sell logs from slash piles from it.
- More rural homeowners who depend on wood heat.
- It would be nice to get the logging companies on board. I don't know what the solution would be for them though.
- Since the email does not depict who the interviews were sent to, this question is irrelevant.
- School children. It is their lives and lungs at stake. Often you can appeal to their good judgement when their parents are closed minded. Even if kids are not decision makers in their households they are the future decision makers and if they learn some science their parents don't understand or care about they will be more informed adults.
- City Council, County Commissioners
- Panhandle Health
- Silver Valley Chamber of Commerce
- county commissioners

39) Any other final questions or comments?

- Regulations frequently bring extra costs to the wood stove users. Mandating such rules and laws are very difficult on our residents. Stoves that meet regulations now, will probably not meet those regulations in the next five to ten years and this is very hard on residents.
- I was at the DEQ air quality meeting when recommendations were discussed. I was not impressed with the input of the 'ruling' members who were unfamiliar with logging practices and wood burning practices. The group that wants to implement ideas were naive to think that tarping a slash pile, or building a one cord wood shed was going to help the valley residents. Wood burning from residents is not the only particulates causing pollution. They were unwilling to discuss things, instead they were demanding, rude, and forceful. This was unacceptable.
- I really appreciate the ideas and progression for a positive change. I would like to continue to be a part of this in any way possible. Please let me know what I can do.
- Are there programs for people who maybe interested in wood heat? Deals on wood stoves?
- It might be interesting to offer a quick one hour "Think Tank Brain Storming" meeting re: air quality at the Pinehurst Library to see if anyone would be interested in helping to create results. Maybe someone has new ideas? The West Valley Air Quality group is a great resource for information.