

## Statewide Solid Waste Plan Assessment Survey: Comparison between Southwest Alaska Region and the Remainder of the State for Self-Reports Regarding a Number of Solid Waste Planning Characteristics

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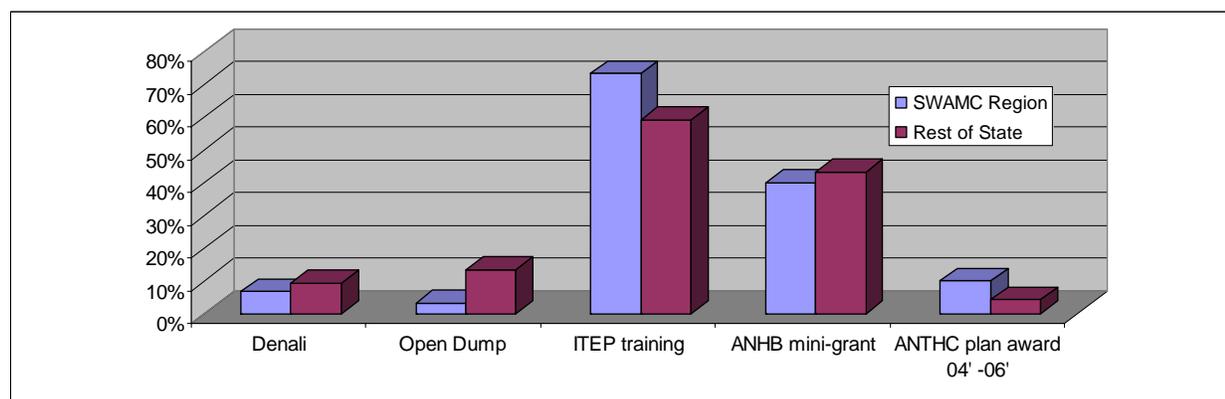
The Alaska Native Tribal Health Consortium funded a project during the Spring and Summer of 2007 to 1) Determine the number of Tribal communities possessing solid waste management (SWM) plans, 2) Examine the question of whether plans are useful to Rural Alaska Communities in addressing their overall solid waste management (SWM) situations, and 3) Begin to delineate which aspects of the planning process, if any, might be helpful in improving solid waste situations.

A report for the full state was completed in November 2007 (available online at [http://zender-engr.net/plan\\_report.htm](http://zender-engr.net/plan_report.htm)). This short paper is the first to use the survey data to look at regional differences. It compares responses from SWAMC communities with the remainder of the State for selected questions to examine whether regional differences are significant, and to extract information that may be of use in Southwest regional and individual community solid waste efforts.

### Response Analysis and Respondent Profile

An instrument meeting National Institute of Health standards was developed and provided to Alaska Tribes via a variety of methods. Solicitation was performed initially to a Tribal contact enquiring as to the best person in the community to answer questions concerning their solid waste plan. Response to this survey was high as well as generally geographically- and SWM situationally- representative. Unadjusted response rates of 64.6% and 57.7% were achieved for the State as a whole, and the Southwest Municipal Conference (SWAMC) communities, respectively. Thirty of 52 SWAMC communities responded to the survey, and an additional 118 communities responded in the rest of the State. The adjusted response rate for SWAMC communities was 63.8%, with 5 villages where contact was not established during the 6 month survey period.

State-wide, 88% of the 148 respondents were Tribally-employed, with 76.7% of the 30 SWAMC respondents Tribally-employed. Over 90% of Tribal respondents were funded under the Indian General Assistance Program, USEPA, representing the community environmental program. See the full Report for Survey protocols and response analysis.



**Figure 1** Prevalence of solid waste specific grant awards and/or training participation in past 5 years for responding communities, as reported by funding agency.

