Blount County Environmental Health Action Team EHAT

2006 East TN Environmental Conference

Meadowview Conference Resort & Convention Center

March 9, 2006

Overview

EHAT History & Process

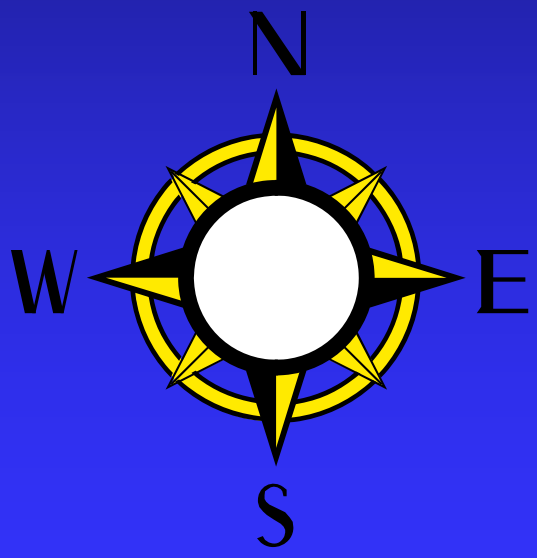
Air Quality

Water Quality

Land Use

What is next?

Questions/Panel



EHAT's Mission

The mission of the Environmental Health Action Team is to improve and sustain the health of the people of Blount County through addressing environmental health issues of concern.

EHAT Formed

- Town meeting - Fall 2000
- Setting the stage - 2001 to mid-2002
  - Tobacco funds provide initial support
  - PACE-EH provides framework
  - Dialogue retreat – May 2002
  - Community Survey – September 2002
  - Subgroup formation
  - Grant funds

PACE EH

- Protocol for Assessing Community Excellence in Environmental Health
- Community-based Environmental Health Assessment Tool
- Developed by NACCHO through a cooperative agreement with the NCEH/CDC

Key Objectives of PACE EH

Evaluate environmental health conditions

Target populations at risk

Set priorities

* http://www.naccho.org/project78.cfm

Using Dialogue with PACE EH

Set of attitudes, skills and tools

Relationship building yields commitment

Allows for creative solutions to emerge

Everyone feels heard and valued

Opposing concepts are considered

Environmental Health Survey

- Turning point for the process
- Adapted from Northern Kentucky's
- Aimed at finding out concerns/perceptions
  - What matters to the community
- Stakeholder and community-wide components

Survey Results

COMBINED "TOP FIVE" by percentage:

1. **Outdoor Air Quality** **68.6 %**
2. **Safe Drinking Water** **60.3 %**
3. **Surface Water Quality** **54.6 %**
4. **Loss of Rural Land** **42.9 %**
5. **Ground Water Quality** **33 %**

Grant Funds

- $20,000 grant awarded
- National Association of County and City Health Officials (NACCHO)
- Centers for Disease Control and Prevention (CDC)
- One of eight demonstration sites in the county
- Grant funds allocated by issue

Use of Funds – Mini-Grants

- Subgroups brainstormed ideas
- Subgroup representatives met and developed a recommendation
- Funds allocated through a "mini-grant" process for 3 categories:
  - Community education
  - Data collection/analysis
  - Facilitation services

EHAT Participants

- Health department
- Health council
- Chamber of commerce
- Local hospital
- City governments
- County/city planning
- Local industries
- County/city schools
- Local college
- Neighborhood assoc.
- Local environmental organizations
- TVA, TDEC, NPS
- Concerned residents!

