

Kittitas County Air Quality Survey

A study of community attitudes, beliefs & behaviors

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Project Scope

- Washington State Department of Ecology in Yakima commissioned the Kittitas County Public Health Department to conduct a county wide survey.
- Create assessment report on attitudes and beliefs around the issue of air quality and inventory community burning behaviors that impact PM2.5 pollution.
- Results report will be used to guide the creation of an education and outreach campaign for cleaner burning practices in Kittitas County.

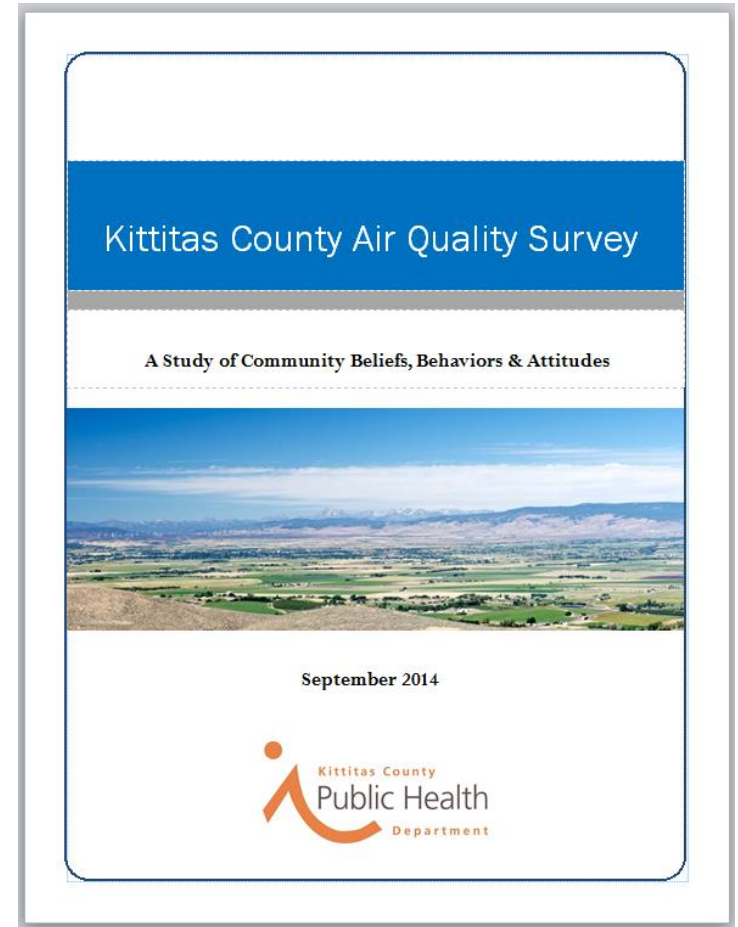


Objectives

- Get a feel for beliefs & attitudes regarding air quality in Kittitas County
- Assess general knowledge level regarding air quality related issues in Kittitas County.
- Assess general knowledge around clean burning practices
- Determine prevalence of residential wood burning appliances and indoor burning practices that contribute to PM2.5
- Determine prevalence of outdoor burning behaviors that contribute to PM2.5
- Determine effective avenues for education and outreach

Results

- 25 question survey conducted over the course of 6 weeks.
- 610 surveys entered into survey monkey for data analysis.
- Results had 99% confidence rating w/ ± 5.41 confidence interval.
- Demographics well represented between Upper and Lower County residents.
- Results reported to DOE and Air Quality Committee.



Key Findings: Survey Data

Beliefs & Attitudes regarding Air Quality

- Half of Kittitas county residents agree that poor air quality is a significant environmental issue in our county. One fifth of the community is on the fence.
- 55% of residents think that poor air quality happens mostly during wildfire season, however, 30% do not agree with this.
- Over half the county feels that wood stoves and fireplaces contribute to poor air quality. Again, almost one fifth aren't sure; leaving one quarter of the county that disagrees.
- Half feel that agricultural burning and diesel/highway traffic exhaust are major contributors.
- The community appears to be relatively evenly divided on the issue of government enforcement. 40% agrees there should be more, 32% feel there should be less, the rest just don't know.