### Comparative analysis between SWAMC responses and the rest of the State

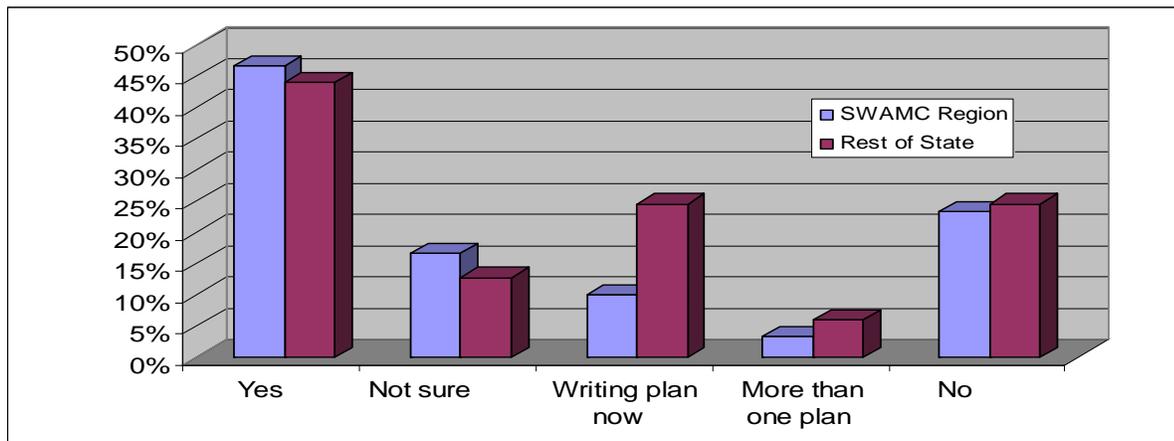
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Comparative descriptive statistics for selected questions are graphed in Figures 1 through 16. Figure 1 statistics on various solid waste management funding and resource interventions were obtained from the funding agency. Figures 2 through 16 are self-reports and each Figure represents a single question in the survey. Open-ended comments were allowed in particular questions are represented by the response “other”. For questions related solely to a community’s plan, only communities with plans were asked to respond (Figures 2-11, and 16. Of the 30 SWAMC respondents, 23 had plans, and of the 118 responding communities in the rest of the state, 89 had plans or were writing one.

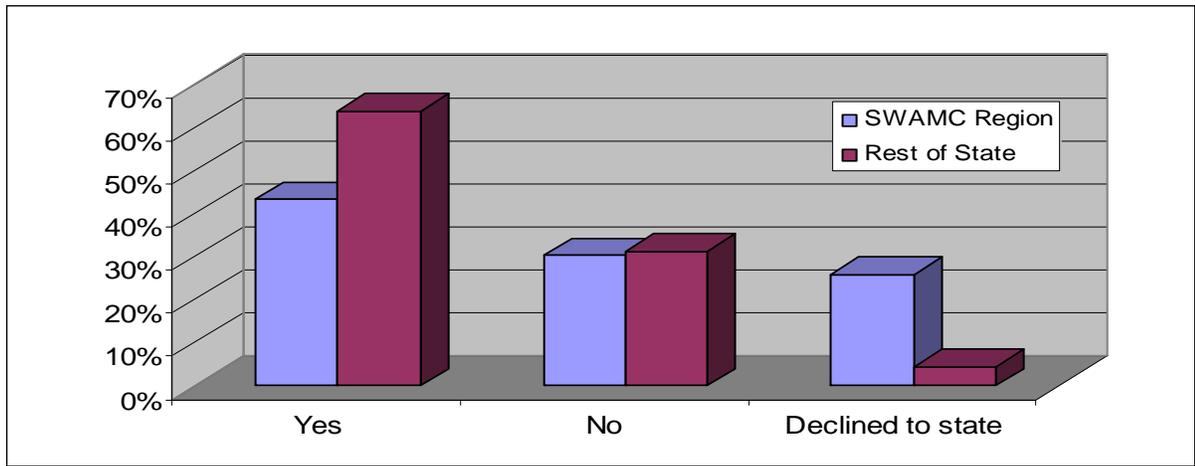
For questions represented in Figures 2, 3, 5, 6, 9, 13, and 15, Chi-square tests were performed to examine whether responses could be considered statistically different between the SWAMC region and the rest of the State. P-values are provided in the caption title. While a robust response rate was achieved for SWAMC communities to indicate general trend and values for the region, significant differences with the State were not found for any of the questions, even when collapsing responses where possible, in part due to the still relatively low sample number. Note, provide p-values are for collapsed responses where collapsing was performed. Tests could not be reasonably performed for the remaining questions.

Logistic regression was used to examine for correlations between selected SWAMC community responses. Even with collapsing, whether a community possessed a plan was not significantly correlated to whether the community felt its solid waste situation had improved. While not statistically significant, if a SWAMC community helped write a plan, they were 2.5 times more likely (95%CI 0.16, 38.6) to have seen an improvement in their solid waste situation. Community awareness of the plan did not correlate with a positive or negative change in a SWAMC community solid waste situation. There were indications of very slight increased likelihood (< 2%) for an improved solid waste situation for SWAMC communities that either conduct regular solid waste planning and/or use their solid waste plan to make their solid waste decisions, compared to SWAMC communities that do not conduct their planning this way