AIR QUALITY PROFILE

OUTDOOR AIR QUALITY

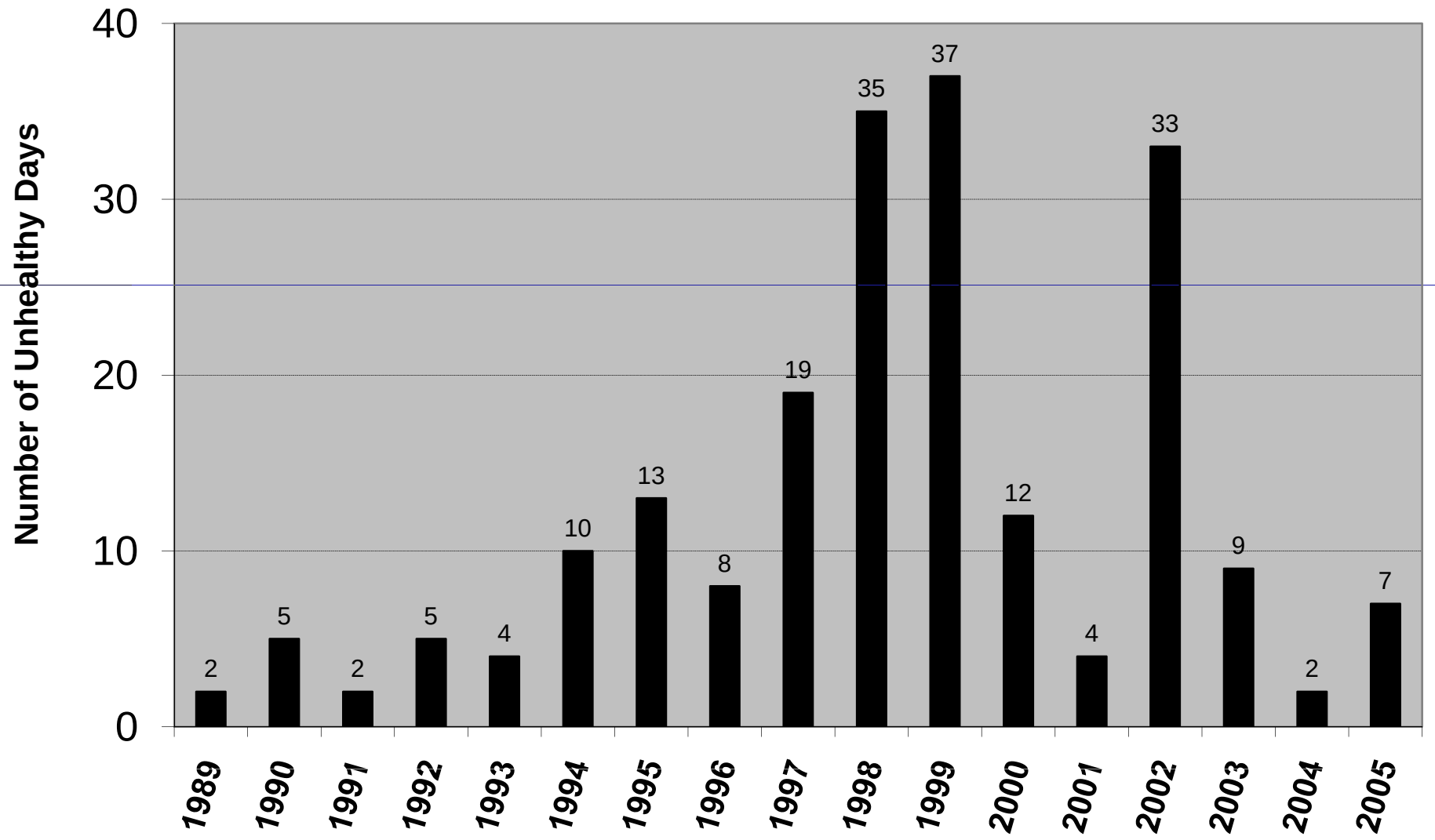
The Issues

Ground-level Ozone

- Inflammation and irritation of the respiratory tract
- Can affect lung function and worsen asthma attacks
- Increase susceptibility of the lungs to infections, allergens and other air pollutants
- Designated non-attainment on 4/15/04

Number of Unhealthy Ozone Days or "Exceedances" at Look Rock, TN

(Maximum daily 8-hour average > 84 ppb)