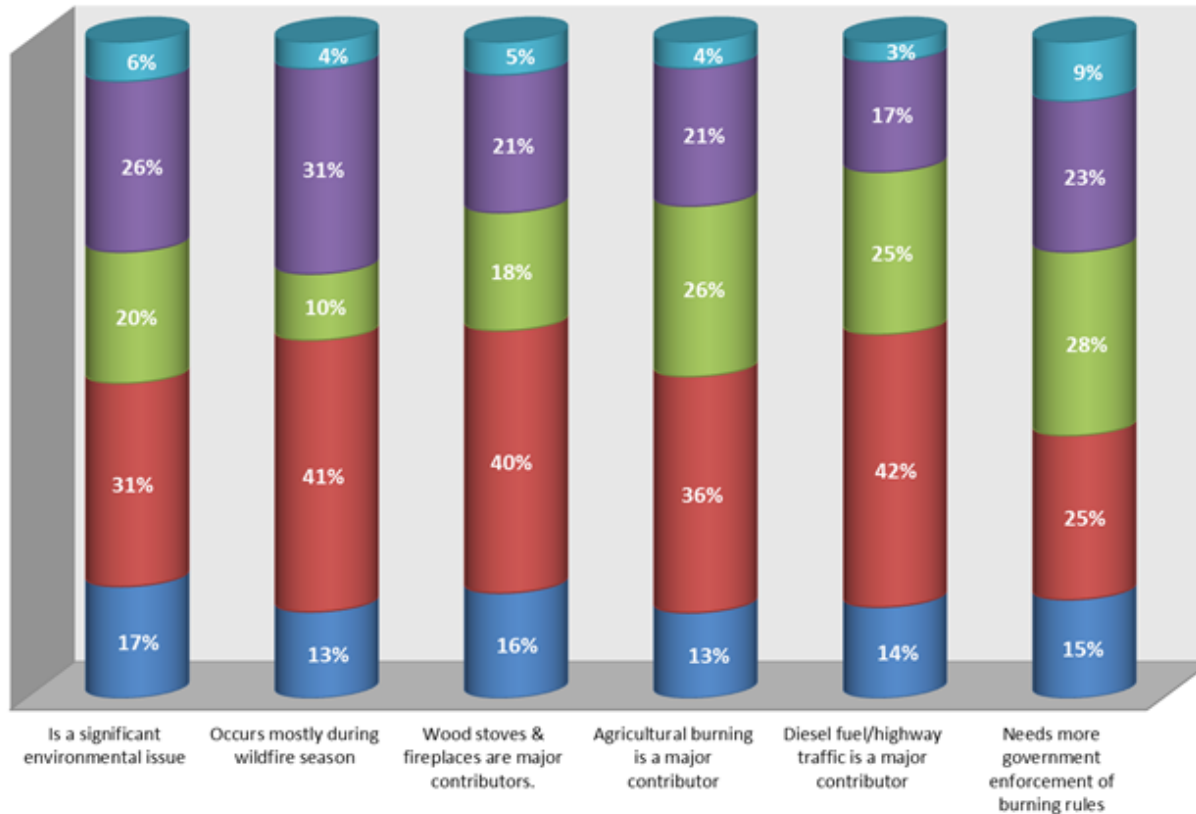
Overall, we seem to be a community divided. Half feel strongly about all the issues above. The other half is split fairly evenly between not knowing and disagreeing.