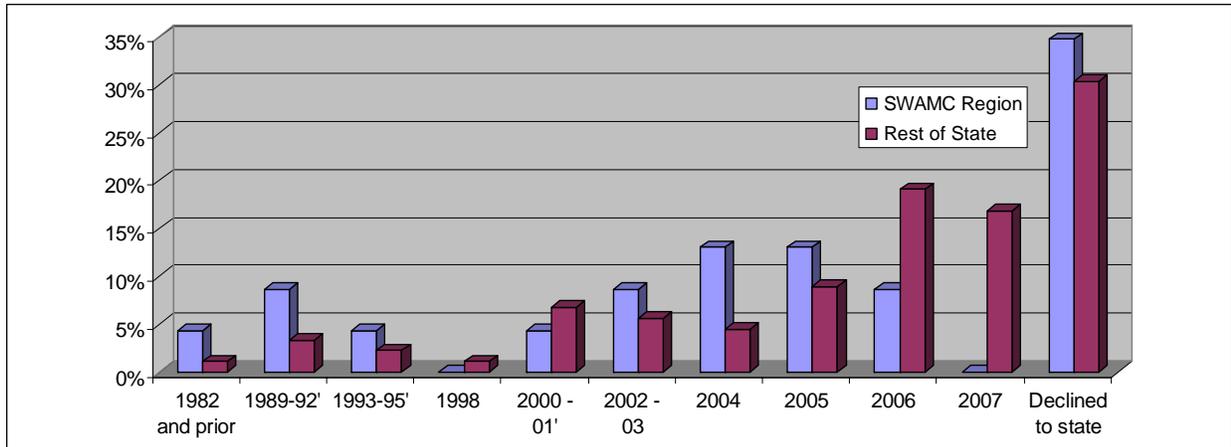
Statewide (including SWAMC communities), Villages with a written plan were 8.6 times more likely to have had improvements ( $p < .001$ ), and Villages writing, or with a written plan were 3.7 times more likely to see their solid waste situation improved ( $p = 0.002$ ). These associations were not identified when examining the SWAMC region only, due to small sample size.



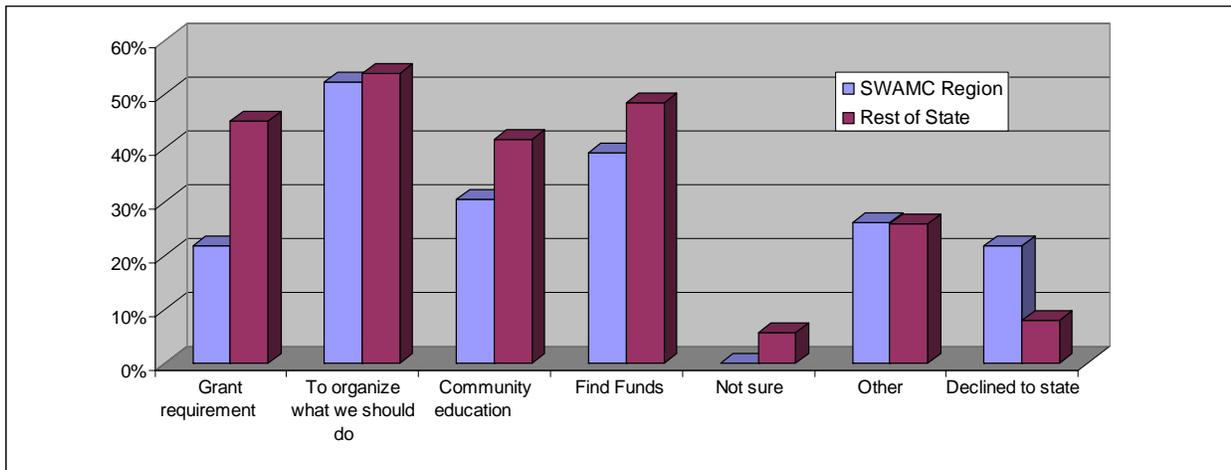
**Figure 2 Possession of a community solid waste plan: YR 2007 close-ended responses from 148 rural Alaska communities associated with Tribes (P-value for comparison between SWAMC and State responses= 0.475, collapsed to yes or writing a plan versus not sure or no).**



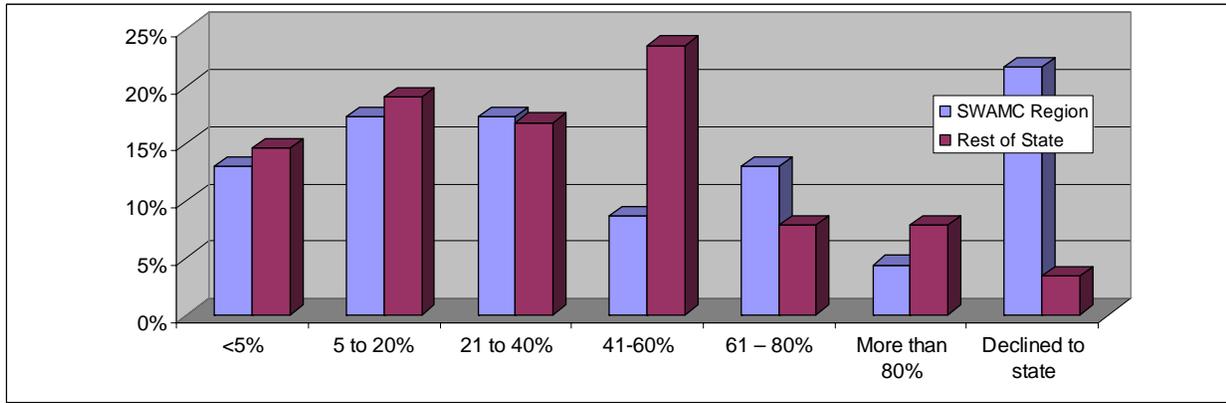
**Figure 3 Familiarity with SWM Plan: Percent of respondents with a plan in the Yr 2007 ANTHC Solid Waste Plan Assessment Report who participated in plan development (p = 0.514)**



