

Geographic Allocation in Draft NONROAD2002

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Geographic Allocation: *Overview*

- Geographic allocation of engine populations accounts for how many and what types of equipment are being used in a certain location
 - Default data allocates to the county level
- National populations allocated outside NONROAD to county level using county-specific surrogate indicators
- County populations are then aggregated to produce default state population input files

Geographic Allocation: *Overview*

- NONROAD allocates state-level default populations (N_{state}) for each equipment type to the county level using the surrogate indicators (A)

$$N_{\text{county}} = N_{\text{state}} \left(\frac{A_{\text{county}}}{A_{\text{state}}} \right)$$

- Allocating equipment populations represents geographic differences in total population·activity
 - NONROAD uses a single default activity (hours/year) for each equipment type for all of U.S.

Geographic Allocation: *Overview*

- Users may specify local state/county surrogates or substitute local population data
 - For broad equipment categories or for individual equipment types
 - Local activity data needs to be used with local population data in order to avoid strange results
- Allocation surrogates based on publicly available data as much as possible
 - U.S. Census population/housing, business, and geographic data.
 - Exception for construction which was based on proprietary data from F.W. Dodge, Inc.

Geographic Allocation: *Construction Equipment*

- Allocated on basis of weighted-average dollar value of different types of construction activity
 - Road and infrastructure construction account for much larger share of actual equipment activity per dollar valuation than residential and commercial construction
 - Based on 1998 survey of construction in Houston (for purposes of SIP)
 - Compares well to 1993 study of construction
 - Equipment activity based on fuel cost per project
 - Dollar valuation derived from 1987 Census data

Geographic Allocation: *Snowblowers*

- Two allocation surrogates used to derive state population estimates
 - Residential: single and duplex housing
 - Commercial: number of employees in landscaping/horticultural services
- Apply surrogates in states with minimum snowfall
 - NOAA long-term average snowfall map combined with U.S. counties map
 - 15 inches minimum snowfall

Geographic Allocation: *Snowmobiles*

- State populations derived from registration data
 - Oakridge National Laboratory (ORNL) study
 - ORNL also attempted to account for unregistered snowmobiles
- Allocation from state to county based on minimum annual average snowfall of 40 inches
 - Average snowfall data from NOAA
 - Inverse human population used to allocate snowmobiles to counties
 - Majority allocated to rural counties
 - Except Alaska (which is almost all rural), for which human population is used directly

Geographic Allocation: *Recreational Marine*

- Nation-State Allocation: population allocated on basis of estimated 1992 gasoline use
 - Results from ORNL Non-highway Gasoline Use Estimator Model
- State-County Allocation: Water surface area
 - Adjustments to water surface area allocation create two separate allocation surrogates for inboards and outboards/PWCs
 - Reflects assumption that inboards operate up to 2 miles offshore; outboards and PWCs operate up to a quarter mile from shore
 - Results in more inboard boats allocated to coastal counties and outboards and PWCs allocated to inland bodies of water