Key Findings: Survey Data

Beliefs and Attitudes Regarding Air Quality

Poor Air Quality in Kittitas County

■ Strongly Agree ■ Agree ■ Don't Know ■ Disagree ■ Strongly Disagree



Key Findings: Survey Data

General knowledge around air quality & clean burning practices

- Over half of Kittitas County residents (55%) don't understand PM2.5 with an additional 39% reporting that they only understand somewhat.
- Almost half of Kittitas County residents don't know how to check current air quality conditions.
- The way most people get information on burn bans is the Newspaper and word of mouth. Radio and Internet are tied for a close second, so those three mediums should be our focus when creating media campaigns.
- People appear to very knowledgeable about what's legal to burn in an outdoor fire, however, there seems to be a big knowledge gap around cardboard & lumber.
- A large majority of the community has some understanding of what it means to "season" wood (88%). Half of those individuals understand well enough to explain the concept to others.
- Most people use age and their five senses to tell if their wood is seasoned. Less than two percent use moisture meters.

Outdoor Burning Practices

Key Findings: Survey Data

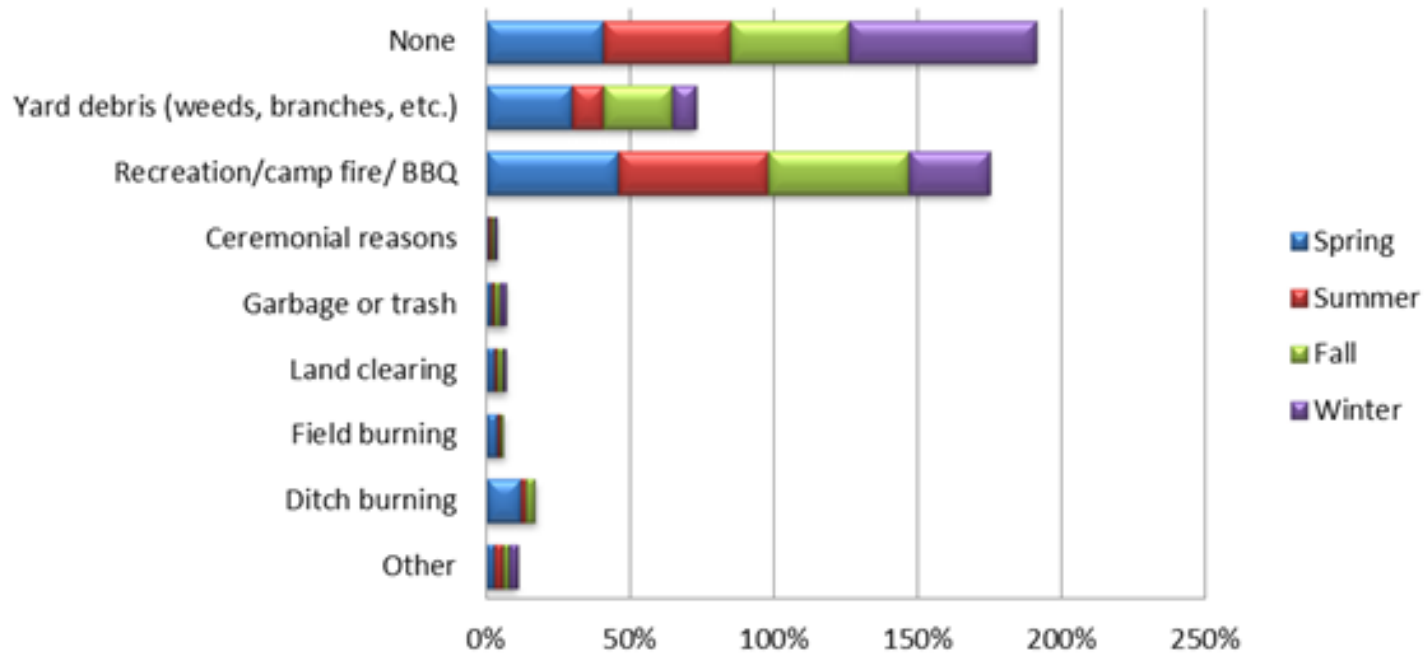
Outdoor burning behaviors that contribute to PM_{2.5}

- Recreational burning (BBQ, fire pits, etc.) are the most common outdoor burning behavior in all four seasons
- Yard Debris is second most common, with the highest rates of burning being in the Spring and Fall.
- The lowest rates for all outdoor burning behaviors are in Winter.
- The highest rates of all types of outdoor burning are in Spring (38%) and Summer (32%), however, there are significant amounts done in the fall as well (22%).