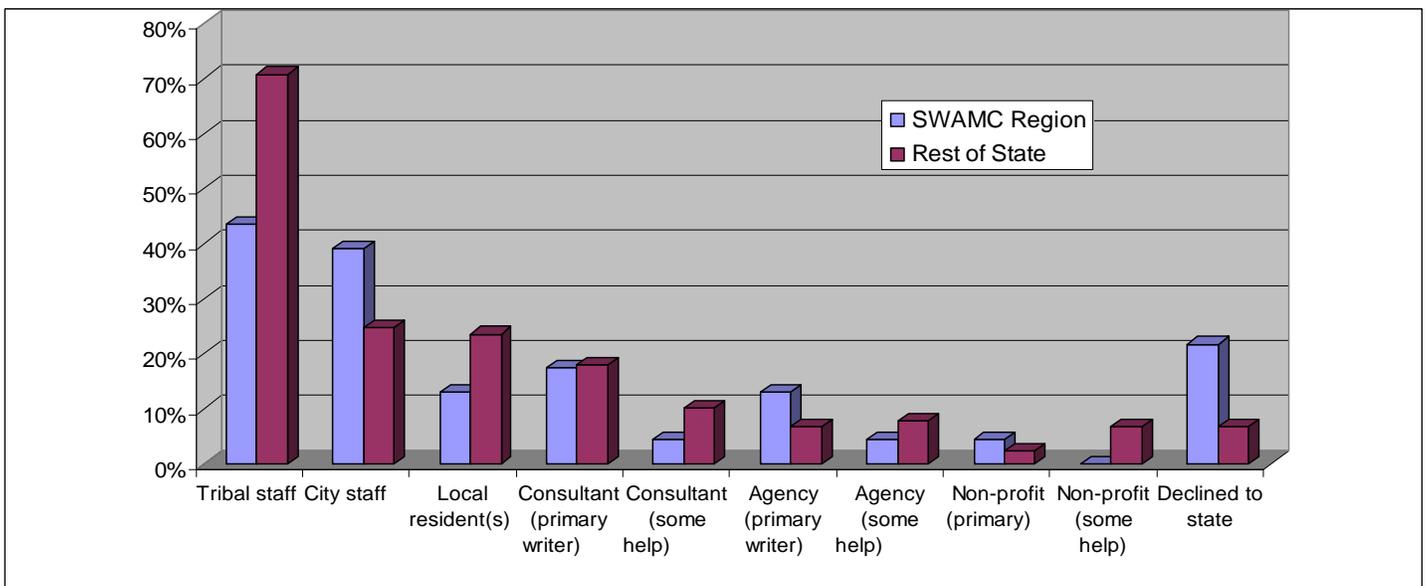
**Figure 4 Age of Existing Solid Waste Plans: Yr 2007 self-reports of 112 rural Alaska communities with plans**



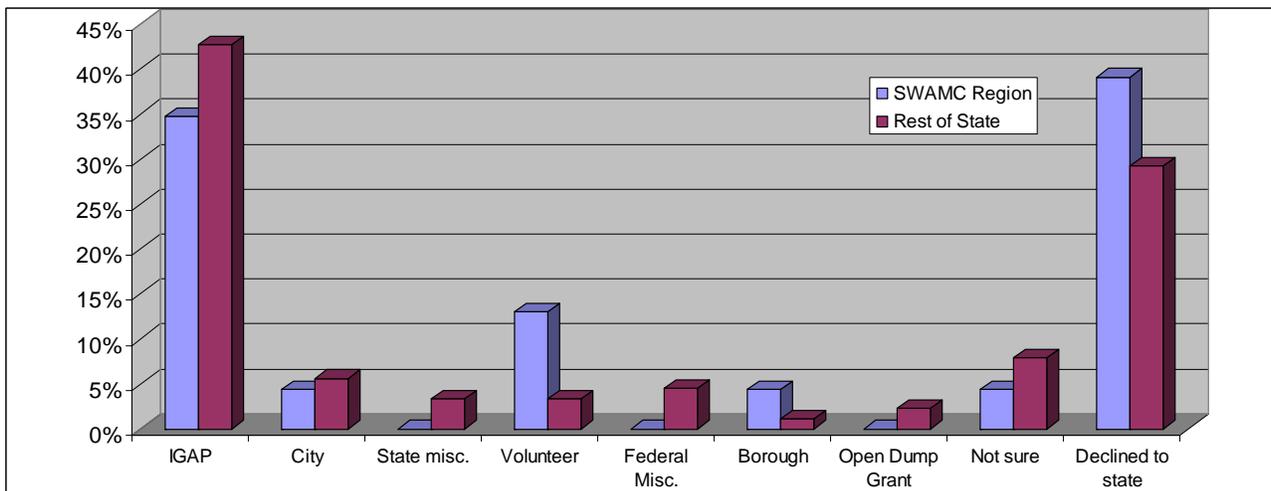
**Figure 5 Plan origination: YR 2007 self-reports for 112 rural Alaska communities on reason(s) why the plan was undertaken (p=0.677)**