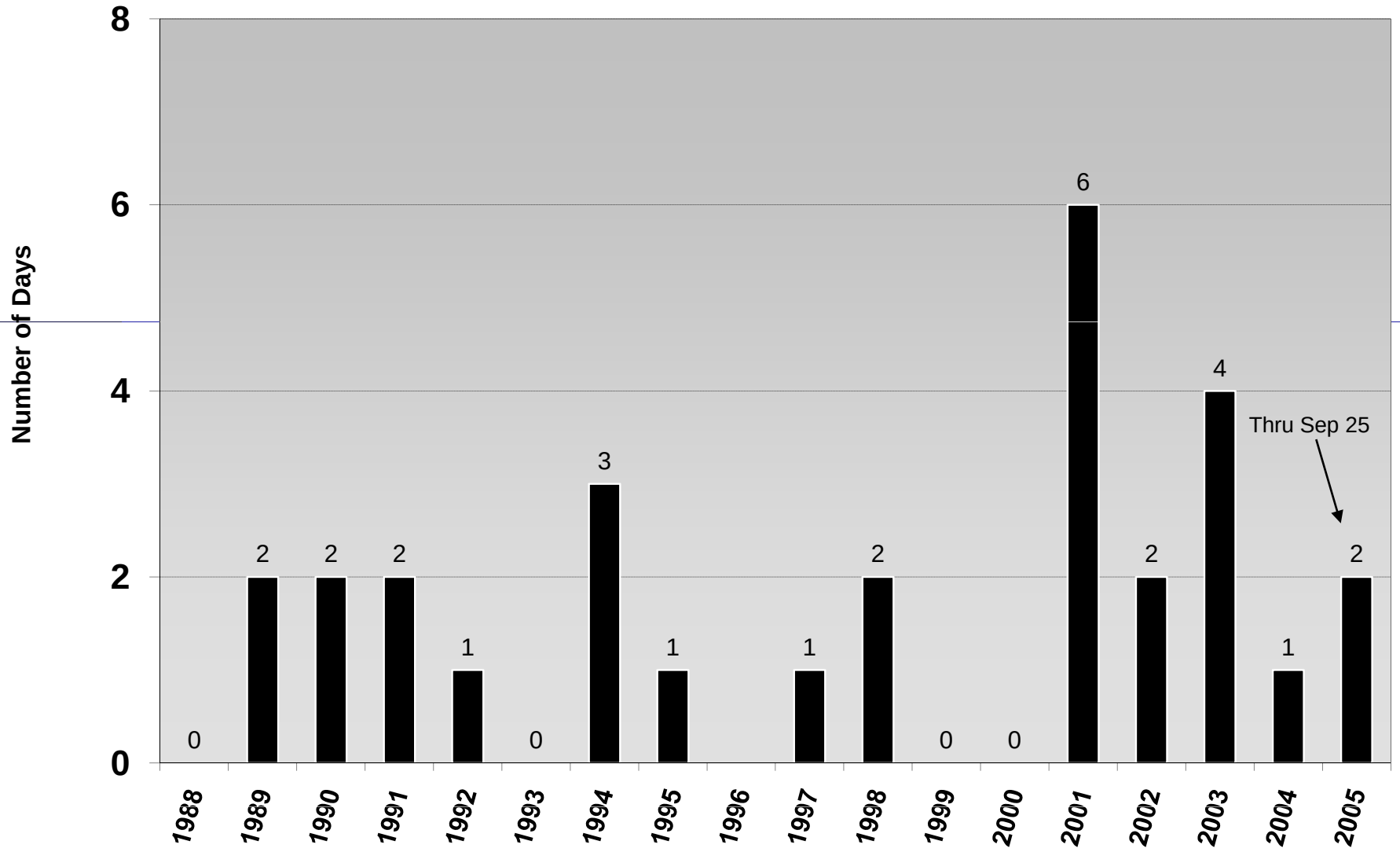


The Issues (Cont'd)

Particulate Matter, 2.5 microns (PM 2.5)

- Increased risk of hospital and ER visits for older adults and people with heart and lung disease
- Can aggravate congestive heart failure and coronary artery disease
- Can aggravate asthma and bronchitis
- Designated non-attainment on 12/17/04