Key Findings: Survey Data

Outdoor Burning Practices

What type of burning do you do outdoors at your residence?



Indoor Burning Practices

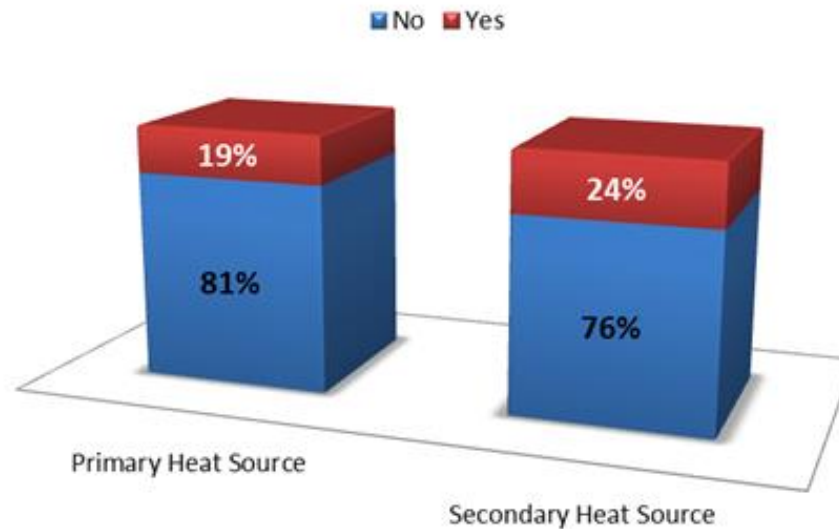
Key Findings: Survey Data

- 19% of Kittitas County residents use some type of solid fuel burning appliance as their primary heat source.
 - Roughly half of these individuals burn wood in a freestanding wood stove.
 - At the time of this survey, one fifth of these individuals report that their wood stoves are uncertified.
 - 94% of users who burn fuel for their primary heat source burn the majority of their fuel in the winter months (which follows the trend of secondary fuel burners as well).
 - 46% (almost half) of them don't understand what the air quality related phrases "PM2.5" or "fine particulate matter" mean.
 - One third reported having a secondary fuel burning appliance as a supplemental heat source to their primary, which means these individuals have more than one appliance on site.

Key Findings: Survey Data

Indoor Burning Practices

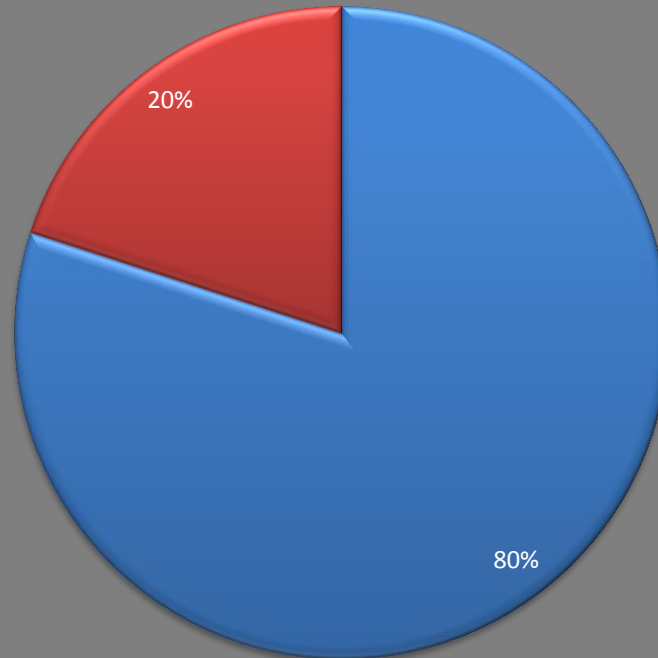
Do you burn fuel as a primary or secondary source of heat?