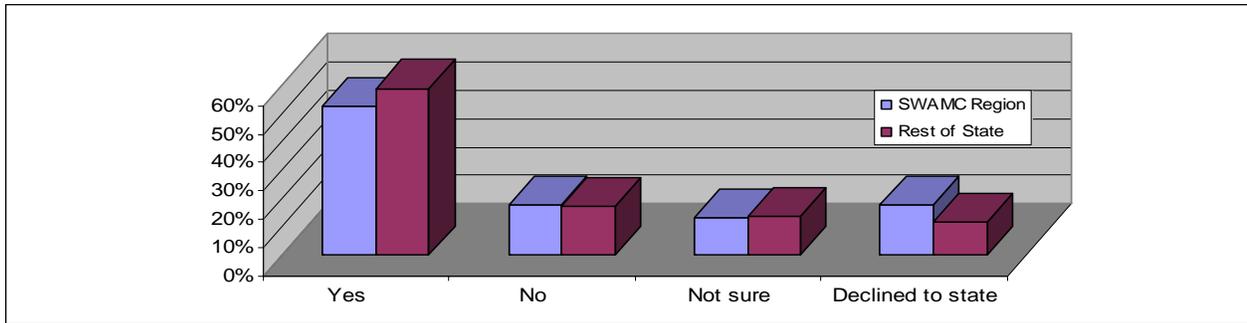
**Figure 6 Level of community awareness of solid waste plans: Yr 2007 self-reports from 112 rural Alaska communities with plans (p = 0.730).**



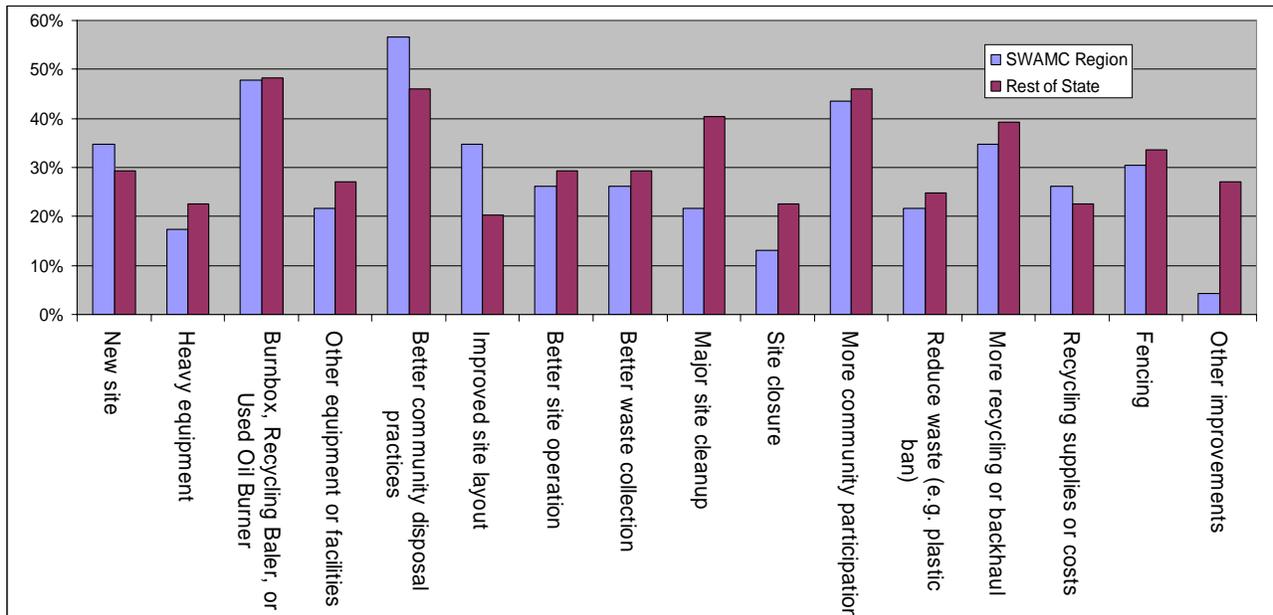
**Figure 7 Authoring of solid waste plans: Yr 2007 self-reports from 112 rural Alaska communities.**