Number of Days the Average Daily PM2.5 is > 40 ug/m3 at Look Rock, TN



Air Quality Standards

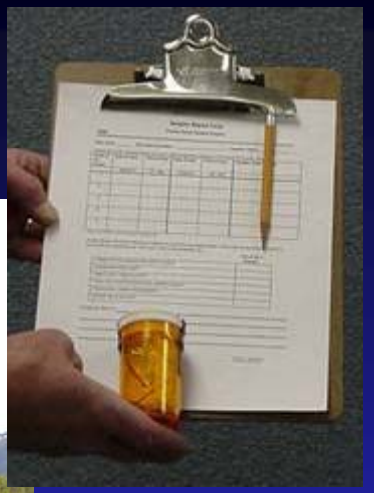
From the EPA's National Ambient Air Quality Standards (NAAQS)

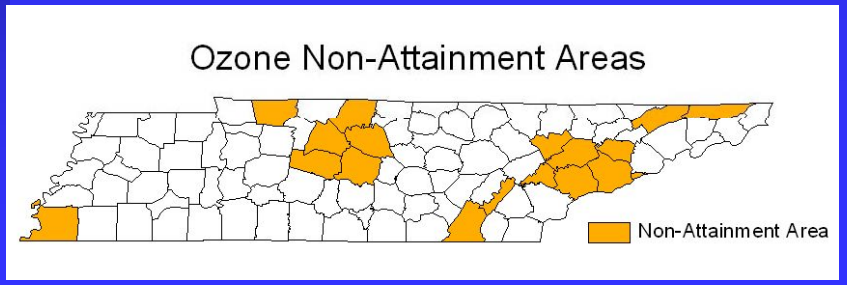
POLLUTANT	STANDARD	AVERAGING TIMES
Ozone	0.08 ppm	8-hour
Particulate Matter 2.5	$65 \mu g/m^3$	24-hour

2004 Passive Ozone Monitoring

- Funded by Demo Site Grant from CDC & NACCHO ~$6,000
- Employed Ogawa Passive Ozone Samplers, previously used by NPS
- 6 sites across the county, 1 sampler next to continuous analyzer at Look Rock
- 18-week sampling period: May 11-Sep. 14

