

**Oregon Department of Transportation
Survey on the Use of Automotive Gasoline in Aviation**

Formulae and Calculations of Statewide Mogas Use

$$\left[\frac{\text{Number of Respondents who use mogas}}{\text{sample size}} = \text{Percent of sample who use mogas} \right]$$

$$\frac{146}{838} = 17.4$$

$$\left[\begin{array}{l} \text{For each respondent who used mogas :} \\ \text{(Hours of operation) X (gallons per hour) X (\% mogas) = Total use of mogas by sample} \end{array} \right]$$

$$= 59,620.6$$

$$\left[\begin{array}{l} \frac{\text{Total use of Mogas by sample}}{\text{Number of Respondents using mogas who gave us data}} = \\ \text{Average mogas use in sample per respondent who used mogas} \end{array} \right]$$

$$\frac{59,620.6}{141} = 422.8$$

$$\left[(\% \text{ of sample who use mogas}) \times (\text{number in population}) = \text{estimate of number in population who use mogas} \right]$$

$$17.4 \times 6,156 = 1,071$$

$$\left[\begin{array}{l} (\text{Estimate of population who use mogas}) \times (\text{average use in sample}) = \\ \text{estimate of total mogas use in population} \end{array} \right]$$

$$1071 \times 422.8 = 453,463$$

$$\left[\text{Estimate of total use in population} \pm .0414 = 99\% \text{ confidence interval range of mogas use in the population} \right]$$

$$434,690 \leftrightarrow 453,463 \leftrightarrow 472,237$$

Thus we can be 99% confident that the amount of automotive gasoline used by the population in 1998 was between 434,690 gallons and 472,237 gallons.