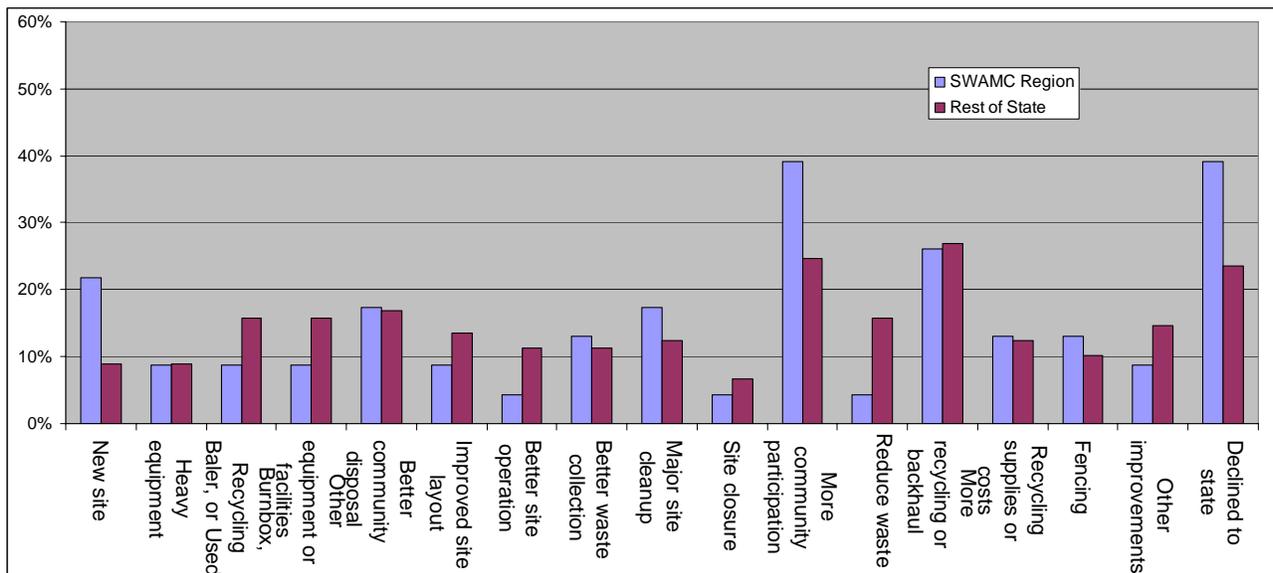
**Figure 8 Solid waste plan funding source for rural Alaska communities associated with Tribes: Yr 2007 self-reports from 112 communities with plans.**



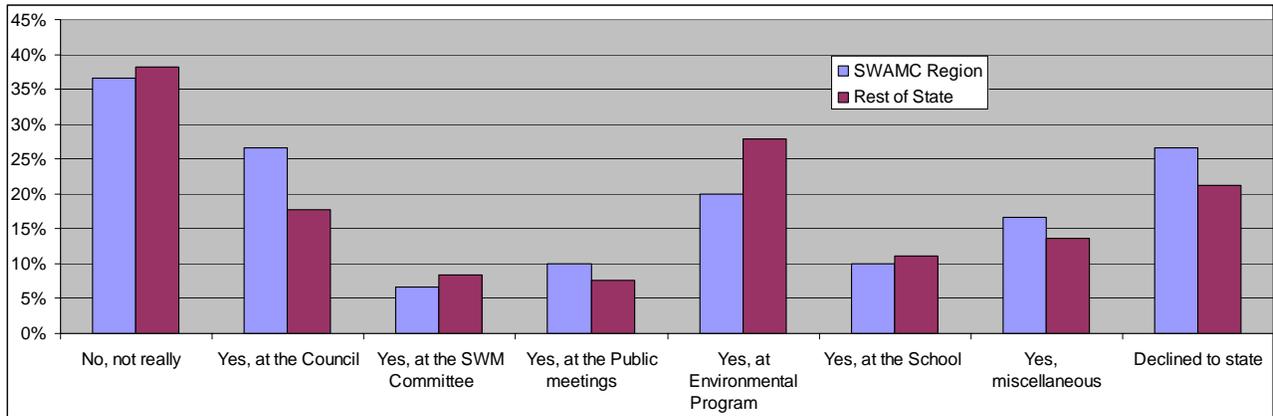
**Figure 9 Occurrence of solid waste infrastructure and/or disposal program improvements between YR 2002-YR 2007: Self reports from 112 communities with plans (p=0.730).**