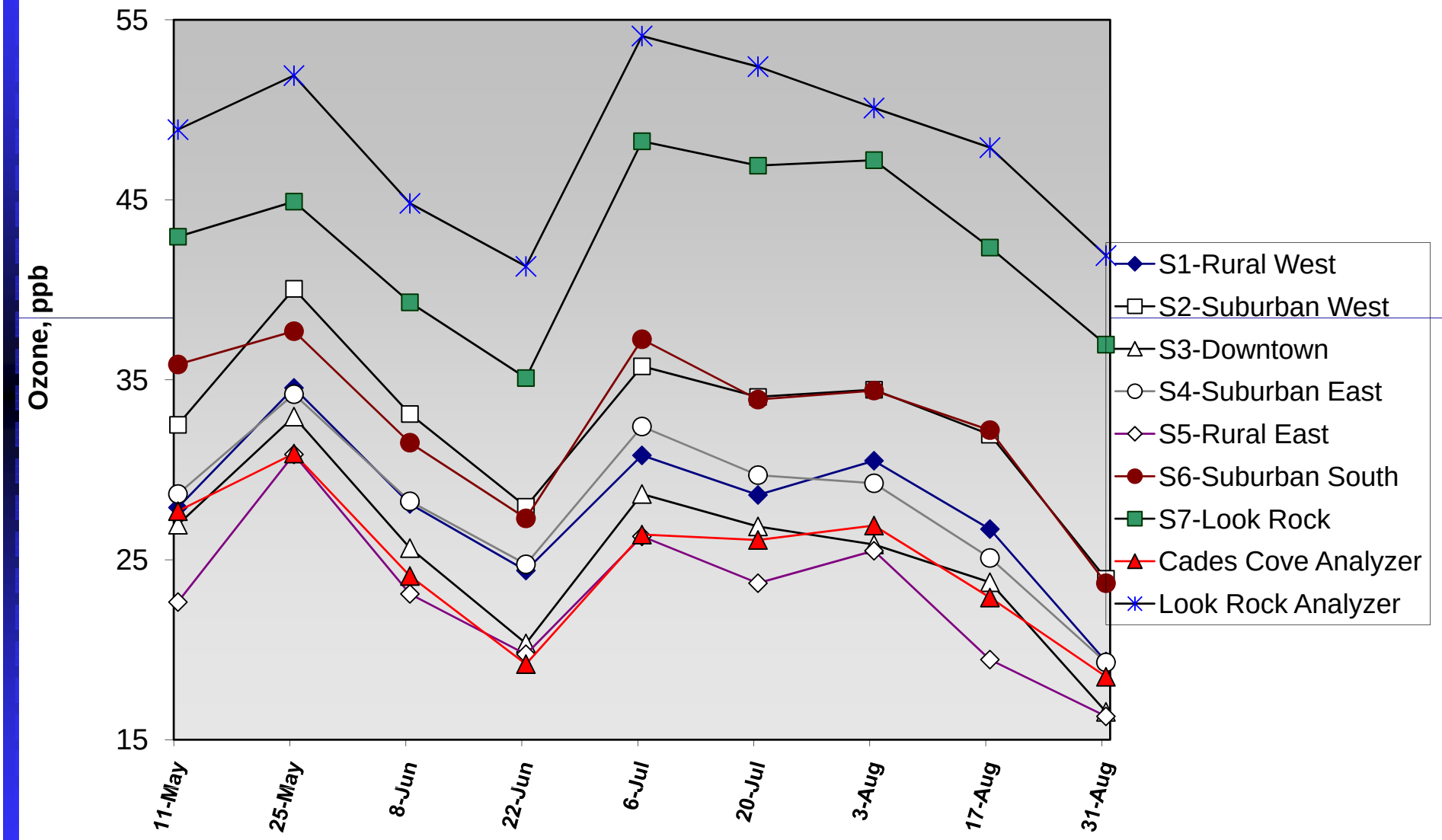
Passive Ozone Monitoring

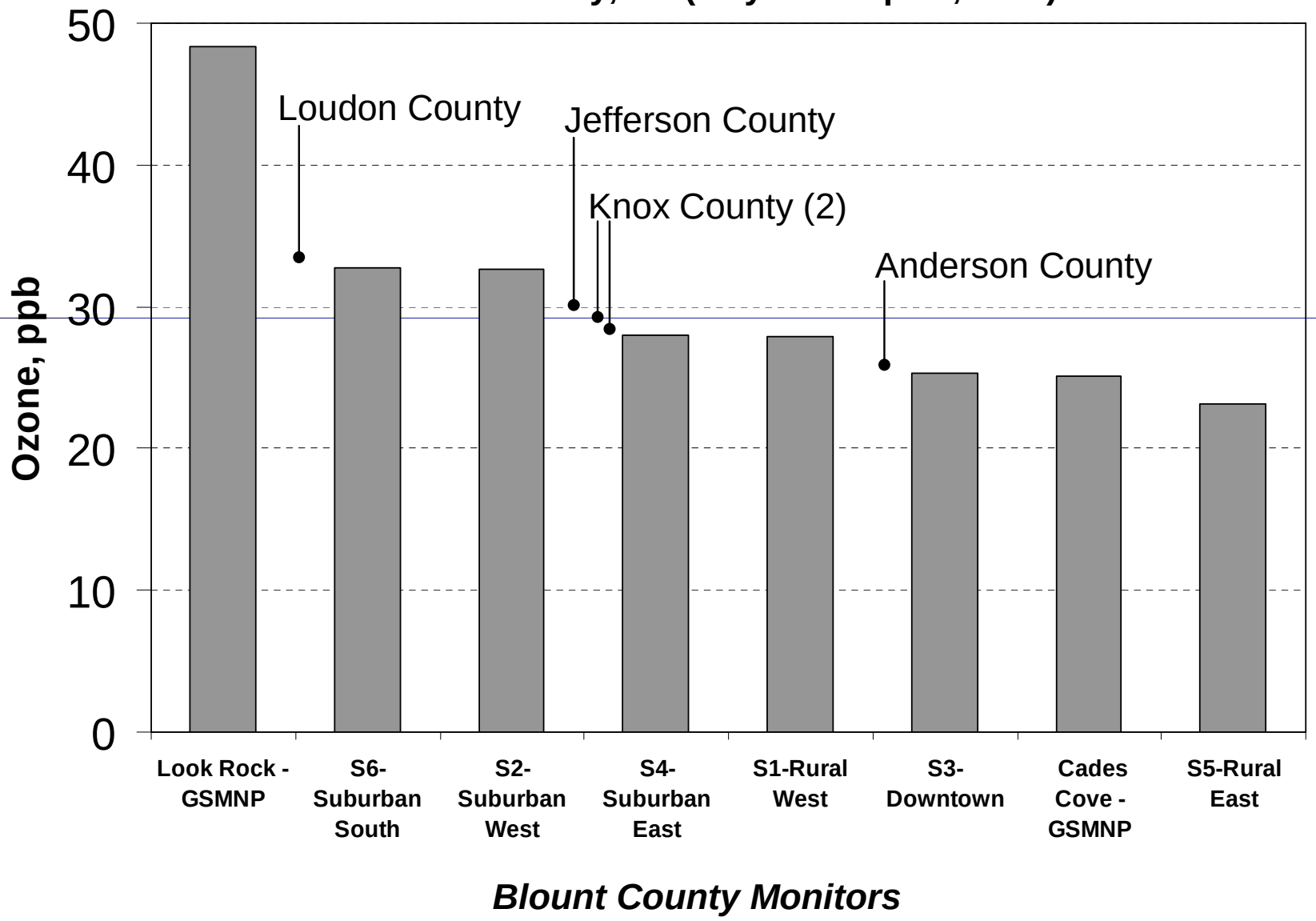




Bi-Weekly Passive Ozone Concentrations

Blount County Ozone Study (May 11-Sep 14, 2004)




Average Ozone Concentrations
Blount County, TN (May 11 - Sep 14, 2004)
Ozone, ppb
50
40
30
20
10
0
Loudon County
Jefferson County
Knox County (2)
Anderson County
Look Rock - GSMNP
S6- Suburban South
S2- Suburban West
S4- Suburban East
S1-Rural West
S3- Downtown
Cades Cove - GSMNP
S5-Rural East
Blount County Monitors

2005 Passive Ozone Monitoring

- Funded locally by Blount Memorial Hospital, the Chamber of Commerce, ALCOA, DENSO and local government
- Replication of the previous year's project
- NPS donated hardware for set up again
- Community volunteers continue to host and monitor passive samplers

Air Quality Indicators

1. a) Number of unhealthy days for ground-level ozone
   b) Measured 8-hour avg. ozone levels at Look Rock and Knoxville
2. a) Number of days with a 24-hour PM 2.5 concentration equal to or above 40µg/m3
   b) Measure 3-year annual avg. PM 2.5 levels at Look Rock, Maryville and Knoxville

Air Quality Indicators (Cont'd)

3. Number of Emergency Room (ER) visits for asthma and chronic obstructive pulmonary disease
4. Number of hospital discharges for asthma and Chronic Obstructive Pulmonary Disease (COPD)

***Calculate % of ER visits & hospital discharges dues tot these conditions

In Conclusion…

- Outdoor Air Quality is a public health issue in Blount County
- Recent trends show improvement
- However, Ozone and PM 2.5 require further attention to protect the public's health

WATER QUALITY PROFILE

SAFE DRINKING WATER

SURFACE WATER QUALITY

GROUND WATER QUALITY

The Potential Issues

Safe Drinking Water

- Possible presence of infectious agents and toxic chemicals
- Human health impacts may include gastrointestinal illness, cancer and birth defects (from DBPs- water disinfectant)
- Reports available from Alcoa and Maryville City water systems

The Potential Issues

Surface Water Quality

- Source of drinking water supply for Alcoa and Maryville water systems
- Recreational uses and areas
- Health effects may include cancer from PCBs
- City water systems conduct a “water intake test” at the point of collection

The Potential Issues

Ground Water Quality

During 1999-2000, 41% of all reported disease outbreaks associated with drinking water were from private wells.