Key Findings: Survey Data

Solid Fuel Burning Appliances

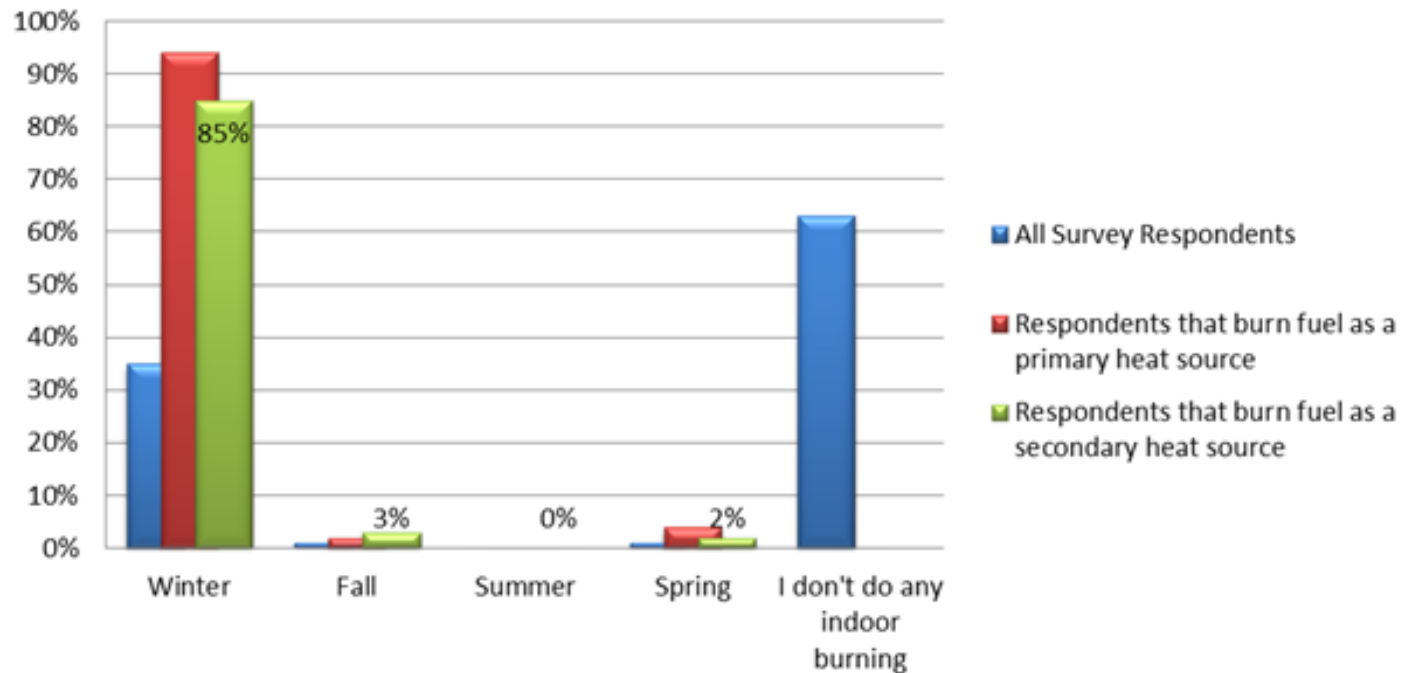
■ Appliances that burn wood ■ Appliances with pellet Inserts



Key Findings: Survey Data

Indoor Burning Practices

When do you do the most indoor burning?