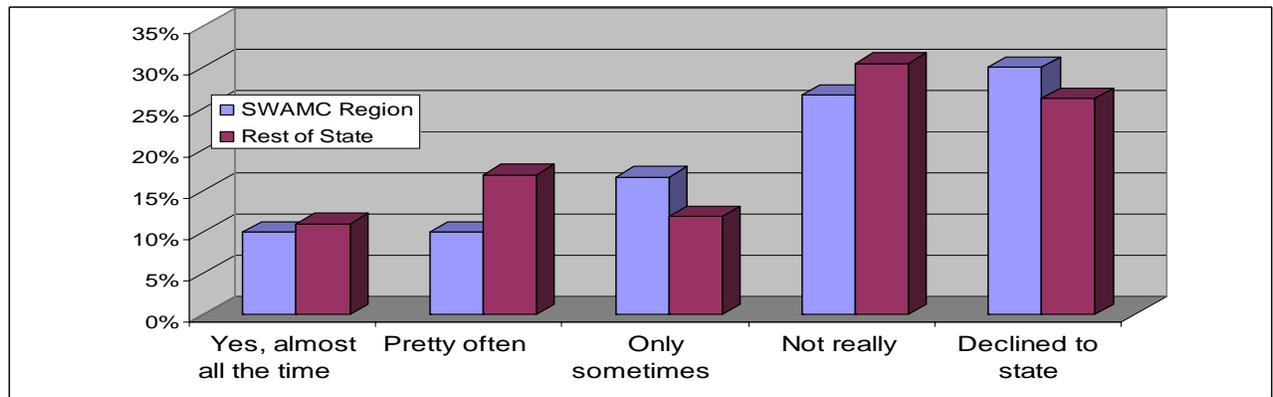
**Figure 10 Solid waste plan usefulness: Infrastructure or practice improvements self-reported as occurring in YR 2002-Yr 2007 that were obtained *with* partial assistance of a plan as self-reported by 112 rural Alaska communities.**



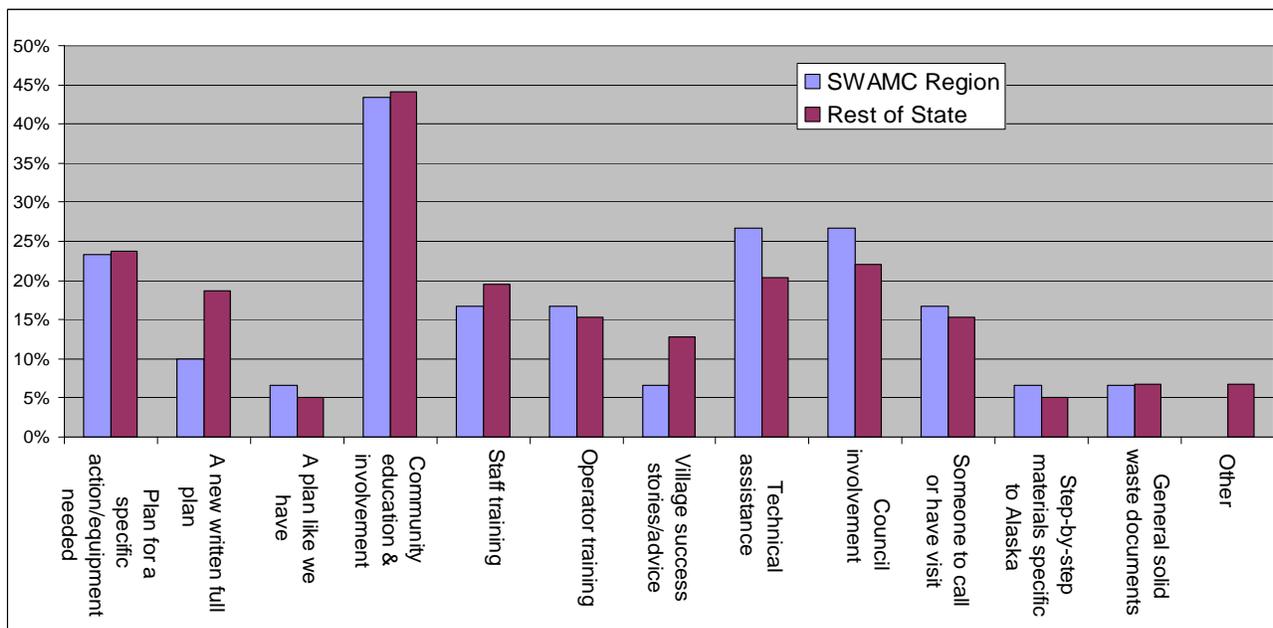
**Figure 11 Solid waste plan usefulness: Infrastructure or practice improvements self-reported as occurring in YR 2002-Yr 2007 that were obtained *without* assistance of a plan as self-reported by 112 rural Alaska communities.**