Up to 42% of private wells in the US were found to be contaminated with Coliform bacteria, a good indicator of the presence of other disease-causing microorganisms

The Potential Issues

Ground Water Quality (Cont'd)

- Health concerns include mineral content leading to kidney stones, cancer from radon and gastrointestinal problems
- With little information on this issue and reliable information on the other two, the subgroup's focus became private wells

Tested Private Wells Database

- Funded by Demo Site Grant from CDC & NACCHO ~$6,000
- Project resulted as a collaboration among subgroup members, particularly UT and the county department of environmental health
- Contracted with database developer to create database, using GIS software for mapping applications

Tested Private Wells Database

- Data was obtained from files at the county's department of environmental health
- Database will be maintained and updated by this department, as new wells are tested
- Future application may include selective testing of domestic wells, as directed by further data analysis

Database Information

Total number of wells tested in database: 625

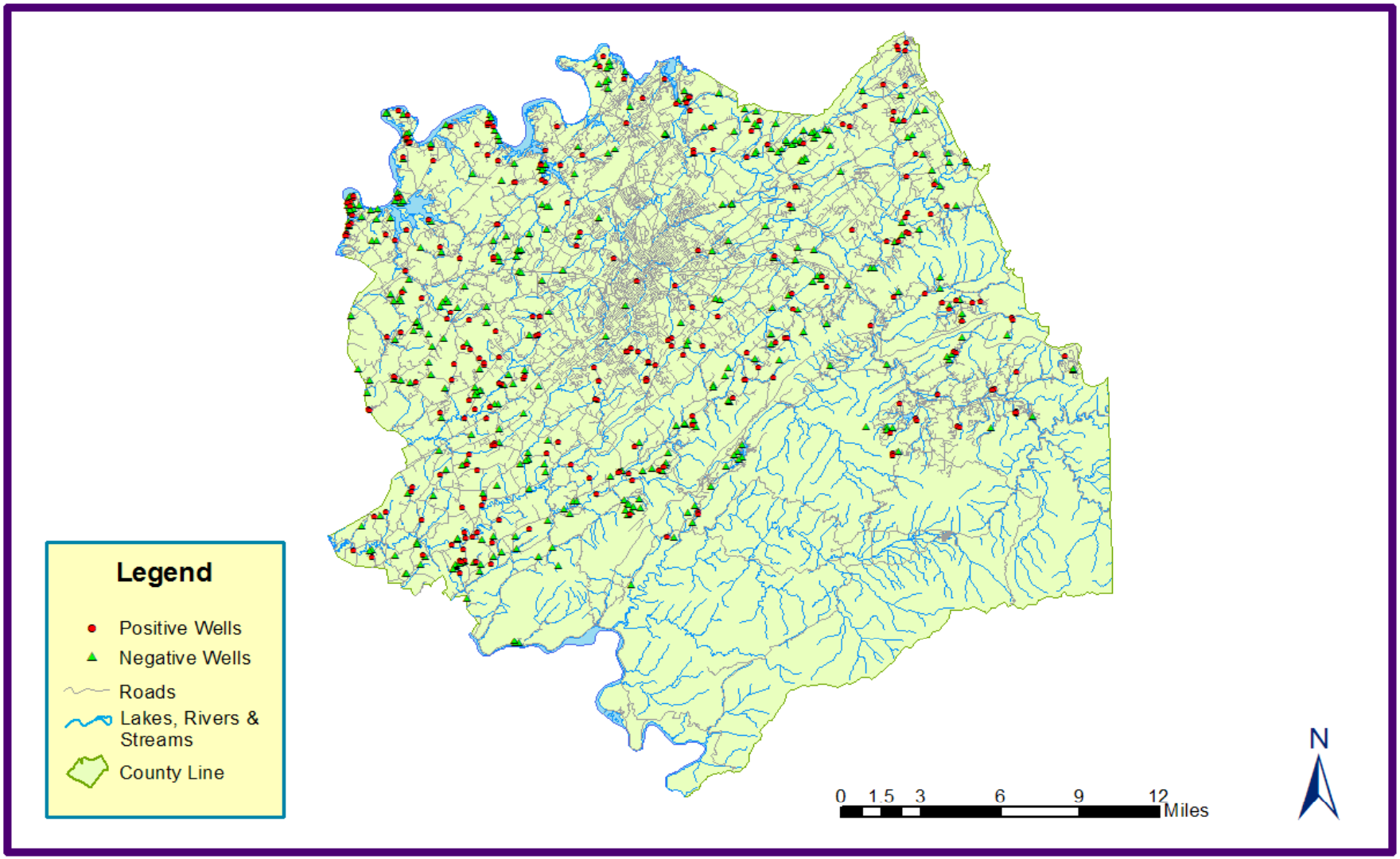
Positive: 256 Negative: 369

Positive Wells by Decade:	
1970's: 2	
1980's: 6	(26.1%)
1990's: 177	(39.3%)
2000-2004: 71	(47.3%)

Negative Wells by Decade:
1980's: 17
1990's: 273
2000-2004: 79

Wells tested *not* in database due to insufficient addresses: 97
positive: 36 negative: 61

Blount County, Tennessee
Wells Tested



Source: Tennessee Valley Authority, Blount County
Date: May 2004
Produced By: Laura Ogle-Graham

Water Quality Indicators

1. Annual number and percent of failing septic systems
2. Annual number and location of tested private wells that are contaminated
3. Annual number of reported spill and discharge incidents

    Includes sanitary sewer overflows

Water Quality Indicators (Cont'd)

4. Current number and location of advisories for a) fish consumption, and b) bodily contact
