Treasure Valley Air Quality
Ozone

• The Clean Air Act requires EPA to establish National Ambient Air Quality Standards to protect public health and welfare and to regulate emissions of hazardous air pollutants.
• Ozone is a regulated (criteria) pollutant.
• Ozone is a colorless, odorless, reactive gas found naturally in the upper atmosphere.
• Ozone is also found near the earth’s surface, where nitrogen oxides (NOx) and volatile organic compounds (VOCs) react in the presence of sunlight to form ozone.

• NOx sources - motor vehicles, construction equipment, industry
• VOC sources – vegetation, solvents, motor vehicles
2008 Treasure Valley NOX - Category Breakout

- Vehicles: 49.5%
- Construction Equip.: 10.6%
- Industry: 10.3%
- Fuel Combustion: 7.3%
- Agricultural Equip.: 6.9%
- Commercial Equip.: 4.4%
- Locomotives: 3.9%
- Vegetation: 2.9%
- Residential Wood Burning: 1.5%
- Aircraft: 1.3%
- Lawn & Garden: 1.2%
- Other: 0.3%
Public Health
Inhaling Ground-Level Ozone

• Ozone can irritate and damage lung tissue, and can aggravate asthma and other respiratory diseases.

• It most affects the young, elderly, the active, and people with respiratory disease.

• Research shows that for every 10 ppb the daily ozone level goes up, the death rate over the next three days goes up about 0.85 percent.
Agricultural Effects from Ozone

Affects the plants ability to conduct photosynthesis.

At ozone levels that are consistent with what we regularly see in the Treasure Valley, studies have shown a 10-20% reduction in crop yields.

- Wheat
- Alfalfa
- Onions
- Grapes
Typical Ozone Day
Ozone, NOx, VOC Interaction
Exceedance Vs. Violation

- Exceedance of a standard can occur without violating the NAAQS.
- The standards for O3, and PM$_{10}$ and PM$_{2.5}$ all consider multiple days, so it takes more than one day of exceedance for a violation.
- For Ozone, we basically get 3 freebies each season.

Recent Exceedances:
- Ozone Aug. 7 and 9
- PM$_{10}$ Aug. 5 and 6
- PM$_{2.5}$ TBD
Fires and Ozone

• Fires release VOCs and generate both NOx and PM.

• Smoke from fires can result in an increase, or a decrease in ozone levels depending on height of a smoke plume.
  – Smoke can filter sunlight, reducing the ozone reaction
  – Smoke can add precursors to fuel the ozone reaction

• Exceedances due to smoke impacts that cause a violation of the NAAQS can potentially be exempted as an “exceptional event.”

• Exceptional Event - ...an event that affects air quality, is not reasonably controllable or preventable, is caused by...a natural event...

• The rule allows air quality data used in making regulatory decisions, to be, in some cases, excluded from calculations in determining NAAQS compliance. The burden of proof is high.
Treasure Valley Ozone Design Value* vs. Standard

EPA science advisory board recommended range for 8-hr ozone standard

*2011 Data is Unofficial
What if We Violate the NAAQS?

• Nonattainment Designation - means the area has violated a federal health-based standard for air quality, this means people’s health is at risk.

• When an area is designated nonattainment, the CAA requires state and local governments to take steps to reduce the pollutant and regain compliance with the standard. These steps (control measures) must be permanent and enforceable.

• The State would solicit the participation of elected leaders, regulated businesses, and the general public, to evaluate ozone reduction strategies.

• The strategies must be detailed in technically supported and legally enforceable plans known as State Implementation Plans (SIPs). SIPs are federally enforceable.

• Transportation Conformity requirements would be extended farther into future.

• Economic impacts.
Economic Impacts - Permits

During nonattainment, more stringent requirements and more expensive control equipment for industry may be required. For new or modified major sources, State-of-the-Art emission controls would be required ($$).

Existing business expansions and new business air quality permits become more difficult to issue because offsets or other reductions would need to be found in the area.

- In a “marginal” area, offsets of precursors at a 1.1 to 1 ratio are required. This means that a new or modified facility would be required to offset any new emissions by this ratio.

With a new standard being promulgated, the rules of the game may change. The permitting requirements may change.
What is Being Done?
Ozone Reduction Measures Already Implemented

• Stage 1 vapor recovery at gas stations
• Ordinances for local air quality
  – Such as burn bans based on AQI
• Vehicle emission testing in Ada & Canyon Counties
• DEQ air quality permitting program
• Outreach and education
• Local efforts – governments and individuals
What else can be done?

Treasure Valley Air Quality Plan Recommendations

• Enhance public education.
• Adopt uniform ordinances for local air quality problems.
• Commit to integrate regional land-use and transportation planning (*Communities in Motion*) into local plans and implement such plans.
• Improve regional air quality data and coordination.
Wasatch Front Nonattainment Case

Tooele County has a PM$_{2.5}$ monitor that showed they were compliant with the PM$_{2.5}$ NAAQS. But because they were found to contribute to the air quality problem along the Wasatch Front, they were included in the nonattainment area. The designation was challenged in court.

A Federal court upheld the nonattainment designation for Tooele and Box Elder Counties stating that information "demonstrates a linkage between the areas, suggesting that the two counties contribute to nearby nonattainment status."

EPA Definition – “any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national...ambient air quality standard... “
Questions?