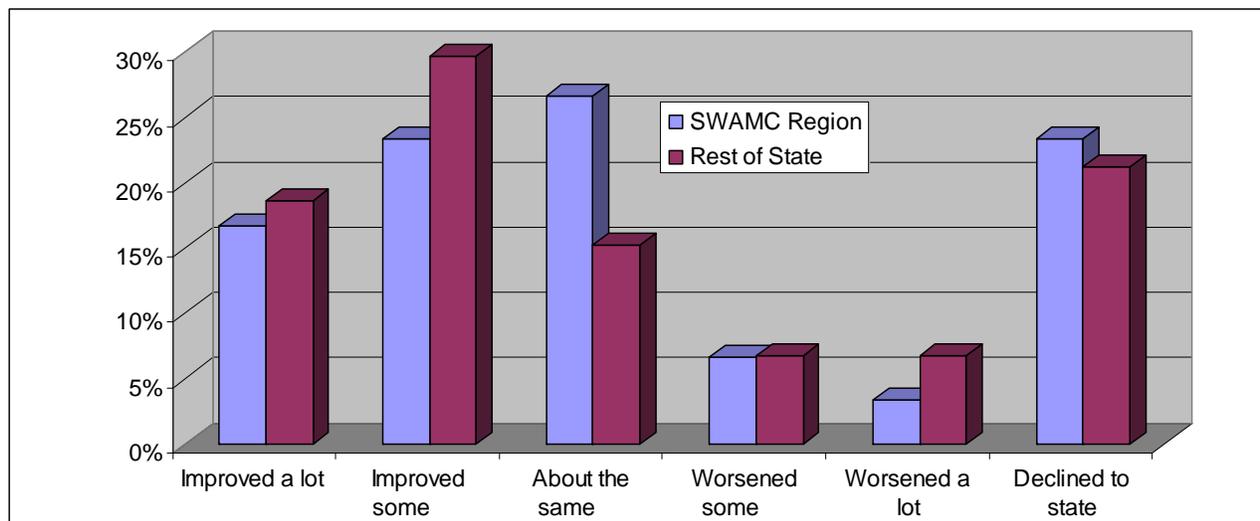
**Figure 12 Occurrence of community solid waste planning: Yr 2007 closed-ended responses for 148 Alaska rural Villages as to whether planning take place regularly (p=0.973, collapsed to yes or no).**



**Figure 13 Use of solid waste plans in decision-making for day-to-day solid waste problem solving: Yr 2007 close-ended responses of 112 rural Alaska communities (p = 0.508).**



**Figure 14 Comparative usefulness of non-grant resources in improving rural Alaska solid waste situations: Yr 2007 close-ended responses from community self-reports (selection limited to two).**



**Figure 15 Self-reported progress in rural Alaska solid waste conditions: YR 2007 close-ended responses from 148 communities on change in their community's solid waste situation since YR 2002 ( $p=0.306$ ).**

### Conclusions

It may not be possible to tease out statistically significant differences (or similarities) between a region and the rest of the State from the ANTHC report data. In the case of SWAMC and the SWM planning questions examined here, the number of communities too few, and it is unclear too whether the vast swath of Alaska represented might present a large cross-section of responses such that they would tend to mimic the varied responses in the rest of the State. It is interesting to note that municipalities appear to play a larger role in writing plans than in the rest of the State (Figure 7), although a chi square test to examine the significance of this circumstance could not be performed. Regardless of whether responses differ significantly from the State as a whole, responses for SWAMC communities might be used to map out a planning strategy. For example, for communities without a plan, the types of infrastructure and program improvements that are best achieved with a plan, and those achievable without a plan can be examined. Timelines and priorities for obtaining and implementing program components can be made more effective.

In fact, the absence of a clearly different planning process and plan situation overall indicates that use (and sharing) of other villages' experiences in planning-related activities from throughout the State makes sense as well. While the specific logistics may differ tremendously between regions (and villages within a region), planning *principles*, such as how to carry out successful planning, how to improve community participation, what plan components might be useful, and which grants may offer best chance at success, appear to be a shared experience. Similarities of isolation, population, cultural values, weather extremes, shared State regulations and funding opportunities, all of which can affect planning, may override differences in exactly what the plans and planning are meant to achieve.

*This study was performed as part of a request made of the Yr 2007-08 Solid Waste Technical Assistance Program, operated under an AK Forum through a USDA Rural Development Grant.*

**Figure 16 Usefulness and inclusion of a number of solid waste plan components: Self reports from 112 rural Alaska communities on whether their plans contained (C) a component, and whether the component has been or would be helpful (H) to their situation**