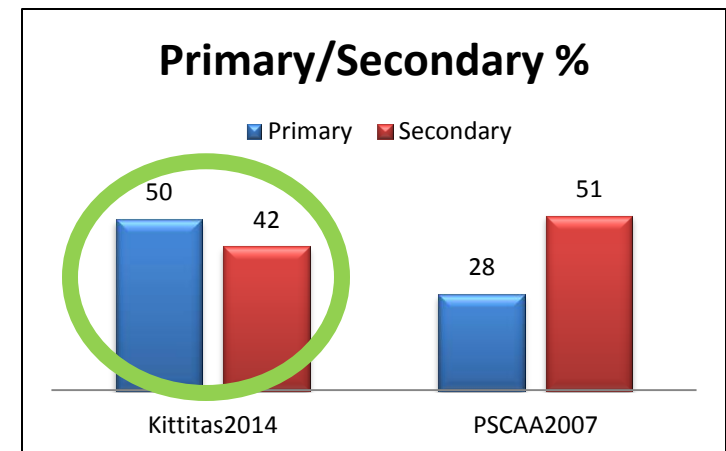
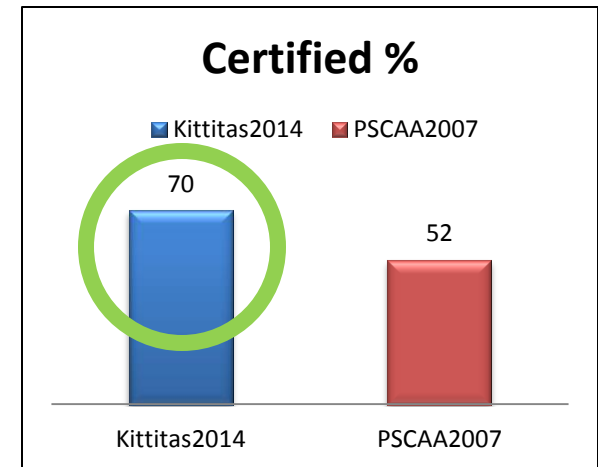
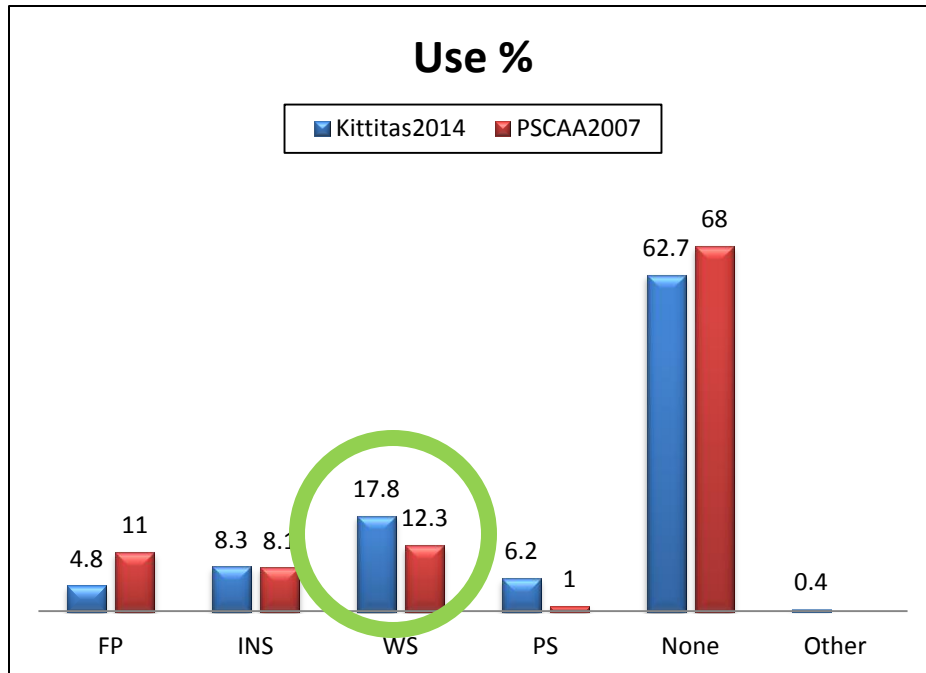


Key Findings: Survey Data

Fuel Burning Profiles

- The majority of people who burn firewood get it through individual sellers or obtain their own through permit cutting and felled trees on their own property.
- Almost 90% of indoor burners report using firewood as opposed to 18% pellets.
- The 5% “other” was gas or presto logs.

KCPHD Survey vs. Puget Sound Clean Air Agency Survey Results*



* Ecology removed King County data from PSCAA's survey data since it is so predominantly urban. The statistics shown here represent the average of Kitsap, Pierce, and Snohomish county survey results.