5. Current stream miles, location and type of impairment of impaired streams
6. Daily level of bacteria present as indicated by the water systems intake test

Findings

- Each year, ~1% (250-260) of all septic systems have a reported surfaced failure
- No streams with bodily contact advisories
- Two water bodies with fishing advisories for PCBs
  - Little River (below Rockford)
  - Fort Loudon Reservoir
- Over 25 impacted water bodies, totaling more than 250 impaired stream miles

More Data…

Overflow days per 100 miles of sewer:

Year	Alcoa	Maryville
2000	22	12.5
2001	11	11.5
2002	24	11.5
2003	19	7.5
2004	13	10

More Data…

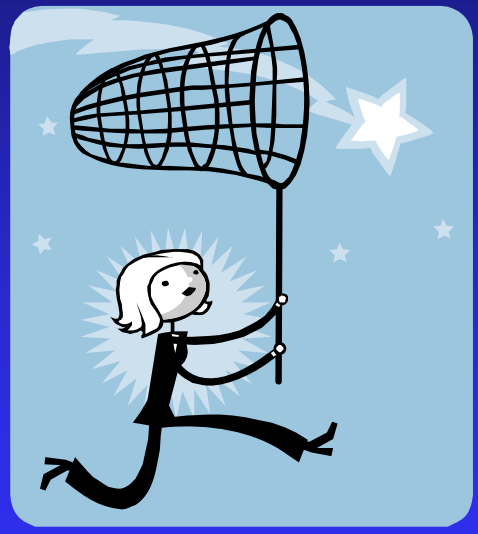
Number of Months that E. coli Bacteria Exceed State Recreational Water Quality Criteria at City of Alcoa's Water Intake by Year .

Year	Geometric mean greater than 126 cfu/100ml	Daily maximum greater than 487 cfu/100ml
2003	0	7
2004	0	8
2005*	0*	5*

•Data reflects the Jan-Jul 2005 period only. cfu= colony forming units

Water Quality Standards

- Standards were developed by the subgroup in relationship to the set of indicators
- Some standards are "desired states" and related data may not be available
- Refer to profile document for complete list



Summary

Safe drinking water in Blount County is provided by the City of Alcoa and the City of Maryville water treatment plants. Reports are available.

There are still questions in looking at surface water. A large number of streams in the county are "impacted," raising human health concerns.

Data gathered points to the need to educate private well owners on well safety and maintenance, and on taking appropriate action to remediate any problems found when testing their water.

What are the Next Steps?

Rank and prioritize items for action

Formulate action and evaluation plans

– YOU ARE INVITED!!!

Validate plans in community

Present plans to decision makers

Follow-up with implementation