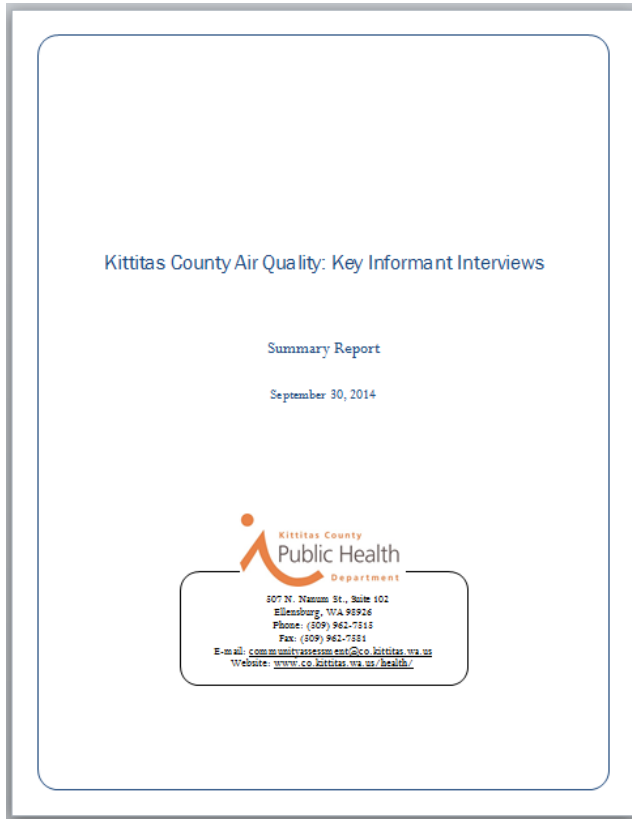
Air Quality: Key Informant Interviews

Why Key Informant interviews?

- Gives validity to the survey data
- Provides in-depth look at a particular perspective
- Fills in information gaps from the survey
- Allows community to give feedback

How we did it....

- Conducted ten interviews in August 2014
- Kittitas County residents who met certain criteria
- Interviews were recorded and transcribed
- Transcripts were evaluated for themes
- Report completed in September 2014



Key Findings: Key Informant Interviews

- People do not link their burning behaviors to poor air quality.
- People who burn wood really enjoy it and won't readily give it up.
- People's primary reason for large pile outdoor burning is efficiency.
- People heating with primarily with wood know how to season it effectively.
- People don't trust that government agencies to have their best interests in mind.
- People don't know about nonattainment or PM2.5.
- The Newspaper is a very effective way to get information out in Kittitas County.
- Access to "good wood" is a challenge.
- Finance was the main reasons for primary burners.
- The most effective incentives would be financial in nature.
- People felt education would be most effective if paired with wood retailers or permit sources.
- People felt education topics need to be centered on wood treatment and proper equipment.

Conclusions

- A large portion of residents are not aware of the threat that PM_{2.5} air pollution poses to the community.
- There are large gaps in baseline knowledge around important air quality facts and behaviors related to poor air quality.
- Kittitas County residents report a significant amount of indoor and outdoor burning behavior that contributes to PM_{2.5} air pollution.
- The community does not connect their behaviors to an increase in PM_{2.5} air pollution.
- Behaviors may have a bigger impact than previously suspected.
- A large portion of the community is open to education regarding cleaner burning practices.
- Education should focus on helping people to evaluate their own burning practices and impacts of those behaviors. Outreach campaign should encourage clean burning techniques, and programs to enhance this.
- Also, there needs to be focus on getting the message out about EPA standards and how close we are to non-attainment.

Future Endeavors...

- Assess impact of outreach & education
- Redesign questions to get an in-depth emissions inventory
- Closer look at community numbers of certified equipment
- Partner with CWU Environmental Studies program
- Five year plan to address continued reduction of PM_{2.5}



Questions or Comments?

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To Protect and Promote the Health and the Environment of the People of Kittitas County

